

Harnessing Open Business Model Dynamics for Societal Value Creation: A Systems Analysis

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CERTIFICATE OF ORIGINAL AUTHORSHIP

I, Edward Langham, declare that this thesis is submitted in fulfilment of the requirements for the award of Doctor of Sustainable Futures, in the Institute for Sustainable Futures at the University of Technology Sydney.

This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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Abstract

For business to play its role in delivering a rapid transition to a more equitable and sustainable economic system, it must go beyond ‘doing no harm’, and generate meaningful societal value at the core of the business model. More radically sustainable businesses commonly utilise strong multi-stakeholder relationships in the way they create or capture value, while the competitive advantages offered by strategic openness are also well documented. To explore the role of openness at this critical intersection of transformation and scaling, this research examines the dynamics of how societal value is created and maintained in ‘open business models’ (OBMs). These are organisations in which collaborative relationships with a broader partner ecosystem are central to explaining the overall value creation logic (Weiblen, 2016).

The study overlays six deep case studies of energy businesses, selected as representatives of a sector traditionally dominated by powerful vertically integrated incumbents, but experiencing rapid change towards more complex and collaborative business models. Using visual systems analysis tools, including causal loop diagrams, a ‘common model’ was developed that encapsulates causal relationships between variables operating in OBMs that successfully create societal value. The model describes the role of openness in fuelling innovation and navigating value-sharing among stakeholders; alongside organisational design elements of ownership, finance and governance that underpin the maintenance of societal value over time. The research provides empirical evidence to support the contention that when a proposed set of conditions are met, OBMs can act as mechanisms to connect the value propositions of organisations with diverse value creation logics and scales of geographic operation, to achieve richer societal value creation.

In doing so, the research offers the conceptualisation of sustainable OBMs as the dynamic *outcome* of a replicable *process* with a set of key ingredients. This complements the prevailing focus of sustainable business models literature as a set of design patterns to be replicated. A focus on process rather than outcome may help organisations build the foundations that allow sustainable OBM designs to precipitate. While sustainable OBM designs demonstrated huge heterogeneity,

consistent dynamics were able to be described with limited consideration of contextual settings. The main exception here was organisations *transitioning* to sustainability, which required several additional organisational structures and processes as compared to 'born sustainable' organisations.

As the primary advantage of OBMs is greater agility to evolve with market conditions, their operation was unable to be understood using a static lens. The research thus also helps to fill an important research gap by responding to calls for new tools to understand business model change.

List of Terms and Abbreviations

Acronym or shorthand	Full term
B2B	Business-to-Business
B2C	Business-to-Customer (i.e., direct)
BM/BMs	Business Model/s
BM design	Business Model Design
BM dynamics	Business Model Dynamics
BMI	Business Model Innovation
BMfS	Business Models for Sustainability
CLD/CLDs	Causal Loop Diagram/s
CSBM	Collaborative Sustainable Business Model
CSBMing	Collaborative Sustainable Business Modelling
CSR	Corporate Social Responsibility
CSV	Creating Shared Value
CVC	Collaborative Value Creation
GDP	Gross Domestic Product
IP	Intellectual Property
NGO	Non-Government Organisation
NFP	Not-for-profit
OBM/OBMs	Open Business Model/s
OBM variant	Open Business Model variant
OI	Open Innovation
OI 2.0	Open Innovation 2.0
OSI	Open Social Innovation
RDT	Resource Dependence Theory
SBM/SBMs	Sustainable Business Models
SMEs	Small and Medium Enterprises
SOI	Sustainability-Oriented Innovation
SRB	Socially Responsible Business
SVC	Societal Value Creation

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The thesis was primarily written on the lands of the Gadigal people of the Eora Nation. I would like to pay my respects to elders, past and present, as traditional custodians and recognise that this land was never ceded. Over the course of this thesis, it has been positive to witness some progress in integrating indigenous perspectives into the energy transition and innovation processes more broadly. I hope the ideas presented here can further this trend.

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I owe a debt of gratitude to the research participants who gave their time to further knowledge creation in the area of open business models. I hope this work is able to shine a light on the great contributions that they have made to the field and inspires further growth of open ecosystems towards solving some of our greatest societal challenges. While not named for potential issues surrounding confidentiality, this does not lessen their personal and organisational contributions.

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Thesis format statement

This thesis follows a conventional format.

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Preface

In January 2003, I was a fresh-faced environmental science graduate embarking upon a career in clean energy, determined to make a contribution to the pressing challenge of climate change. It was more than 5 years after the Kyoto Protocol was adopted by 192 parties across the globe, and 2 years since the Australian Government legislated its first renewable energy target to gradually increase large-scale renewable energy sources to 4% of electricity supply. Solar power was a niche industry, but was politically popular as governments could financially support voters to generate their own clean energy. A small solar power system to power a portion of a typical residential home cost \$8,000.

I began a job administering the Australian Government solar power rebate, providing a substantial capital subsidy to such installations to bring them within the realm of affordability, for some. The rebate was primarily taken up in remote areas where the cost of extending the grid was prohibitive. The industry accelerated and stagnated as uncertain rebate funding lurched from one political cycle to the next, and installers were either flooded with work or laying-off employees as customers waited to see if rebates would continue.

Fast forward a decade to 2013, and several political cycles and policy mechanisms later: the nation surpassed a million household solar installations, with little slowing Australians' voracious demand for rooftop solar. That same power system from 2003 dropped to less than \$2,500, and at the same time, grid power prices skyrocketed, with air conditioning loads driving power demand on the network higher and higher. For some, it was about doing something tangible for climate action; for many, it was about reducing bills; and for others, it was about 'sticking it to the man'. That is, large energy companies, that in pursuing their own organisational interests, played a key role in sending their bills upwards.

Fast forward again to November 2021, and Australia ticked past the milestone of three million rooftop solar system installations.¹ Records toppled as the entire demand of South Australia was periodically met by renewable energy, including

¹ Vorrath (2021).

periods where more than 90% was met from rooftop solar alone.² That same residential solar system from 2003 now costs less than \$1,000 to install, and the average system was now six to ten times larger than what the original rebate program supported. What was once a sideshow to the main game of ‘cheap baseload’ fossil fuel power, had, along with utility-scale wind and solar, radically impacted the business models of fossil fuel incumbents. This led to a raft of early coal power plant retirements as lower cost renewable generation flooded the market.

On 22 November 2021, Royal Dutch Shell announced its acquisition of energy retailer Powershop, a subsidiary of Australasia’s largest 100% renewable generator Meridian Energy Australia,³ as part of substantial investments in clean energy companies across the globe. The announcement sent waves through the climate advocacy community, and many of its 185,000 customers who were more values-driven scrambled for green retailer alternatives.⁴ Why? Powershop entered the Australian market in 2012 as one of the first genuinely 100% renewable energy retailer options. It broke the prevailing business model link between energy retailing and fossil fuel generation ownership and supported the wave towards more customer-friendly arrangements, such as no lock-in contracts, better access to billing data to give customers more control over their energy spending, and favourable tariffs that encouraged customers to take up solar power. It consistently topped the Green Electricity Guide’s ratings and became the retailer of choice for environmentally oriented consumers. It advocated in support of government policy towards a clean energy transition; a stark distinction from the large incumbent retailers whose public marketing was seemingly at odds with their backroom advocacy in support of their fossil fuel interests. The social licence that Powershop’s value-aligned business model afforded laid the foundation for it to pioneer an open partnership model, in which advocacy groups for climate action recruited customers from their membership bases and received referral payments to help fund the partners’ community activities. Thus, it is perhaps unsurprising that the buyout by a prominent ‘villain’ in the climate story to date – yet to unambiguously chart a course out of fossil fuel incumbency – was received by the Powershop customer base with

² AEMO (2021).

³ Shell (2021).

⁴ Cook (2021).

alarm.

Yet, in practice, Shell may change little of the Powershop business model. The post-fossil fuel positioning appears to be the primary reason for the acquisition, as Shell increases its asset and skills base to run a business in the new energy landscape. But there is evidently a deficit of public trust which compromises its social licence to operate among segments of the Powershop customer base.

What this suggests is that values matter; and there appears to be an important relationship between business models and foundational elements of organisational design, such as finance, governance and ownership, which define the interests that a business serves. This gets to the heart of the concept of the business model: What value is created? And for whom?

This case provides cause for reflection. While in the throes of my PhD, part of me felt that the Powershop case was a deeply encouraging sign that the energy transition had reached a point in which powerful incumbents were pushed to move from denial and obfuscation to new strategic positioning. However, a series of questions surfaced, which harked back to why I embarked upon this thesis: Is the energy transition delivering a shift towards decarbonised and decentralised forms of energy technology that empower citizens and communities to take control of their energy use and supply? Or, as the dust settles after the great disruption, might those citizens and communities end up being exploited by the same powerful institutions that they were attempting to escape in the first place, this time with shiny new technology? If we can eliminate the tensions in business models that cause misalignment between private and public interests, is this sufficient? Or are there other institutional settings and processes we need to shift to change *whom* our businesses serve? And what does this mean for the myriad challenges we face in realigning our broader economic system to exist within planetary boundaries, while delivering on societal needs?

I hope that this work contributes to the expanding body of knowledge on how we can reorient our business institutions to act as positive agents of systems change. We have much work to do, and time is short.

1. Introduction

A critical moment in history

In 2022, the precariousness of our collective environmental situation is difficult to overstate. The Intergovernmental Panel on Climate Change's (IPCC) chief described its sixth assessment report as "code red for humanity" in the urgency of the required response to avoid catastrophic and cascading effects of climate change (McGrath, 2021). We have less than three decades to transform our economies to operate with 'net-zero' carbon emissions. Yet, climate change is but one critical aggravator among a suite of issues affecting ecosystem health and fragility. Since the Club of Rome's 1972 publication of *The Limits to Growth* (Meadows et al., 1972) we have been aware of the concept of the carrying capacity of Earth's ecosystems, and our overextension of those carrying capacities leading to an 'ecological debt' that progressively reduces the resilience of Earth's ecosystems to respond to disturbances. The planetary boundaries framework articulates these challenges (Steffen et al., 2015) as a set of nine boundaries, four of which are at high or increasing risk of being exceeded,⁵ with biogeochemical flows and biosphere integrity being of strong concern.

The growth-driven mode of our economic operation that underpins these environmental stresses is also causing social pressure points (Jackson, 2017). Income and wealth inequality has been steadily rising in recent decades, alongside a dramatic transfer of public to private wealth (Facundo et al., 2017), inequitably distributing the fruits of progress. Globally, we are not meeting the minimum 'social foundations' for many citizens (Raworth, 2017) such as health, food, clean water, education and equity and gender equality. Furthermore, the relationship between inequality and political instability underscores the need to consider overshooting environmental boundaries in concert with the delivery of these social foundations, for a prosperous and stable geopolitical existence (Jackson, 2018).

What does this mean for business?

These social and environmental stresses have fuelled vigorous debate and associated

⁵ Performance against at least two of these boundaries have yet to be quantified.

calls for urgently reimagining the nature of global economic activity towards economies that deliver social progress within the boundaries of Earth's supporting ecosystems (Jackson, 2017). In Raworth's terms (2017, Chapter 7), we need to create economies and businesses that are "regenerative and distributive" by design. Yet the prevailing growth-reliant corporate forms of business, founded on private individual equity ownership and value creation, have been critiqued as inappropriate vehicles through which to deliver such a socially and ecologically aligned economic vision (Johanisova et al., 2013; Wright & Nyberg, 2017). Incremental adjustments to the status quo, commonly referred to as 'green growth', are increasingly considered inadequate as a sole transition strategy (Alexander, 2016; Parrique et al., 2019; Ward et al., 2016). Given that our economies are significantly comprised of business structures and activities, what constitutes concrete but more radical shifts at the level of the firm? Raworth's notion of regenerative and distributive business rests firstly on the type of value that businesses *create*, and secondly, on who is able to *capture* that value. These ideas are central to the concept of the business model.

The 'sustainable business model' lens

The concept of the 'business model' only rose in prominence within the academic literature in the late 1990s (Osterwalder et al., 2005) and "describes the rationale of how an organization creates, delivers, and captures value" (Osterwalder & Pigneur, 2010, p. 15). A business model (BM) is a mechanism through which an innovation is 'inserted' within the market to realise its value. To provide an energy example, energy efficiency equipment can be delivered to a business customer via a traditional sales model, whereby a retailer sells the product directly to the customer, which is then installed by a contracted partner. Alternatively, it can be delivered through an energy services contract model, whereby the business finances the cost of the equipment, manages its performance and is repaid via customer energy savings. In the second model, the upfront cost and performance risk of the product shifts from the customer to the supplier, and the 'value proposition' to the customer becomes quite different.

When the concepts of value creation and capture are more closely examined in traditional BM literature, however, they almost exclusively refer to financial value accruing to the owners of the business and its customers. The concept of 'sustainable

business models' (SBMs) has emerged, which makes two important changes: it requires the creation of multiple forms of value, including social, environmental and economic, and requires that value accrues to a wider range of stakeholders, such as the supply chain and society at large (Boons & Lüdeke-Freund, 2013).

In focussing on activities and resources that are at the core of a business's value creation and capture, the SBM concept begins to address criticisms of more superficial approaches to change, such as corporate social responsibility (CSR). Key critiques have focussed on the fact that incremental improvements can be superfluous to core business functioning, and insufficient relative to the scale of social and environmental challenges (Mackey, 2011; McKibben, 2006).

Businesses as agents of systems change

A key question, then, is at what point do changes to business models become sufficiently transformative to represent compatibility with the regenerative and distributive economic vision outlined above?

To examine this question, we can look to the literature on businesses that most radically deviate from the norms of capitalist enterprise. It is only relatively recently – primarily in the last decade – that scholars have begun to clarify what characteristics typify businesses that are aligned with a more radical orientation, to the extent that they may be considered compatible with a genuinely sustainable economy. This work has focussed on concepts such as 'sufficiency-driven business' (Bocken & Short, 2016), 'successful non-growing companies' (Liesen et al., 2015), 'degrowth' business (Johanisova et al., 2013; Khmara & Kronenberg, 2018; Nesterova, 2020) and 'post-growth business' (Froese, 2017; Hinton, 2021b).

Earlier works, in particular, commonly focus on size limitation or growth aversion as a prerequisite condition. Yet this appears to imply that the growth of a business is *inherently* undesirable, even though socially and environmentally responsible entities need to 'upscale' or replicate to take market share from unsustainable incumbents, or to be integrated with incumbent models to 'upgrade' the quality of existing BMs (Schaltegger et al., 2016).

Underscoring this challenge, nearly all the case studies of more radical businesses

report that they remain confined to relatively niche markets or applications and struggle to displace dominant unsustainable models. Herein lies the paradoxical tension of scaling for transformation: the more radically a business deviates from the norm, the more friction this creates with the existing rules, regulations and powerful actors, and thus the more difficulty the business faces in scaling or replicating. A radically sustainable business that fails to scale or replicate may have the same net impact as more incremental innovation within a critical mass of mainstream businesses.

So, the more important question then becomes, what business features or characteristics sit at the *intersection* of radical transformation and scale?

Collaboration: two trees, one seed?

In addition to shifting the focus of activity from the pursuit of private financial gain towards the pursuit of societal goals (Hinton, 2021b; Upward & Jones, 2016), another recurrent theme in strongly sustainable business is collaborative value creation (Boons & Lüdeke-Freund, 2013; Khmara & Kronenberg, 2018; Micheline, 2012). Scholars have suggested that a marker of a sustainable business shifting into a more transformative state – to act as a systems change agent – is the process of engaging in collaboration on societal challenges that cannot be solved by one organisation working alone (Adams et al., 2016; Perey et al., 2018). The act of combining the different strengths and resources of diverse parties – including businesses, customers, NGOs and governments – is considered well-suited to tackling the complexity of many intractable societal challenges. There may also be two-way feedback here, as there is some evidence to suggest that the act of businesses engaging with collaborative networks forces them to “widen their definition of value and include value creation for both company and society as a [business model] goal” (Rossignoli & Lionzo, 2018, p. 694).

But importantly, given the question at hand, collaboration with outside parties also appears within traditional business literature focussed on market success and competitive advantage. In the past two decades, ‘open innovation’ (OI) has become one of the most prolific areas of innovation management (Bigliardi et al., 2021). It is now well-established that ideas generated jointly with those outside traditional

organisational boundaries can spur continuous knowledge creation, ongoing innovation and associated new economic value (Bigliardi et al., 2021; Ribeiro-Soriano & Urbano, 2009). Open innovation is distinguished from more traditional ‘closed’ innovation practice, in which the boundaries of the organisation are firm, and most key activities – particularly research and development – occur behind closed doors. The reported benefits of OI include lower costs, reduced time to market, increased sales, a greater number of innovations, and access to new markets (Bigliardi et al., 2021). The essence of this advantage is that systematically exposing an organisation to outside ideas increases the speed and capability it possesses to meet customer demands, in market environments that are ever more rapidly changing.

The prevalence of digital disruption across the economy is reinforcing the innovation advantage of more nimble organisational forms and making it easier for organisations to interconnect capabilities. For this reason, collaboration may be key to the survival of both large incumbents and smaller disruptors. Respected analysts at the Deloitte Center for the Edge (2014, pp. 53–54) argue that companies will become more specialised around one role, and will then access innovation capabilities that are no longer in-house via “trust-based, loosely coupled relationships” with those in their innovation ecosystem. The speed of market change and shortening of product life-cycles will reinforce the innovation advantage of smaller players with a deep understanding of the customer. They suggest that this means that even large companies will need to collaborate “to unlock the collective knowledge of the ecosystem and become part of the transformation, rather than simply being impacted by it” (2014, p. 54).

We know empirically that OI-based partnerships correlate with improved sustainability performance; more so where a broader range of stakeholders are involved (Rauter et al., 2019). But not all OI positively influences business sustainability outcomes; for example, bringing customer ideas into new product innovations that ultimately accelerate material consumption. In fact, the vast majority of OI scholarship focuses only on measures of financial value, and does not critically evaluate for whom value is created. To this end, if OI is applied as the engine of profit-maximising organisational behaviour, it may be an accelerant of the growth-driven market dynamics that are incompatible with an equitable and sustainable

economy (Hinton, 2020).

Central research question

This framing raises an important proposition: Can we harness this emerging phenomenon of collaborative BM innovation, to shift from a singular focus on private accumulation towards societal value creation, and in doing so, rewire our businesses to become proactive agents of systems change? To explore this idea, the central research question of this thesis is as follows:

Under what conditions does opening the business model lead to richer societal value creation?

This question seeks to understand the systemic influences shaping the evolution of business models towards societal value creation. The ‘richness’ of societal value implies consideration of not only the quantity of societal value creation but also the quality and diversity of societal value. It is tackled through three more detailed sub-questions that specifically examine *BM dynamics* (change), the type of value exchanges in the *BM design*, and the influence of *business context* on what value is created for whom. The question touches on specific research gaps that, to address, require us to isolate critical organisational and BM design variables that connect openness in innovation to societal value creation outcomes. The question also requires us to go beyond understanding BMs as a static concept, by developing new tools with which to understand BM change.

With the focal point of innovation studies progressively shifting from an internal focus on the firm, towards the ‘ecosystem’ or network of innovators connected with an organisation, this is reinforcing the value of the BM concept as an analytical device that connects the resources and value propositions of different partners (Zott & Amit, 2010). To retain an explicit analytical focus on openness, the research adopts the framing of ‘open business models’ (OBMs). This refers to businesses models in which external collaborations are considered *integral* to explaining the logic of how the organisation creates and captures value (Weiblen, 2016). Doing so ensures that the organisations examined are representative of cases in which the act of external collaboration is sufficiently influential in having shaped the core business activities.

This is necessary to differentiate from more superficial collaborations, and, thereby, be more representative of the transformative change required to develop businesses that are both regenerative and distributive by nature.

The energy transition: a microcosm of broader trends

While developing a model of OBM dynamics more broadly, this thesis specifically examines the research question through the lens of the clean energy transition, as a microcosm of broader societal changes. The predominant forces of decarbonisation, decentralisation and digital disruption that are reshaping the energy sector reach almost all corners of economic activity.

The past two decades have opened up an energy innovation ecosystem of new businesses supplying the engineering and digital technology underpinning the most dynamic evolutionary period since the creation of public grids (Brunekreeft et al., 2016; MIT, 2016). As renewable and decentralised energy technologies have been deployed at scale across the globe, we have seen exponential cost reductions over the past two decades. In Australia, solar and onshore wind power – even when ‘firmed’ by energy storage – are now the cheapest forms of new generation (Graham et al., 2022), while in Europe, the lifetime per unit cost of solar and wind capacity installed in 2021 was four to six times lower than the operating cost of fossil fuels in 2022 (IRENA, 2021). This has upended the commonly held position that decarbonising the energy sector would drive costs higher. And the fact that this new decentralised technology could be owned by citizens began to shift the dynamic of who was in control of energy generation and usage.

These changes struck at a time and in a sector that was ripe for disruption. At least in Australia, we had entered an era of low confidence that energy markets were actually working in the long-term interests of customers (Energy Consumers Australia, 2020). Whether relating to fossil fuel generators gaming markets (Parkinson, 2021) or capturing public policy (Morton, 2021; Park & McDonald, 2020), or network companies over-investing in grid infrastructure to increase returns on investment (Australian Competition and Consumer Commission, 2018, pp. v, ix; Wood & Blowers, 2017), the social licence of prominent institutions was increasingly brought into question.

But in parallel to this era of low confidence, we have progressively observed disruptive entrants bringing new energy technologies and novel business models to market, often as interoperable products and services that collectively deliver a system change goal. And we are now beginning to have incumbent powers subsuming disruptive business models, reasserting their financial dominance as the disruption evolves, as in the case of Shell and Powershop raised in the Preface.

The energy transition is thus rich territory for business model examination: it contains a diversity of small and large players with varying degrees of ‘open’ business models and a broad spectrum of societal value creation outcomes.

Thesis structure

The thesis is divided into seven chapters. **Chapter 2** reviews the literature exploring the framing of BMs as innovation mechanisms towards deep organisational change. It explores the role of collaboration in business and where it intersects with societal value creation, and introduces the concept of the OBM as a framework for exploring the dynamics of societal value creation in collaborative businesses. **Chapter 3** outlines the conceptual epistemological positioning and how this underpins the ‘adaptive theory’ approach applied. **Chapter 4** explains the research design, of multiple deep case studies of focal organisations that meet the OBM definition, and the systems analysis framework applied. **Chapter 5** presents the results and analysis, structured according to the three sub-research questions. **Chapter 6** dives deeper into a comparative analysis of similar work, explicates this thesis’ contributions to BM, OBM and SBM theory, and discusses study limitations and areas for further research. **Chapter 7** offers some concluding remarks with respect to the emerging role of openness in business models as a mechanism for systems change.

2. Literature Review

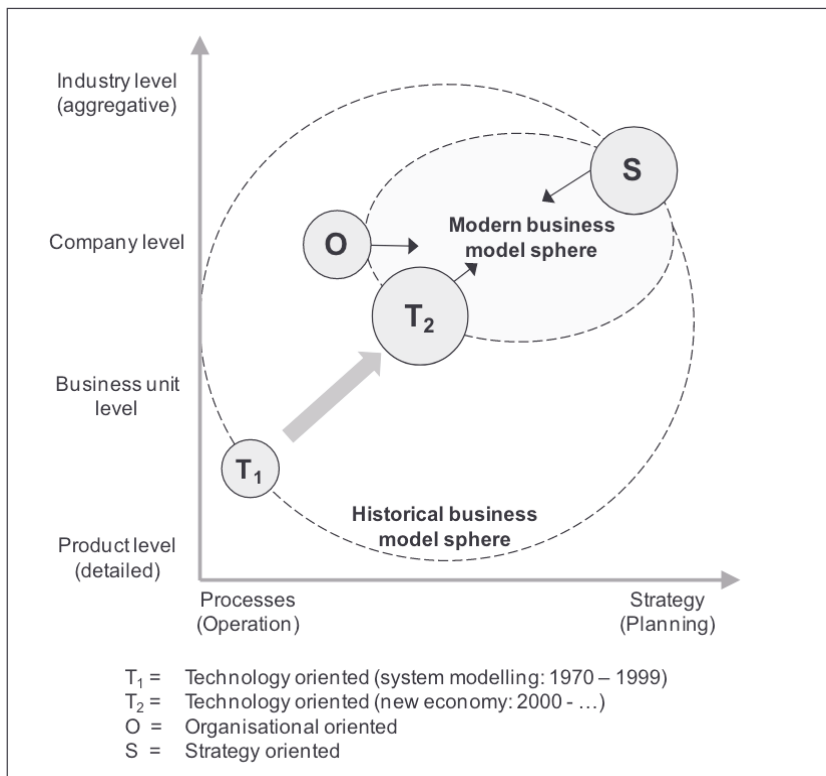
2.1 Business Models as Innovation Mechanisms for Deep Organisational Change

2.1.1 The Business Model as a Source of Innovation

While early work on disruptive innovation had a strong technological focus (C. M. Christensen, 1997), business models have gained prominence as an important source of disruption, often independent of a business' underlying product (Teece, 2010). While there is substantial diversity in both academic definitions and common usage, perhaps the most cited business model definition is that of a device that “describes the rationale of how an organization creates, delivers, and captures value” (Osterwalder & Pigneur, 2010, p. 15). A business model (BM) can be thought of as a device that enables an innovation – technical or otherwise – to be ‘inserted’ within the market to realise its value. The term ‘value’ here, as per traditional business literature, generally refers to financial or economic value: that is, how a company achieves commercial success.

The BM term first appeared in academic literature in operational research in the 1950s but did not become prominent until the 1990s with the rise of Internet-based businesses (Osterwalder et al., 2005). The concept in its earlier forms was used to understand and describe business processes at the level of the product or business unit, but over time has evolved towards a company-level concept that links current operational processes with competitive strategy (Wirtz et al., 2016). This convergence towards a less descriptive and more abstracted BM theory is shown in Figure 1, below. Business model descriptions and representations thus do not attempt to capture every detail of organisational activity but take a higher-level view that describes the essence of the value creation and capture of the business.

Figure 1: Convergence of Business Model Theories Towards the Company Level



Source: Würtz et al. (2016). Republished with permission of Elsevier via RightsLink.

As characterised by Osterwalder et al. (2005), confusion over the use of the business model term in common parlance often ties back to its use in describing parts of the business model. For example, the revenue sharing model of an organisation may form a critical part of the business model – and may, indeed, be the shorthand title used to ‘name’ a business model – but there is general academic consensus that the functional concept should be interpreted more broadly. The parts of a business model are most notably described in Osterwalder and Pigneur’s (2010) business model canvas, which has emerged as a hugely popular single-page depiction of value creation, capture and delivery. The canvas includes the following nine BM components:

1. Customer segments (clarifying the target market).
2. Value propositions (describes the bundle of products and services that deliver value to customers).
3. Channels (how the company reaches its customers).

4. Customer relationships (that the company holds with its customers).
5. Revenue streams (how the business captures financial value).
6. Key resources (important assets and resources required to make the business model work).
7. Key activities (critical functions that the business actually undertakes).
8. Key partnerships (the suppliers and partners required).
9. Cost structure (the structure of costs incurred by the company).

A famous illustrative example of the importance of BM innovation is the case of Xerox copiers, which commercialised a new (superior, but with far higher upfront cost) office copying technology. The prevailing industry BM of the 1950s was selling a relatively low upfront cost product and making higher margins on the consumable components (paper, ink and parts). This is known as the 'razor and blade' model, based on Gillette's pioneering of this model of low-margin razors with more expensive disposable blades in the early 1900s. The razor and blade model was not going to work with a copier product six to ten times the capital cost of its rivals. Instead, Xerox pursued a new lease-based BM that proved hugely popular with customers, as it released a latent demand for copying in high volumes that was not viable with its competitors (Chesbrough & Rosenbloom, 2002). This case illustrates the importance of the logic underlying how innovation is brought to the market to encapsulate a compelling value proposition for the customer. Without a change to the prevailing industry BM, it is likely that this innovation would have never found a place in the market.

As such, BMs have emerged in their own right as a unit of analysis (DaSilva & Trkman, 2014; Massa et al., 2017; Zott et al., 2011) that complements traditional dimensions of product, process, and organisational innovation (Massa & Tucci, 2014). Business models research extends the more established field of business strategy, as it helps to better explain more diverse forms of value creation and capture associated with the increasingly prominent roles of both customers and external partners in value creation (Massa et al., 2017).

Without attempting to document the full range of thought on BM definitions and

components, two other approaches are worthy of mention: incentive systems and activity systems.

Some have described BMs as shaping the incentive system of a company, given the strategic choices regarding partners, activities and revenue sources (among other things) dictate much about daily organisational behaviour (Wirtz et al., 2016). While this is not the only function of a BM, the notion that choices made in BM design have meaningful flow-on effects is important. In the earlier case of Xerox, for example, Chesbrough and Rosenbloom (2002, p. 529) describe the “long shadow” that the chosen business model logic can have on later strategic choices. How Xerox managed the commercialisation of spillover innovations from its research centre was substantively influenced by their perceived compatibility with the company’s primary model of revenue generation. This surfaces a broader point that early-stage startups have relative freedom in exploring and selecting BMs, with no commitment to prior value creation and capture logic. Large hierarchical incumbents, on the other hand, may suffer from business model lock-in, as once they have committed to particular BM choices, they can find it challenging to develop products with different BM logic (Chesbrough & Rosenbloom, 2002)⁶. Thus, a BM analytical perspective can help us understand how new innovations can be deployed as well as why and how incumbent technologies can prevent new technologies with competing BM logic from becoming mainstream (Wainstein & Bumpus, 2016).

The activity systems perspective, developed by Zott & Amit (2010, p. 216),⁷ conceptualises the BM as “a system of interdependent activities that transcends the focal firm and spans its boundaries”. Their explicit ‘boundary-spanning’ perspective focuses attention on the external relationships and transactions that occur between the organisation’s partners, contractors and customers. This external focus makes it a popular foundation for developing theory on collaborative activity between businesses.⁸

⁶ This may not be true for newer companies adopting adaptive, ‘agile’ workflow management.

⁷ Further developing the prior work of Amit and Zott (2001).

⁸ Such as Saebi and Foss (2015) and Hellström et al. (2015).

2.1.2 Redefining Value Creation in Sustainable Business Models

The component-based and activity-based perspectives on business models (and their associated definitions) discussed in Section 2.1.1 are primarily – explicitly or implicitly – focussed on the creation and capture of financial value. Theorists and practitioners seeking to apply these analytical frameworks to societal challenges quickly encountered limitations when working with businesses with social or environmental intent (e.g., Joyce & Paquin, 2016; Michelini, 2012). This has seen the emergence of a rapidly developing body of work at the interface of business models, technological, social and sustainable innovation (Boons & Lüdeke-Freund, 2013), recognised as Business Models for Sustainability (BMfS) or Sustainable Business Models (SBMs).⁹ Lüdeke-Freund et al. (2016, p. 13) outline four critical elements that distinguish SBMs from traditional business models:¹⁰

1. Extending the types of value creation from solely financial value to encompass social, environmental and economic value.
2. Taking a system-level view of value creation to move from *relative* to *absolute, contextualised* measures of value creation.
3. Taking a system-level view of value creation to ensure value accrues to a wider range of stakeholders than just the owners and customers of the business.
4. Shifting the traditional understanding of the role of business in society from merely paying taxes, creating employment and developing products, to being a genuine “engine of societal progress”. This reflects the idea that broader forms of value creation and delivery should be internalised within the core business logic.

As such, these characteristics shift the emphasis on the *purpose* of a BM in Schaltegger et al.’s (2016, p. 6) BMfS definition:

⁹ The term ‘BMfS’ is intended to imply that the BM is *for* sustainability and, thereby, holds a greater level of ambition than a BM that may represent only an incremental improvement on the status quo (Boons & Lüdeke-Freund, 2013). In practice, the term SBM is now used interchangeably in much of the literature.

¹⁰ The paper presents these as three elements, which are drawn out here as four, for clarity.

A business model for sustainability helps describing, analyzing, managing, and communicating (i) a company's sustainable value proposition to its customers, and all other stakeholders, (ii) how it creates and delivers this value, (iii) and how it captures economic value while maintaining or regenerating natural, social, and economic capital beyond its organizational boundaries.

How each of these four critical elements has emerged in different fields of research is now explored in greater depth.

1. Extending the Types of Value Creation

Extending the notion of value creation to encompass social, environmental and economic value creation is perhaps the most fundamental tenet of SBMs. This concept is far from new to business literature and appears in many different fields beyond SBMs, including in management approaches such as corporate social responsibility (CSR) (Carroll, 2009); creating shared value (CSV) (Porter & Kramer, 2011); socially responsible business (SRB) and corporate-NGO partnerships (Austin & Seitanidi, 2012a; Wilburn, 2009); social enterprise (Yunus et al., 2010); values-based innovation (Breuer & Lüdeke-Freund, 2015); and, more recently, sufficiency-based and post-growth- or degrowth-oriented forms of business (Bocken & Short, 2016; Hinton, 2021b; Johanisova et al., 2013; Khmara & Kronenberg, 2018). The latter cluster of concepts focuses on the compatibility of business with an economy that eschews the continual growth of consumption-based economic indicators such as Gross Domestic Product (GDP) and thereby exists within the Earth's ecosystemic bounds.

The ideas represented in this list are diverse, and many of the key debates regarding social and environmental value creation, in particular, hinge on the degree to which a more 'holistic' value creation perspective permeates business activity and decision-making. The earlier-mentioned corporate management approaches such as CSR and SRB have been heavily criticised for largely representing the marketing or 'greenwashing' of responsible but marginal action, without making a sufficiently meaningful shift in underlying business activities (McKibben, 2006). These debates tend to boil down to 'matters of degree' in the depth of actual change to business practice, as represented in the debate played out in the California Management

Review. O'Toole and Vogel (2011) argued that 'virtuous capitalism', as represented by the conscious capitalism movement, was difficult to sustain and that this approach alone would be insufficient to bring the bulk of the market to the level society requires, at least without a prominent shift in the role of government to tackle the enormity of our collective, systemic problems. Mackey (2011), CEO of Wholefoods and a proponent of conscious capitalism, countered that such perceptions misunderstand conscious capitalism as an extension of (the more rightly criticised) CSR. Rather, Mackey (2011, p. 88) argued there are several critical evolutions in this newer thinking: the conscious capitalism movement incorporates higher (societal level) purpose and directly connects this to the business mission, it seeks synergies in value creation for a range of stakeholders; and places social responsibility "at the core of the business model".¹¹ This notion of the shift in value creation being at the *core of the business model* is consistent with Porter and Kramer's (2011, p. 71) contention that CSV should reconceive the company's products and markets, and reimagine and reconfigure value chains. Both the ideas of Mackey and Porter and Kramer imply changes to the targeting of customer segments, redefining value propositions, revenue streams, activities and partnerships – all key components of the BM.

The idea of extending value creation to incorporate social and environmental goals surfaces in a suite of similar ideas, including sustainable value creation (Boons & Lüdeke-Freund, 2013; Brennan & Tennant, 2018), societal value creation (Cotterlaz-Rannard, 2021), long-term value creation (Kurznack et al., 2021), multiple value creation (Jonker et al., 2020), or 'system value' creation through taking a 'multiple capitals' approach (Baue, 2020). The latter extends the types of vital capital to include natural, human, social, intellectual, constructed, and financial, in contrast to a 'monocapitalist' view that prioritises financial capital at the expense of other capitals. Taking a systems view, Baue (2020, p. 17) considers these multi-capitals to be "stocks of value that are increased, decreased, or transformed through the activities and outputs of the organization". The consideration of multi-capitals as 'stocks' encapsulates the important idea that value is not just something that businesses identify opportunities to *create* through their activities, but is pre-existing and can also

¹¹ Note, O'Toole and Vogel's (2011) point that many of our collective problems are systemic, interconnected and unsolvable by any individual business remained unchallenged, which will be picked up in the ensuing exploration of collaborative forms of innovation.

be *depleted* by business actions.

For large and established businesses – particularly multinationals with complex global supply chains – addressing the depletion of stocks of societal value is equally or perhaps even more critical as a starting point. Like societal value creation, the depletion of societal value appears in the literature under various guises, such as “value destroyed” (Bocken et al., 2013, p. 482; Yang et al., 2017, p. 1794), “externalities” or “social costs” arising within the value chain (Porter & Kramer, 2011, p. 71), “contradictory incentives in the value network” (Derks et al., 2022, p. 5), or “paradoxical tensions” in SBMs (van Bommel, 2018, p. 829). Most commonly, these tensions arise from the multiplicity of different stakeholders’ short, medium and long-term goals.¹² The conception of competing stakeholder goals is further discussed below under ‘Broadening the beneficiaries’.

Value destruction can be caused by pre-existing tensions embedded in legacy business models – such as an energy retailer with a historical portfolio of fossil fuel generation assets – or by unintended consequences of a new BM design. For an example of an unintended consequence, let us return briefly to the Xerox copier case. A direct effect of Xerox’s new technology and business model was to increase demand for copying from around 2,000 pages per *month*, to an average of 2,000 pages per *day* (Chesbrough & Rosenbloom, 2002). While seldom analysed from an environmental sustainability perspective, given these business model choices were playing out in the middle of the last century, this innovation had a substantial effect on the overall demand for office consumables such as paper and ink. Thus, while there was an unmet consumer desire that the product and associated BM were able to unlock, the innovation contained an inherent, unrecognised and unmanaged environmental tension regarding the resource throughput of the product. Tools have been developed to assist companies in identifying instances where value destruction can occur (Bocken et al., 2013; Vladimirova, 2019), and SBM innovation processes should seek to identify and eliminate or proactively manage such side effects (Lüdeke-Freund et al., 2016).

¹² These are referred to as “performing tensions” (van Bommel, 2018, pp. 831–832).

2. Taking a system-level view: from relative to contextual measures of value creation

One of the key sources of debate and tension is how much improvement in social or environmental value creation is ‘enough’ to warrant congratulation, or acquitting of business’ moral responsibility? This question also points to one of the key limitations of sustainability analysis: without an immense amount of data (that is rarely available), it is very difficult to assess the performance of an organisation in any other way than relative to its peers. This can be seen in definitions of sustainable business, such as:

We define environmentally sustainable organizations as those that create and capture value, while protecting the natural environment and reducing environmental pollution, and thus increase energy, material, and/or water efficiency relatively more than their peer organizations. (Brehmer et al., 2018, p. 4515)

Such assessments and definitions are useful for identifying incremental innovations but fall short of considering the sufficiency of the innovation relative to the scale of the system-level problem. The precariousness of humanity’s present climatic and environmental contexts makes it increasingly clear that incremental innovation will not be sufficient to meet the challenge. But how much is enough? This limitation is a central motivator of pioneering work by organisations such as r3.0, which talk of “thresholds and allocations” (Baue, 2020, p. 43). The premise here is that natural capital (environmental systems) has ecological ceilings that cannot be exceeded, and thus fair contributions can be determined by allocations of environmental resource shares. Intangible capitals (social systems), on the other hand, have a set of social foundations such as health education, housing, and social equity (based on the work of Raworth, 2017) to which the business should contribute.

The same notion of understanding contextually situated absolute contributions underpins the development of a growing set of tools such as the Multicapital Scorecard (Thomas & McElroy, 2015), Future-Fit’s break-even goals (Future-Fit Foundation, 2019) and Science-Based Targets (SBTi, 2020), which certify that businesses’ climate targets are aligned with global emission reduction goals and represent a ‘fair contribution’.

Taking a concrete example of how a system-level view of value can change how a company might approach tackling a legacy BM challenge, consider an energy retailer with fossil fuel generation assets seeking to eliminate its carbon footprint. One approach to this challenge would be to sell-off its fossil fuel assets and instead contract with a portfolio of renewable generators. This is a positive move, in that it supports renewables in the market, removes the carbon emissions from the organisation's balance sheet, and probably also changes the vigour with which that organisation can advocate for the shift to a net-zero-carbon sector. However, it is arguable that from a system value perspective, holding on to those assets and managing their actual retirement from the system is a better outcome: the first case solves the problem of environmental value destruction from the perspective of the organisation, but the second solves the problem from a system perspective, rather than shifting the issue to another party over which the organisation has no control.

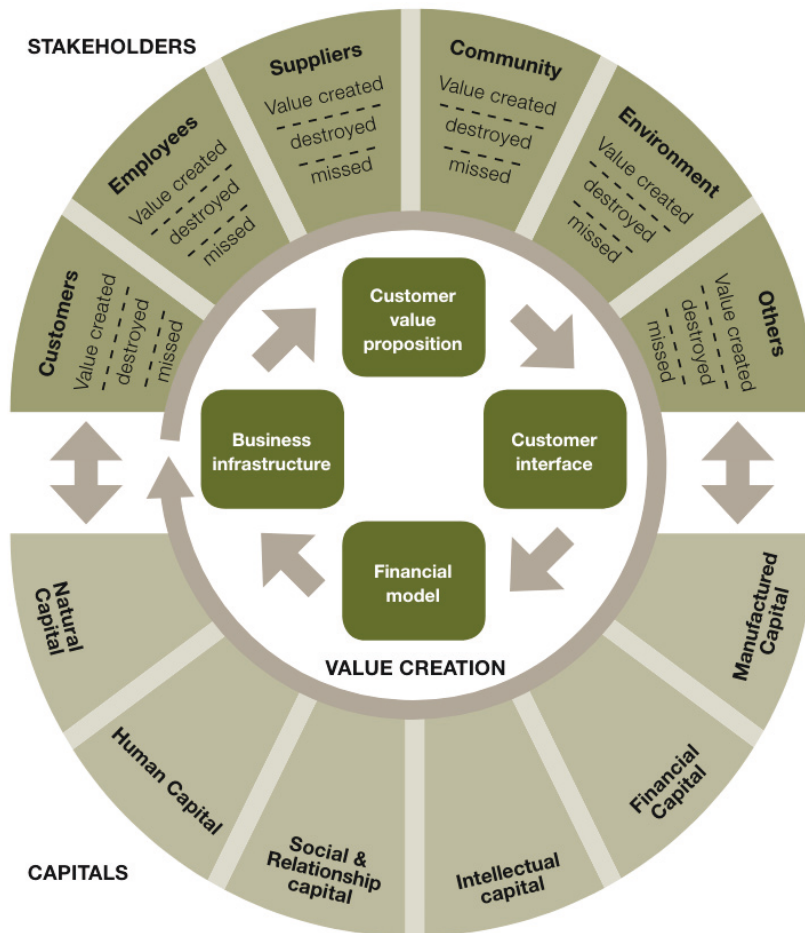
3. Taking a system-level view: broadening the beneficiaries

Inherent in Baue's (2020, p. 64) monocapitalist critique is the sole focus on financial capital that accrues to the owners of the business and its customers. Moving to multicapitalism requires an organisation to "[d]esign and validate allocation methodologies that apportion fair share responsibility for jointly preserving and enriching capital resources vital to stakeholder wellbeing". This implies value-sharing between the range of stakeholders involved in or affected by business operations.

Schaltegger et al.'s (2016, p. 6) BMfS definition above refers to "maintaining or regenerating natural, social, and economic capital *beyond its organizational boundaries* [emphasis added]". The extensive review of Lüdeke-Freund et al. (2016, p. 25) states that BMfS should "Deliver customer value propositions in concert with balanced and measurable positive effects *on environment and society* [emphasis added]". Thus, we see an increasingly external view of value creation, both to specific societal stakeholders (such as supply chain partners and suppliers, and communities in which resources or facilities are located), and more general stakeholders of the environment, and society at large. Both the multicapital approach and stakeholder value-sharing elements are summarised in the hourglass model shown in Figure 2, below. Note that employees are generally also included in this stakeholder list, owing to the monocapitalist

approach that has led to the breakdown of the value-sharing relationship between business owners and their labour forces.

Figure 2: Hourglass Model of Value Creation and Sharing in Business Models for Sustainability



Source: Lüdtke-Freund et al. (2016, p. 31). Reproduced with permission of the Network for Business Sustainability (nbs.net).

This broad conceptualisation of relevant parties reflects the progressive diffusion of stakeholder theory into strategic management. Two of its central claims are that the purpose of a business is, in fact, value creation for the breadth of its stakeholders rather than just its owners/investors, and that business and ethical decisions are fundamentally interlinked (Parmar et al., 2010). While there is substantial contested ground regarding who should be considered a legitimate stakeholder and what it means to balance their interests, the most prominent definition of stakeholders from

the 1980s is extremely broad: “any group or individual who can affect or is affected by the achievement of the organization’s objectives” (Freeman, 1984, p. 6). These ideas underpin concepts of the ‘social contract’ of a business (Donaldson & Dunfee, 1999), and the emergence of corporate social responsibility.

While business literature on stakeholder management and engagement had an early focus on managing trade-offs between incompatible interests, it has shifted to seeking complementarity and synergistic relationships (Watson et al., 2018). Seeking synergies between customer, company and societal needs is also a key feature of Mackey’s (2011) portrayal of conscious capitalism and Porter and Kramer’s (2011) CSV approach. The premise of “synergistic value” is that the combining of resources and ideas of different stakeholders allows greater or new value creation than each could have achieved separately (Austin & Seitanidi, 2012a). In other words, the value created for the range of stakeholders is more than the sum of its parts. For such synergistic value to be identified and achieved, however, there is commonly an implication that the business must establish relationships, exchanges and interactions (Allee et al., 2011; Bocken et al., 2013; Evans et al., 2017) to meaningfully involve the stakeholder group (or a representative thereof) in the BM design and/or delivery. Radical innovator Riversimple, a hydrogen-based mobility company that has been profiled as a degrowth-compatible business (Wells, 2018), provides a pertinent example. It adopts a guiding ‘alignment of interests’ philosophy so that all stakeholders – the business, customers, suppliers, regulators and the environment – can benefit. Each of these stakeholders has a seat at the table in the governance structure of the organisation (Ellen MacArthur Foundation, 2019). This aspect of stakeholder relationships will be covered more comprehensively in the subsequent section on collaboration in business.

4. Businesses as agents of systems change

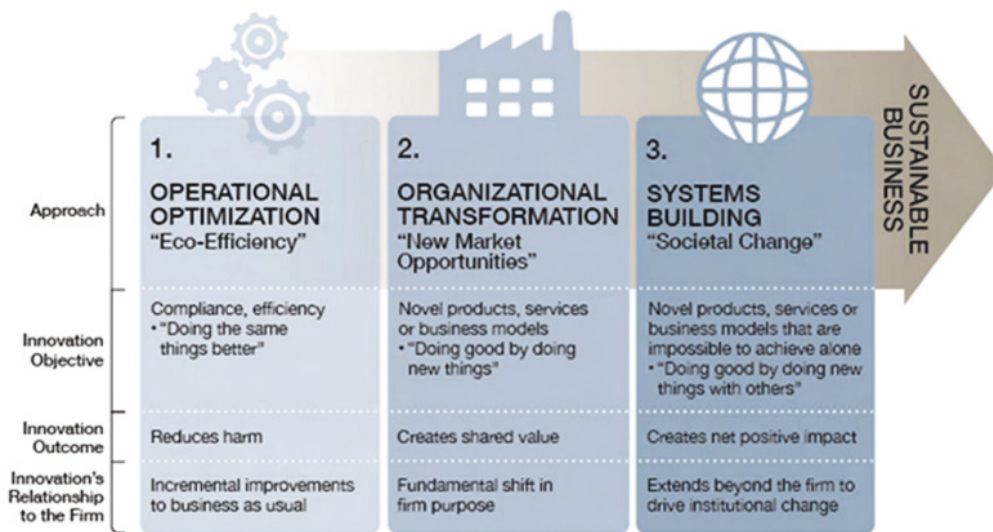
Underlying the concept of value creation for the environment, community and/or society at large is a distinction between societal and private value. Sharing value between directly participating stakeholders in the value chain – be it partners/suppliers, employees or customers – generally accrues to private parties with whom a value proposition can be developed and tested. Societal value, on the other

hand, requires businesses and their stakeholders to either interpret the societal value proposition, or to involve representatives whose core function is to uphold a corresponding public mission. The link between sustainable and societal value can be seen in Dyllick and Muff's (2016, p. 168) typology of the shifts towards 'true business sustainability'. They suggest that true business sustainability requires a final shift in the value creation process from 'inside-out' (that is, starting with the organisation's core activities and then incorporating social, environmental and economic dimensions), to 'outside-in' (where the notion of societal challenges and creating value for the common good is *the* focal point of innovation). The creation of societal value thus becomes at the core of the business activity.

Dyllick and Muff's (2016) theorised shift in value creation focus has strong parallels with the fourth critical element of BMfS: a new perception of the role of business in society. Business moves from being merely privately interested actors that pay taxes, create employment and develop products, to being a genuine "engine of societal progress" (Lüdeke-Freund et al., 2016, p. 13). This implies a change from businesses solving *customer problems*, to businesses solving *societal problems*, supported by a viable customer value proposition. A similar notion of an "alternative understanding of business", one which is "established to solve environmental and social problems", also appears in criteria to assess whether a business follows a more radical "degrowth paradigm" (Khmara & Kronenberg, 2018, p. 725).

In a review of sustainability-oriented innovation (SOI), Adams et al. (2016) neatly capture these ideas in Figure 3 below. The authors suggest that the final transition to business as agents of systems change, requires a shift from creating shared value in the pursuit of new market opportunities, towards working with others to create net positive impact.

Figure 3: Evolution of Sustainable Business Innovation Towards Systems Building



Source: Adams et al. (2016). Republished with permission of John Wiley and Sons via RightsLink.

A subtlety that emerges from Adams et al.'s summation is that business views itself as a vehicle through which to shape the system around it. In industrial marketing business literature, the act of a business proactively attempting to influence the system within which it is embedded is referred to as "market-shaping" (Nenonen et al., 2019). Recognising that value creation occurs from combining new resources in novel ways:

Market-shaping implies purposive actions by a focal firm to change market characteristics by re-designing the content of exchange, and/or re-configuring the network of stakeholders involved, and/or re-forming the institutions that govern all stakeholders' behaviors in the market. (Nenonen et al., 2019, p. 618)

The emerging area of market-shaping is conceptualised as a form of radical innovation that can be achieved through a set of strategic design processes that enable an organisation to leverage market-shaping capabilities (Windahl et al., 2020). The goal of market-shaping, as referred to above, is to realise increased (financial) value creation for the focal firm and its network. The concept of market-shaping by business actors has potential applications in tackling 'wicked' societal problems such as sustainability (Nenonen et al., 2021), and is beginning to be explored as reframing

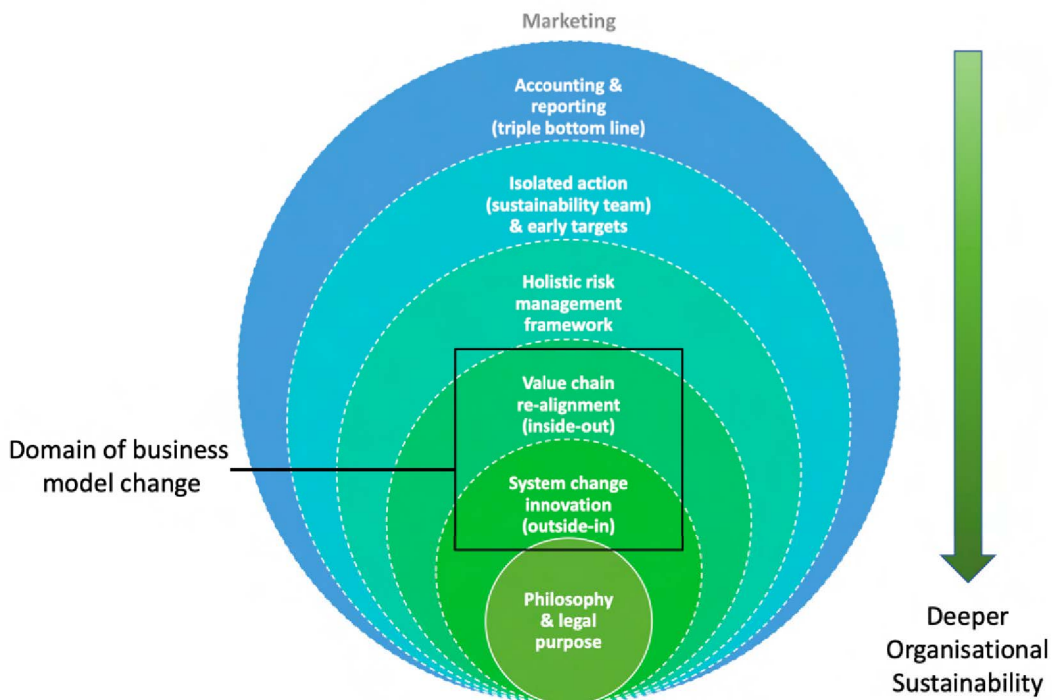
for societal value creation by public sector actors (Mazzucato & Ryan-Collins, 2022). As reflected in Figure 3, a picture is beginning to emerge that for businesses to act as genuine agents of systems change that create compelling, nuanced and synergistic value propositions for a range of external stakeholders, collaboration is an – if not *the* – essential ingredient. The next major section (2.2) examines the circumstances and roles of collaborative activity in business. First, however, I will elaborate on the conceptualisation of BM change as a form of deep organisational sustainability, confronting the tensions of scaling towards more radical change.

2.1.3 Business Models as a Vehicle for ‘Deep’ Change Towards Organisational Sustainability

As I have examined the debates over the spectrum of business sustainability from claims of greenwashing to ‘true sustainability’ and degrowth-compatible business, there is some consensus regarding what constitutes the progression of business along this journey. Different authors have framed these stages in different terms. Figure 4 below presents a ‘sustainability onion’ that seeks to position business model change as a layer in this journey. Each organisation’s trajectory is different, and internal business units may even be at different stages. As such, the order of these stages is not intended to be universal, and the distinctions between stages are blurry, hence the representation of dotted line boundaries.

At the outer edge of Figure 4 is the **marketing** of the social or environmental dimensions of business activity in the absence of meaningful change to organisational activities. This represents the source of greenwashing claims, and much of the critique of early corporate social responsibility when taken carriage by public relations parts of the business (Mackey, 2011).

Figure 4: Sustainability Onion Representing the Depth Progression of Organisational Sustainability



Source: Author's representation.

The first genuine stage in the journey is triple bottom line **accounting and reporting** as, without contextualised data, improvement cannot be managed (McElroy & Thomas, 2015). Depending on the sector, scale and maturity of the organisation, this may not be a highly formal process but generally involves having a good understanding of the organisation's contribution to broader social and environmental issues.

This tends to be followed by **isolated action** within a sustainability team that is meaningful but has limited influence across the organisation and acts as an accessory to core business. This may be where early sustainability targets are set, and approaches are piloted.

The next stage is where social and environmental value creation and destruction have the top-level attention of company executives and are considered within a **holistic risk (and opportunity) management framework** that shapes organisational strategy. This may be where deep, absolute and contextual targets are set (in line with the approach outlined in Section 2.1.2 of Baue, 2020).

The first part of the domain of business model change is **value chain realignment** to eliminate tensions and seek opportunities for complementary stakeholder value propositions (Adams et al., 2016; Porter & Kramer, 2011). This is the first stage in which core daily business activities are shifted, although the innovation process remains largely ‘inside-out’: that is, the organisation looking at how its current activities can be more sustainable (using the terminology of Dyllick & Muff, 2016).

The second part of the domain of business model change is the shift in the focal point of the innovation process to **system change innovation (i.e., ‘outside-in’)** (Adams et al., 2016; Dyllick & Muff, 2016).

Business models are, however, still a snapshot of current business operations that are guided by organisational strategy (DaSilva & Trkman, 2014), above which sits the organisational purpose. Governors of an organisation can, at least in theory, change a BM at any time. While this is far from a straightforward process, given the BM lock-in effects discussed in Section 2.1.1, it is important to recognise that BM decisions follow the organisational purpose. The rationale for why an organisation exists can be rooted in a founding mission, a customer or societal problem being solved, or be shaped by a set of values embedded in organisational culture. In legal terms, however, the organisational purpose is much drier: in most legal constitutions, for-profit enterprises are established with profit as the implicit and only end goal.¹³ Not-for-profit enterprises, on the other hand, have a defined societal purpose, and profit serves as a means to that end. Less commonly, some distinctions exist in that for-profit legal structures in some jurisdictions (such as benefit corporations in the US), can consider environmental and social factors in their decision-making alongside profit generation.

For this reason, organisational **philosophy and legal purpose** are shown as a deeper level of sustainability in Figure 4. This idea is supported by studies considering more radically sustainable organisations, which identify business features such as blurring the lines between business activity, activism and social movements (relating to business philosophy, identity and values; see Khmara & Kronenberg, 2018; Nesterova, 2020), company *raison d’être* aligning directly with solving societal

¹³ Unless the for-profit enterprise is a subsidiary of a not-for-profit enterprise.

problems (Hankammer et al., 2021; see Khmara & Kronenberg, 2018), democratic governance and institutional form (Hankammer et al., 2021; Hinton, 2021b; Khmara & Kronenberg, 2018), and the relationship to profit as a means or an end (Hinton, 2021b).

This places the domain of business model change as a deep – but not the deepest – form of change towards organisational sustainability. It is also, however, more operationally changeable within existing institutional vehicles. The concept of BM change also carries an increasing degree of prominence: a 2018 global survey of business sustainability leaders found that 90% of respondents felt that their core business model needed to change to some degree in order to operate in a truly sustainable economy (Davis-Peccoud et al., 2018).¹⁴ This indicates the importance of understanding the process of how BMs can be oriented towards public purpose and societal value creation.

2.1.4 Tensions of Scaling for Transformation

As established in the introduction, it is increasingly recognised that a dramatic shift from 'business as usual' (BAU) approaches is required to meet our precarious environmental and social challenges. The conceptualisations presented of business as agents of systems change is a far cry from the vast majority of current practice. Incremental innovations such as eco-efficiency improvements are useful, but can be counterproductive if extended too far, in that ultimately unsustainable core BMs are retained longer than necessary (Gorissen et al., 2016; P. M. Senge et al., 2007).

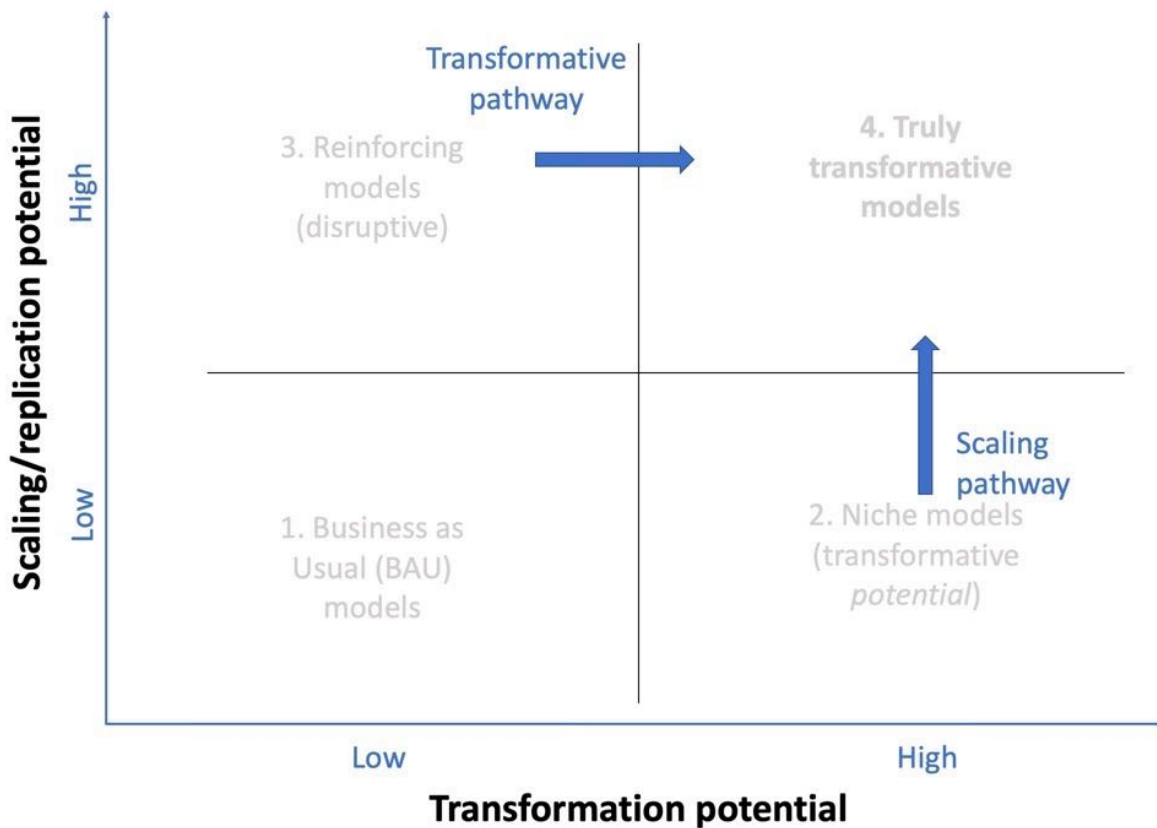
But there is an inherent tension between reshaping or developing a business under radically different principles and scaling the business model to a level that actually disrupts and displaces incumbent businesses. It is much easier to work within the current rules of the regime than to fight against them, and thus businesses that represent substantial departures from the status quo often encounter institutional impediments to expanding beyond a particular niche. For example, in considering the scaling potential of bike-sharing business models, the assessment framework

¹⁴ 38% felt that their core business model would need to change *radically*.

developed compares business model features according to the levels of ‘friction’ with prevailing institutions and industry structures (van Waes et al., 2018). This tension likely underpins the numerous observations of early, radical innovators remaining marginal forces in affecting systems change: Weinstein and Bumpus (2016, p. 579) describe radical grassroots BM innovations as a “relevant niche” as distinct from a “disruptive niche”; Gui and MacGill (2018, p. 102) discuss “*potentially* disruptive niches [emphasis added]”; Khmara and Kronenberg (2018, p. 721) note that degrowth business examples in the literature only tend to focus on “relatively marginal activities”; and Bocken et al. (2014, p. 55) stress the importance of further research on wider political, social and economic change “required to make the [sustainable business model] archetypes ‘mainstream’”.

For a business model to be truly transformative, it must both transform *and* scale. In this context, scaling can involve the expansion of the level of activity within the organisation directly, or the replication of the model through imitation or federation of the organisational model). To this end, it is useful to conceive of these tensions on two different axes, as shown in the framework in Figure 5 below. Businesses that do not substantively change the status quo or achieve scale are neither transformative, nor disruptive, and thus sit in the bottom left quadrant noted as ‘BAU models’. Businesses that represent radical deviations from the status quo but that have (thus far) failed to achieve scale, sit in the bottom right quadrant of ‘niche models’. An example may include co-operatives in the Australian community energy sector, at the time of writing. Models causing substantial disruption to incumbent industry but that do not radically shift from the paradigm emblematic of profit-maximising business sit in the top left quadrant, ‘reinforcing models’. Examples include some energy retail price switching platforms that allow customers to change to the lowest cost providers, but make it difficult for organisations to communicate more nuanced social or environmental value propositions. The fourth quadrant represents ‘truly transformative models’ that can shift the system both through their radical departure from BAU and their ability to scale, or replicate.

Figure 5: ‘Truly Transformative’ Business Model Framework



Source: Author representation.

Considering these four quadrants, most businesses of interest in sustainability research sit in either quadrant two or three. The pertinent question is then ‘how do we push more organisations into quadrant four?’ This presents two BM development pathways: a scaling pathway, and; a transformative pathway. Niche models need to be looking for BM ingredients that deliver scaling success, while disruptive models need to be looking for other BM ingredients that shift them into a more transformative mode of operation.

The concept of juxtaposing these two dimensions of transformation and scaling potential is not new: the framework could be seen as an application of the core logic of Hansen et al’s (2011) ‘eco-impact innovativeness’ grid with terminological adaptation for business model framing and specific focus on transformative change. The framework and business model development pathways also intersect with Hockerts and Wüstenhagen’s (2010, p. 481) exploration of the interplay between

“emerging Davids” (supporting highly sustainable startups, akin to the scaling pathway) versus “greening Goliaths” (shifting market incumbents, the transformative pathway). Schaltegger’s (2018, p. 16) “upscaling” strongly sustainable businesses and “upgrading” incumbent businesses also speak to similar ideas.

But what BM ingredients sit at the intersection of transformation and scale?

Surprisingly, the achievement of scale, while attracting substantial importance in traditional business literature, is relatively underrepresented in SBM research, despite being recognised as a critical condition for success (Jonker et al., 2020).

Gorissen et al. (2016, p. 113) suggest that a more transformative approach to BM innovation to “move beyond the management of unsustainability”, draws on a wide range of external actors, and engages them in the co-creation of a shared agenda for systems change. This is wholly consistent with the representation of outward-looking businesses as systems change agents, discussed in Sections 2.1.2 and 2.1.3.

At the same time, a similarly open approach to innovation has also been described as “a muse for scaling” (Clay & Paul, 2012, p. 17), given some of the world’s most powerful companies have embraced elements of sourcing innovation from *outside* as well as *inside* the organisation. To explore this intersection, the subsequent sections examine where and why collaboration and value co-creation already occur in business (Section 2.2), where such collaboration intersects with sustainability and societal value creation (Section 2.3), and where dynamic, open business models meet societal value creation (Section 2.4).

2.2 Collaboration and Value Co-Creation in Business

2.2.1 Open and Collaborative Innovation

No matter who you are, most of the smartest people work for someone else.

– Bill Joy, Sun Microsystems¹⁵

¹⁵ Lakhani and Panetta (2007, p. 97).

Definitions and emergence

A dominant business strategy in the 20th century was the idea of ‘vertical integration’ (Kortmann & Piller, 2016), where businesses seek to enhance competitiveness through owning and controlling more and more of a product supply chain, to reduce transaction costs and erect barriers to competition. In such environments, the boundaries of the organisation are often firm, and most key activities occur in-house. Product research and development (R&D) commonly occurs under heavy secrecy, behind closed doors.

However, as the speed of the demands on innovation increased, accelerated by forces of digitalisation and the rising pervasiveness of the Internet, firms with closed approaches to R&D began to struggle to keep up with the evolving market. As reflected in Bill Joy’s quote above, which is referenced in management circles as “Joy’s law”, businesses began to realise that internally focussed innovation activities limited their breadth of exposure to new ideas.

The management of innovation has seen a progressive shift over recent decades towards more open forms of governance (Felin & Zenger, 2014). Companies not only increasingly acquire ideas and technologies from outside traditional organisational boundaries, but also harness external parties to exploit their own unused ideas and technologies, allowing other companies to find new markets for these innovations (Tamburisi & Bonacci, 2021).

The seeds of this trend have been around since the 1970s, with scholars observing that innovative ideas often come from outside the firm (C. Freeman, 1974; Rothwell et al., 1974). However, the official recognition of the phenomenon of actively engaging external parties in ‘open innovation’ (OI) was coined by Henry Chesbrough (2003) and has since come to be defined as:

a distributed innovation process based on purposively managed knowledge flows across organizational boundaries, using pecuniary and non-pecuniary mechanisms in line with the organization’s business model. (Chesbrough & Bogers, 2014, p. 17)

This definition refers to OI as a ‘distributed’ innovation process, which means it is not centrally controlled by a small number of executive decision-makers in the firm,

but is distributed among more frontline staff and a larger number of external parties. The second key feature of this definition is that it involves “purposively managed knowledge flows”, which may be incoming or outgoing (Chesbrough & Bogers, 2014, p. 17). While the lines are not always clearly delineated, this distinguishes OI from traditional contractual relationships that involve a transaction, but no substantive knowledge exchange. Finally, the definition is clear that knowledge does not always involve a financial exchange, with partners having a range of potential means of realising value from the relationship.

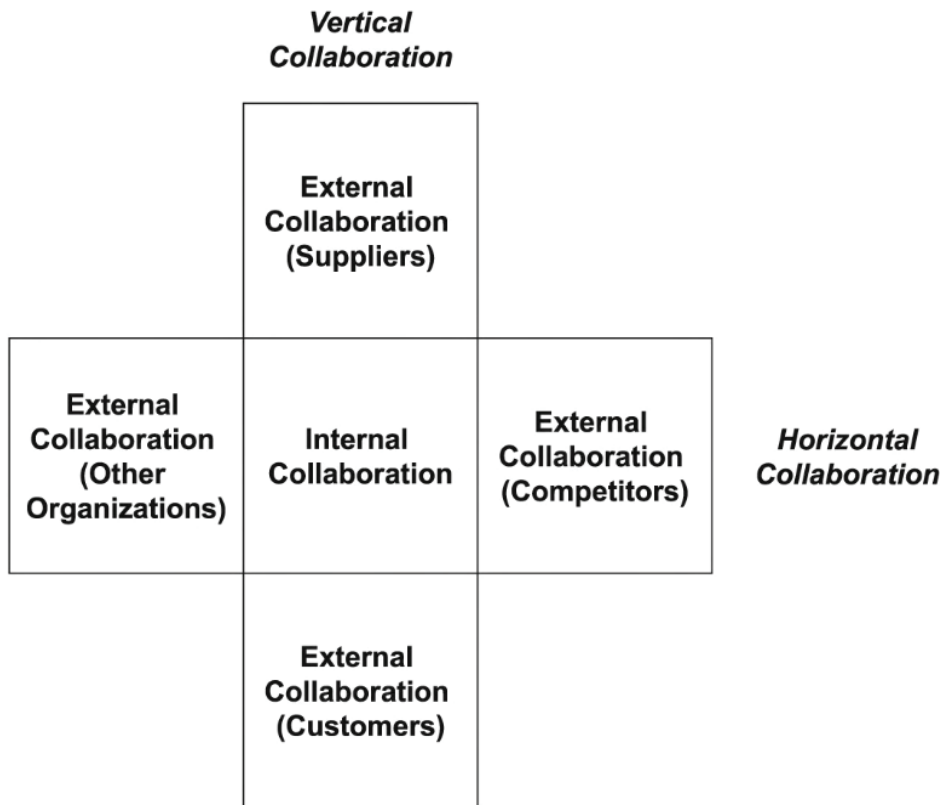
As Mason et al. (2007, p. 187) demonstrate, companies are increasingly exploiting “the competitive power of collaboration”, both *vertically*, with supply chain partners and *horizontally*, with other service providers. The advantage here, the authors argue, comes about not just from cost minimisation from novel ways of combining resources, but from *value optimisation*. That is, by finding new ways of improving service levels and associated customer satisfaction. This aligns with the identification of synergistic value creation opportunities, discussed in Section 2.1. Examined from a supply chain management perspective, Barratt’s (2004) representation of the scope of horizontal and vertical forms of collaboration is shown in Figure 6 below.

For clarity, while some literature uses the term ‘open innovation’ and others ‘collaborative innovation’,¹⁶ the two terms are considered synonymous in this thesis and are used interchangeably. In essence, collaborative innovation tends to carry a more positive association (similar to the distinction between ‘partnership’ and ‘collaboration’, discussed later in Section 2.3.2) but is not consistently used.

Therefore, this thesis talks about either open or collaborative innovation that leads to the *outcome* of societal value creation.

¹⁶ In 2014, Chesbrough and Bogers suggested that “‘open collaborative innovation’ [i.e., both terms together] and related notions refer to an innovation model that emphasizes low-cost or free production of public, nonrivalrous, non-excludable goods” (Chesbrough & Bogers, 2014, p. 16), perhaps relating notions of access pertaining to the open source software and related movements. This definition, however, has not been consistently used in the period since.

Figure 6: The Scope of Collaboration in Supply Chain Management



Source: Barratt (2004). Republished with permission of Emerald Insight via RightsLink.

Open innovation has become one of the most prolific areas in innovation management, with intense interest from both practitioners and academics, so much so that it has become unwieldy to fully rationalise (Bigliardi et al., 2021). The area has spawned at least eight academic review articles since 2010 to make sense of the rapidly expanding pool of knowledge. To recognise this trend is not to say that all companies will become open networks of value creators. Rather, Deloitte’s forward-looking Center for the Edge (2014, p. 2) argues that “a new economic landscape is beginning to emerge in which a relatively few large, concentrated players will provide infrastructure, platforms, and services that support many fragmented, niche players”. In this new landscape, they argue that both kinds of actors will play different symbiotic roles. In this world, collaboration – the ability for companies to work and transact across their boundaries – will be key to survival for all businesses, be it incumbents or disruptors (Deloitte Center for the Edge, 2014, pp. 53–54).

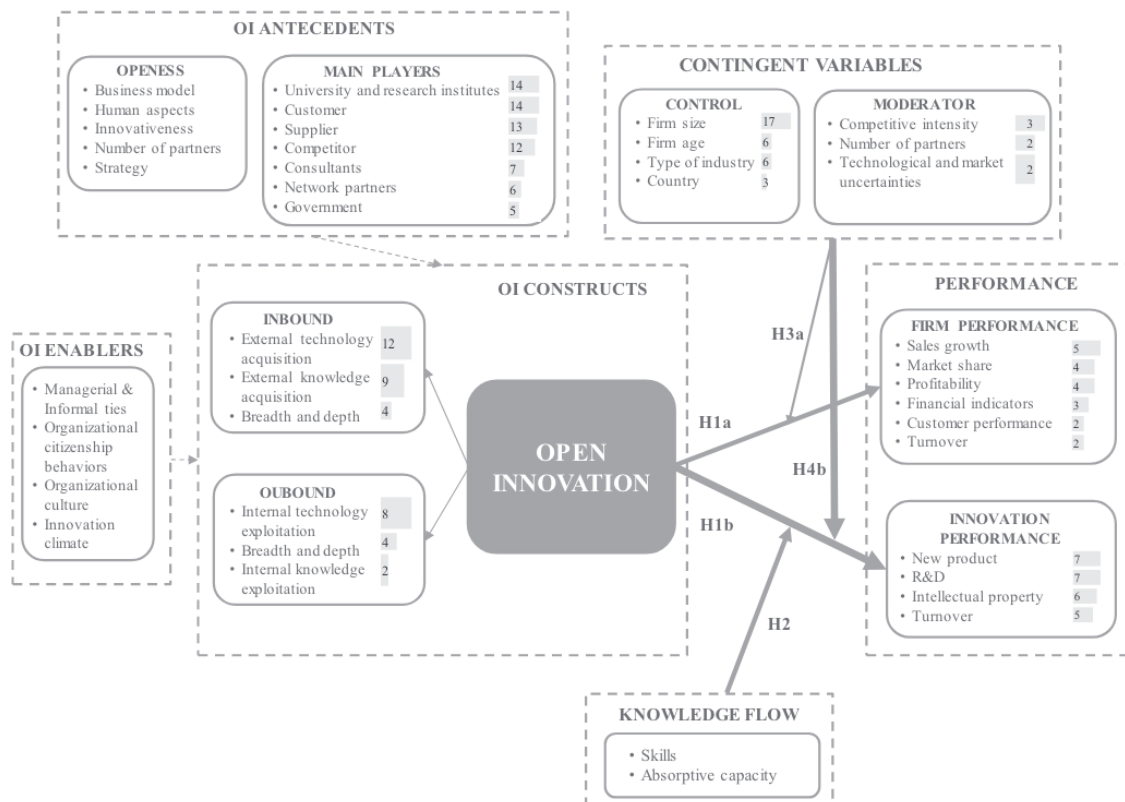
Benefits and costs

Early OI work, in particular, focussed on identifying and describing specific OI processes and evaluating the benefit of OI on firm performance (Tucci et al., 2016). Reported benefits include lower costs, reduced time to market, increased sales, number of innovations and access to new markets (Bigliardi et al., 2021). Research has also shown how openness can shift the dynamics of highly competitive markets by weakening competitors unable or unwilling to capture the benefits of openness (Alexy et al., 2018).

Incorporating the learning of 15 years of OI literature, Lopes and de Carvalho (2018) developed a “contingent conceptual model” of how OI affects financial and innovation performance, shown in Figure 7 below. While none of the individual elements forms a critical foundation for understanding this thesis, they collectively help provide a useful bird’s-eye view of OI research focal areas, including what precedes OI, who participates, enabling factors, types of exchanges, influential variables and the relationships to financial and innovation performance.

The ‘OI constructs’ in the centre are worthy of additional explanation, as the concepts recur throughout this thesis. Engagement in OI is commonly broken down into inbound and outbound activities. Inbound activities, also called ‘outside-in OI’, are where information flows into the focal organisation. An example is using crowd-sourcing platforms to advertise innovation challenges as a means of sourcing innovative solutions to pressing issues. Outbound activities, also called ‘inside-out OI’, are where information flows out of the focal organisation. An example is open-source software development, where an organisation contributes code to an open-access resource to collectively accelerate innovation.

Figure 7: Conceptual Model of the Effect of OI on Firm Performance



Source: Lopes and de Carvalho (2018, Fig.6). Republished with permission of Elsevier via RightsLink.

However, while the bulk of the literature focuses on the benefits of OI, too much openness has been shown to have negative effects (Laursen & Salter, 2014). This reflects that collaboration has real transaction costs, such as relationship establishment and management, and the costs of managing incoming or outgoing knowledge (Greco et al., 2019). Several studies have suggested that performance can suffer when alliances grow too diverse (de Leeuw et al., 2014; Garcia Martinez et al., 2017; Rodriguez et al., 2017). Bengtsson et al. (2015) find that knowledge content matters to get sufficient value from collaboration to overcome costs. Their results suggest that successful firms use highly deliberate and selective collaboration strategies to ensure the benefits exceed the transaction costs. The negative impacts of over-collaboration have led to the emergence of the concept of “OI efficiency”, to guide policymakers in supporting productive levels of collaboration (Greco, Grimaldi, et al., 2017).

Who participates and how?

The vast majority of OI research, particularly in its first decade, was on large corporate organisations. A 2013 survey of large companies found that nearly 80% reported practising some form of open innovation (Brunswick & Chesbrough, 2013), even if they did not necessarily consider themselves to be engaging in OI practices. West and Bogers' (2017) review explicitly identified the need for more research on OI in small, new, and not-for-profit organisations, as well as 'outbound' OI (which is common in businesses seeking social change creation outcomes), and emerging networked forms of collaboration, all of which are relevant to this research in the context of societal value creation.

The general lack of research on OI in small and medium enterprises (SMEs) is surprising, considering that the (albeit limited) body of research suggests that "smaller firms in fast-moving industries [are] more prone to adopt[ing] open innovation principles" (Frankenberger et al., 2014, p. 176), and that SMEs are not lagging behind large firms with respect to OI. Researchers have since begun to answer this call, as OI in SMEs has recently become one of the larger bodies of work (Bigliardi et al., 2021), even attracting its own systematic review (Sikandar & Abdul Kohar, 2021). Within this research cluster, OI has been found to be particularly beneficial for startups, particularly in high-technology settings, to overcome the inherent narrowness of expertise and resources (Gimenez-Fernandez et al., 2019).

The specific types of OI activities include the types of formal and informal elements shown in Table 1 below.

Table 1: Types of Formal and Informal OI Activities

Formal (Contractual) Activities	Informal (Non-Contractual) Activities
Joint purchasing of goods and materials	Engaging directly with lead users/customers and early adopters
Joint R&D	Participating in open-source software or knowledge development (e.g., using creative commons licensing)
Joint marketing/co-branding	Exchanging ideas through submission websites, idea 'jams' and competitions
Participating in research consortia or collaborations	Participating in or setting up innovation networks/ hubs with other organisations
'Licensing in' externally developed technologies	Sharing facilities with other organisations or researchers
Outsourcing or contracting out R&D projects	Integrating product/services with digital sharing economy platforms
Providing contract research to others	
Joint ventures, acquisitions and incubations	

Source: Adapted from survey instrument underpinning Cosh et al. (2012).

Understanding apparent contradictions

Open innovation activities manage an apparent tension between the protection and sharing of knowledge. This is referred to as the 'paradox of openness', as the creation of knowledge requires sharing, while commercialisation more commonly requires some degree of protection to retain competitive advantage (Laursen & Salter, 2014). Openness is counterintuitive to much commonly understood business logic, as it seemingly contradicts longstanding theory such as the resource-based view (RBV) of the firm, which says that firms should control valuable, rare, and inimitable resources (see Barney, 1991). However, openness is seldom boundless, and organisations are strategic in what knowledge or resources are opened to collaborators. What is actually taking place when resources are shared between organisations (and some control is surrendered) is that firms either effectively reduce their cost base in the process and/or increase the demand for the other resources or products over which they still command control (Alexy et al., 2018). Take, for example, Strategyzer, the business model innovation support organisation run by the co-developer of the BM canvas discussed in Section 2.1.1. Its original model was based on the release of tools and templates via creative commons licensing to allow others to apply their ideas, but offering training and consultancy services to assist organisations in applying those

tools.

This explains how openness can be strategic and does not fly in the face of a business' profit logic. It does not, however, tell us much about societal value creation that also underlies some firm motivations for openness. These elements are addressed in greater depth in Section 2.3, which examines where open and collaborative innovation intersects with sustainability and societal value creation.

Before tackling these intersections, however, I will touch on two other areas of business literature that feature collaborative activity and external interactions: co-creation and user innovation (Section 2.2.2) and stakeholder engagement and relationships (Section 2.2.3).

2.2.2 User Innovation and Co-Creation

A substantial body of work exists in the areas of 'co-creation' and 'user innovation'. User innovation, originally identified by von Hippel (1976), has historically had a strong focus on how engaging with lead users can create value for firms. The phenomenon is a hallmark of digital business as the Internet makes it significantly cheaper and easier to engage with user communities (von Hippel, 2017). The approach of involving users in the collaborative act of co-creation generally aligns closely with user innovation. Thus, the bulk of co-creation and user innovation literature generally deals with just one of Barratt's five dimensions of external collaboration, previously shown in Figure 6. As the field of OI has grown, however, and firms have increasingly engaged with users alongside a range of other parties, the boundaries between OI, user innovation and co-creation have blurred (Ghasemzadeh et al., 2022).

Co-creation suggests that value is not merely passed from one participant to another, but the resources of different actors are successfully combined to integrate with collaborators' *practices*. Nenonen and Storbacka (2010, p. 70) have even suggested that, rather than customers being viewed as extensions of companies' production processes, the theory should be flipped, and that "firms need to be viewed as extensions of customers' value-creating processes".

User innovation and co-creation are almost exclusively applied to the creation of financial value, primarily for the focal firm engaging in the activity, but increasingly for a network of co-creators. Some authors, however, have sought to define co-creation more broadly (as the term intuitively suggests), as “interactions between the firm, its customers, suppliers and other stakeholders to create value” (Smedlund, 2012).¹⁷ As Ramaswamy and Gouillart (2010, p. 106) argue, “In co-creation, strategy formulation involves imagining a new value chain that benefits all players in the ecosystem”, recognising that stakeholders will not participate in co-creation unless it delivers value to them in the process. Some of the co-creation examples provided in this body of work (see, e.g., Gouillart & Billings, 2013) genuinely meet the criteria for sustainable value creation seen in SBM literature and the conceptualisation of business as agents of systems change (discussed earlier, in Section 2.1.2).

Thus, while the primary framing of, and motivation for, business engagement in co-creation is financial, this is broadening. There is an emerging recognition that the greater the involvement of other value creators in the process, the more businesses are forced to understand other perspectives and adjust the nature of value creation accordingly. For example, recognising that broadening OI processes that involve a two-way exchange of knowledge will commonly involve for-profit and not-for-profit actors, theoretical frameworks for understanding co-creation have been broadened to include these different types of actors (De Silva & Wright, 2019). With this broader social remit of co-creation in mind, De Silva and Wright suggest the nature of social value generated relates to the profit orientation and main resource contributions of co-creators. They argue that a collaboration (a ‘co-creation initiative’ in their terminology) that involves working with a select group of partners will result in ‘focussed’ or narrow social value. Conversely, they suggest that a greater breadth of participation will increase the reach of social value.

2.2.3 Summary

In this section, we have seen that the concept of collaboration is by no means foreign

¹⁷ Based on the work of Prahalad and Ramaswamy (2004).

to business. Even alongside the protection of intellectual property, the benefits of strategic openness are increasingly recognised. In the past few decades, with an acceleration of digitalisation and speed of market evolution, collaboration downstream with customers, upstream with suppliers, and horizontally with competitors and other value providers has become more commonplace. Most of the discussion so far, however, has centred around seeking competitive advantage and driving financial value creation for the business. This is why OI is considered to be important for scaling, as it strengthens knowledge creation, community participation and distributed accountability, all of which are characteristics important to scalability (Clay & Paul, 2012). But if collaboration can drive scaling success, and also happens to be a vital ingredient in truly transformative business, can collaboration achieve both concurrently, and under what conditions?

The next section explores where open or collaborative innovation, and sustainability or societal value creation come together.

2.3 Open/Collaborative Innovation for Sustainability

Open innovation is often framed as tapping into a larger pool of ideas to expand the breadth and/or depth of the search for solutions to business problems (e.g., Laursen & Salter, 2006). The types of open relationships are commonly measured by the *breadth* and/or *depth* of the solution search (Saebi & Foss, 2015), and research suggests that different types of open governance (such as contracts, partnerships/alliances, contests, and user innovation communities) are suited to different business problems, according to their level of complexity and how ‘hidden’ the solutions are from the organisation conducting the search (Felin & Zenger, 2014). But in the context of business acting as an agent of change towards solving our increasingly complex and intertwined social and environmental challenges, where are societal problems in this conversation?

The bulk of OI scholarship has focussed on traditional business strategy targeting organisational growth, profit and innovation improvement (that is, within the private, for-profit sector of the economy), without an explicit focus on solving societal

problems (Chesbrough & Di Minin, 2014). Despite the goal of economic activities being to generate ‘value’, the concept of value is often undefined and used vaguely in OI literature (Chesbrough et al., 2018). Open innovation literature rarely explicitly engages with forms of value other than financial value for business owners or shareholders, linked to value creation for the customer. While monetary measures of value creation may include the “technical, economic, service, and social benefits” a customer receives (Anderson et al., 2006, p. 94), this value proposition is only from the customer perspective and lacks a multi-stakeholder lens.¹⁸ Even in more societally oriented for-profit/non-profit partnerships literature, Austin and Seitanidi (2012a, p. 952) point out that “[i]ronically, although societal betterment is the fundamental purpose for cross-sector [collaborative value creation], this is the value dimension that is least thoroughly dealt with in the literature and in practice”.

Collaboration is commonly cited as a critical ingredient as our environmental issues and solutions become increasingly complex and interconnected (e.g., Jonker et al., 2020, p. 17; Khmara & Kronenberg, 2018). A recent systemic review of stakeholder engagement in environmental innovation found that the systemic nature and technological uncertainties of environmental innovation mean that stronger external engagement capabilities are required relative to traditional innovation (De Marchi, 2012; Watson et al., 2018), facilitating a high degree of cooperation and significant levels of complementarity among network partners (De Marchi, 2012). Some researchers go so far as to argue that secondary (i.e., wider system) stakeholders may actually be more relevant for sustainable innovation than primary stakeholders (Goodman et al., 2017). In an early ethnographic research piece on collaborating for systemic change, Senge and colleagues argued that “[m]eeting the sustainability challenge will require the kind of cross-sector collaboration for which there is still no real precedent. It must be co-created by various stakeholders by interweaving work in three realms: the conceptual, the relational and the action-driven” (P. M. Senge et al., 2007, p. 44). By this, the authors mean: (i) developing a shared conception of the system to be shifted, to create clarity but without oversimplifying the complexity; (ii) using expansive dialogue, developing quality relationships based on cooperation,

¹⁸ For this reason, Chesbrough et al. (2018, p. 932) conclude that for multi-actor open-innovation settings, “value should be defined value as *all actor-perceived consequences* [emphasis added] arising from the deployment of a resource in a process”.

trust and mutuality to move beyond transactional exchanges; and; (iii) shaping collaboration towards action-oriented outcomes. This work emphasises the value of the process and involvement in terms of how stakeholders must relate, rather than the content of the patterns their interactions take.

Different stakeholders have been shown to occupy a wide range of roles in the innovation process, including *stimulators* of activity, *initiators* of ideas, *brokers/mediators* of collaborative relationships, *concept refiners*, *legitimators* (to enhance credibility), and *educators and impact extenders* to go beyond products towards their embedding within the system (Goodman et al., 2017). While a single agent might undertake multiple roles, these roles have the potential to serve as a useful framework for evaluating the completeness and complementarity of different actors within a collaboration or innovation ecosystem towards systemic change.

Yet, relative to the voluminous OI literature produced over the last two decades, only isolated bodies of literature exist at the intersection of open or collaborative innovation and sustainability or societal value creation. Indicative of this point, the most recent comprehensive review of the body of OI literature did not reveal any mention of sustainability, social or societal value creation (Bigliardi et al., 2021). The subsequent sections of this chapter addressing the areas in which these ideas come together (either centrally or peripherally) are:

- New iterations of OI, covering traditional OI and sustainability, open social innovation (OSI), and ‘open innovation 2.0’ (Section 2.3.1).
- Partnerships & Alliances (Section 2.3.2).
- Sustainable Business Models (SBMs; Section 2.3.3).

2.3.1 Evolutions of Open Innovation

Open innovation and sustainable innovation

A 2017 review of the relationship between OI and sustainable innovation or sustainability-oriented innovation (commonly referred to as SI or SOI) concluded that OI “is an important concept for sustainable innovation, although its concrete

application and impacts still remain debatable” (Rauter, Perl-Vorbach, et al., 2017, p. 249). The authors note that existing OI for sustainability literature sees the confluence of OI and sustainability as “an outside-in process, whereby external knowledge is gathered to support the internal development of [sustainable innovations]” (Rauter, Perl-Vorbach, et al., 2017, p. 254). The definition of OI for sustainability as being solely an outside-in innovation process appears artificially narrow, however, if taking account of the broader body of literature. For example, in describing OSI (discussed subsequently), Chesbrough and Di Minin (2014, p. 171) describe various inside-out innovations towards societal benefit, such as “transformation as a service“ to allow others to implement the change creation methods refined by the organisation.

The production of information or data ‘commons’ (shared public resources) is another common inside-out strategy seen in social-purpose-oriented open-source movements such as commons-based peer production (Bauwens & Pantazis, 2018; Benkler & Nissenbaum, 2006). Yet, while social value and open activity often align, the relationship between openness and societal value is far from a simplistic equation. Patenting provides a pertinent example: a common cause for debate is whether formal intellectual property (IP) protection helps or hinders collaboration and the ensuing creation of societal value. One argument is that open access to knowledge precedes collaborative behaviour, while the counterargument is that firms may be unwilling to share with partners without some protections in place. Zobel et al. (2016) finds that in the solar power industry, more patenting aids open innovation relationships for technology-intensive partnerships, but inhibits it for less technology-intensive relationships. In either case, it seems reasonable to suggest that openness towards societal value creation should consider both outside-in and inside-out OI.

Open innovation and sustainable innovation research has been grounded in applications to further circular economy collaborations (Jesus & Jugend, 2021), as well as industries such as textiles (Chaurasia et al., 2020), energy (Greco, Locatelli, et al., 2017), food (Arcese et al., 2015) and manufacturing (De Marchi, 2012). Arnold’s (2017) framework for understanding sustainable value co-creation from relationship management emphasises that the integration of both *upstream* suppliers and *downstream* customers is necessary within the innovation process. Rauter et al. (2017,

p. 265) suggest this may be because user/customer expertise helps to fit products to market needs, but is insufficient to drive the “breakthrough innovations” required to shift sustainability patterns and, as such, upstream innovation is equally vital.

Recent research identified three antecedents to facilitate OI for sustainability: openness to knowledge exchange, an effective knowledge management system to harness the value of that exchange, and finding the right organisational structure to encourage collaborators to focus attention on sustainability challenges (Chaurasia et al., 2020).¹⁹ However, the first two of these antecedents are not distinct from regular OI, which also requires these features (e.g., Papa et al., 2021; Žemaitis, 2014). ‘Organisational structure’ is not clearly defined and appears to incorporate several concepts including organisational processes for managing innovation and processing knowledge, and business model structures, but particularly flexible “organizational structures that adapt to the rapidly changing environment” (Chaurasia et al., 2020, p. 2498). Again, this is not particularly distinct from mainstream OI, in which organisational agility drives competitive advantage (Liao et al., 2019). This points to the need for greater clarity on the embedded values and contents of those exchanges and the dynamics of how the value logic of diverse stakeholders is successfully reconciled and maintained through business model innovation and design.

A review of stakeholder capabilities for environmental innovation made similar conclusions to Chaurasia et al. (2020), with the addition of a focus on managing stakeholder ‘dialogue’ and creating the collaboration space for the co-creation of value (Watson et al., 2018). Perhaps the most important concept here is stakeholder *dialogue*, which implies going beyond one-way communication, to establishing trust-based relationships in which views and opinions can be exchanged through processes of deep listening and empathy, as distinct from seeking to influence or coerce (Ayuso et al., 2006; reflecting the ideas of Isaacs, 1999). That is, the *intent* of the engagement matters, and should be to empower rather than coerce.

In seeking to better integrate OI and sustainability, Chakrabarti et al. (2020, p. 531), introduce the idea of ‘open sustainability’ which they define as “an orchestrated distributed process in which a focal company interacts with partners across

¹⁹ This is supported by work on OI and absorptive capacity as knowledge management processes underpinning successful organisational sustainability (C. M. Lopes et al., 2017).

organizational boundaries in order to better achieve its own (micro-level) sustainability objectives, its direct [partners'] (meso-level) sustainability objectives, and the broader network's (macro-level) sustainability objectives, both short and long term". This work concurs with the inclusion of outside-in and inside-out elements. Importantly, we see a recurrence of the *explicit focus* of the network's value creation and capture activities on sustainability, alongside the maintenance or enhancement of partner financial objectives. While too early to determine whether this terminology and framing will see broader academic uptake, its proposition makes the case for greater clarity at the intersection of these two bodies of thought.

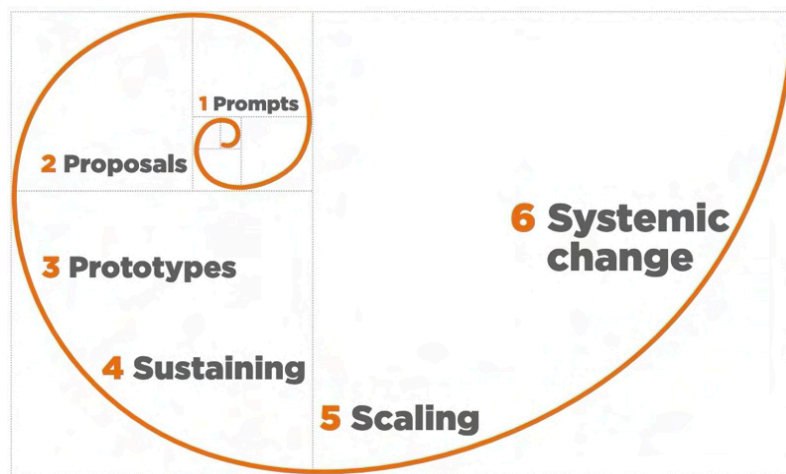
Open social innovation

Recognising the scarcity of OI focus on societal issues, and the unmet potential for OI practices to be applied in this realm, Chesbrough and Di Minin (2014, p. 169) introduce Open Social Innovation (OSI) as the application of OI strategies – and associated BM innovations – directly to social challenges. This intentionally echoes the original definition of social innovation as “new ways of doing things with the explicit purpose of responding to social needs” (Taylor, 1970). Both OI and social innovation (the two fields being combined) are their own relatively new but distinct areas. Yet, while elements of each appear in practical cases in which collaboration between public and private actors towards social goals occurs, the explicit intersection of these areas is largely overlooked by academic literature (Martins & Bermejo, 2015).

Chesbrough and Di Minin (2014, p. 187) describe OSI as a collaborative process, clearly targeting societal issues, around which a range of stakeholders gather to contribute ideas and resources, and suggest that “tapping into the resources of partners beyond a single organization's borders is quintessential for implementing the mission of the social enterprise”. Both OI and OSI clearly incorporate elements of ‘inside-out’ innovation and ‘outside-in’ innovation. A key *difference* is that OSI is driven by a social change or social service goal (often at the system level) that is not solely measurable through financial accounts (Chesbrough & Di Minin, 2014, p. 169). This is reflected in OSI adopting the stages of social innovation shown below in Figure 8, which move from prompts to proposals, prototypes, sustaining, scaling and,

finally, systemic change. While stages 1–5 have somewhat analogous counterparts in traditional innovation theory (as more commonly applied in OI), the extension to systemic change (stage 6) is the important distinction that can have flow-on effects to how initiatives are designed and approached. The actors involved are concerned with ensuring the interactions of the *entire* value chain with its surroundings, otherwise, their social goal may not be realised.

Figure 8: Stages of Social Innovation



Source: Murray et al. (2010, p. 11). Republished under CC BY NC SA Licence.

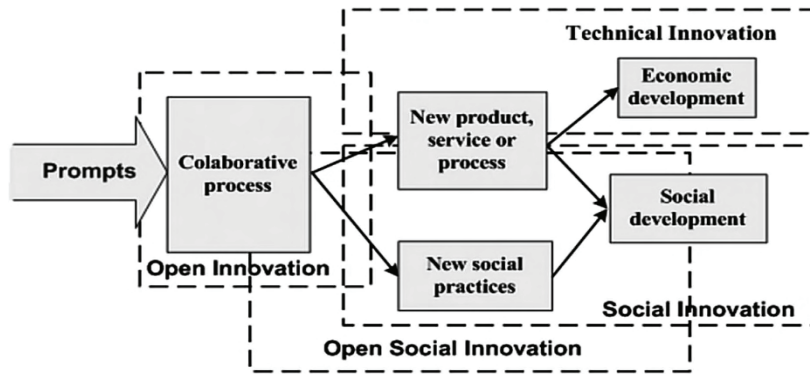
OSI also often involves a diverse range of actors beyond private organisations, many of which explicitly operate in the public interest (in terms of their mission, or individuals participating as citizens rather than customers). That is, OSI is more commonly applied to public and non-profit sector organisations (Martins & Bermejo, 2015) and may be initiated or coordinated by these actors. Mair and Gegenhuber (2021, p. 26) argue that the new era of social innovation must move past thinking of government, NGOs and business “as singular agents of social change”, which implies not only collaborative relationships but shared power and shared responsibility through the OSI process.

Reflecting social innovation theory, OSI can also target both ‘structural’ change outcomes, in which social structures evolve through new social practices, or ‘instrumental’ change outcomes, which create new mechanisms (such as products or services) to address a social need (Martins & Bermejo, 2015). Conceptually, OSI has been represented as the harnessing of collaborative OI processes to drive one or more

of the change outcomes targeted by social innovation, as shown in Figure 9.

Following this line of thinking, the extent to which social enterprises embrace open innovation has been identified as a predictor of success (Yun et al., 2017).

Figure 9: Conceptual Relationship Between Open and Social Innovation



Source: Martins et al. (2015). Republished with permission of IGI Global.

An implication of connecting these two bodies of work, Chalmers (2013) argues, is that OI can reduce barriers to the scaling of social innovations, similar to Clay and Paul’s (2012) positioning of OI as a ‘muse for scaling’, raised earlier.

Since its initial descriptions in 2013 and 2014, however, the volume of OSI has been very limited (Soylu & Sürdem, 2018), outside of the analysis of ‘fab labs’ (Rayna & Striukova, 2019) and the role of public-private partnerships (Tardivo et al., 2017). This may be due to the use of alternative terminology. In the EU, for example, similar concepts of ‘open innovation 2.0’ and ‘living labs’ are commonly applied, touched upon in the next section.

Finally, while actor diversity and systemic change creation outcomes are emphasised in OSI, this means the process is commonly viewed from the perspective of a collaborating network, rather than from an enterprise perspective of its participating partners. Therefore, a BM perspective tends to be absent from OSI literature.

Open innovation 2.0

‘Open innovation 2.0’ (OI 2.0) first came to prominence as a phenomenon through the EU’s Open Innovation Strategy and Policy Group (European Commission, 2014). The ideas have strong institutional support, although the terminology has yet

to extend deeply into academic literature outside its original architects and European Commission participants (e.g., European Commission, 2018). Curley and Salmelin (2017, p. 53) describe OI 2.0 as:

a new paradigm based on principles of integrated collaboration, co-created shared value, cultivated innovation ecosystems, unleashed exponential technologies, and rapid adoption, often accelerated by an innovation methods based on prototyping and experimentation in [sic] real world.

The authors argue that at the heart of OI 2.0 is a shared vision or purpose and a ‘quadruple helix’ partnership model that incorporates contributions from industry, government, academia, and citizens or customers. The goal is to “drive structural improvements far greater than any one organization could achieve on their own through collaborative innovation” (Curley & Salmelin, 2017, p. 53). This description, taken with the twelve principles of collaborative innovation in an OI 2.0 paradigm, summarised in Box 1 below, goes some way to painting a picture of the emerging environment in which sustainable open innovation occurs.

Box 1

Curley's Twelve Principles of Open Innovation 2.0

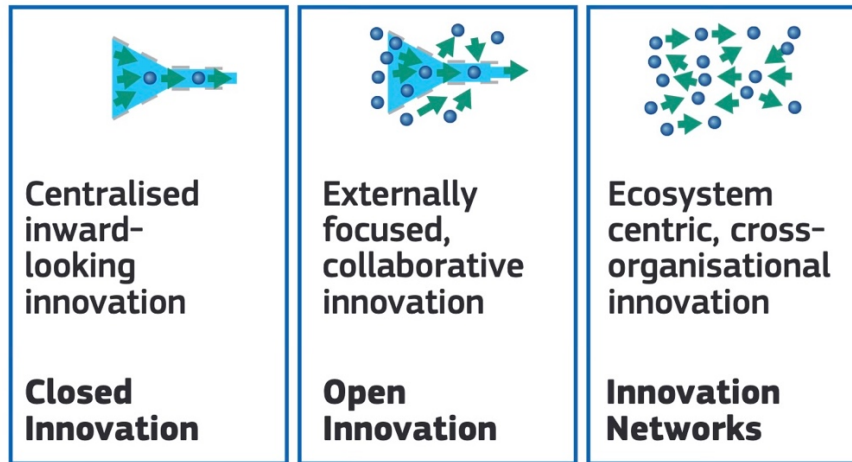
- **Purpose:** shared purpose or value.
- **Partner:** the 'quadruple helix' of government, industry, academia and citizens joining forces aligns goals, amplifies resources, attenuates risk and accelerates progress.
- **Platform:** enable collaboration.
- **Possibilities:** being open to the core innovation not actually being the product, but the business model that enabled it.
- **Plan:** focus on the scale of adoption, not product development.
- **Pyramid:** user-driven innovation.
- **Problem:** clarity of the stated need (requires a good understanding of the problem).
- **Prototype:** rapid experimentation with users.
- **Pilot:** test in real-world contexts and iterate.
- **Product:** pilots need to connect to viable product delivery chains to scale.
- **Product service systems:** going beyond products, into the realm of business models.
- **Process:** data-driven monitoring and evaluation, and agile methods.

Source: Author summary of Curley (2016, p. 215).

Open innovation 2.0 thus incorporates broader actor participation and socially oriented system goals akin to OSI, and synergistic value creation, drawing in ideas like CSV (Adams et al., 2016; Mackey, 2011; Porter & Kramer, 2011). It also incorporates digital collaboration platforms and explicitly allows for innovation to take the form of both products *and* novel business models. Its more commercial orientation reflects the more dominant role of industry in developing and

implementing the ideas and distinguishes OI 2.0 from OSI.²⁰ Nonetheless, both could be said to reflect the ecosystem-centric view represented in the third evolution of innovation, shown in Figure 10 below.

Figure 10: Evolution of Innovation



Source: European Commission (2015). Republished under CC BY NC SA 3.0 unported licence.

The type and scale of industry participants appear to primarily include larger corporate players with more extensive innovation resources. As such, OI 2.0 applications to date appear to have facilitated limited engagement from SMEs and locally contextual businesses, which may be a gap for future exploration.

The concept of ‘living labs’ (Leminen et al., 2012, p. 7), which has gained prominence in the past decade or more (particularly in Europe), could be considered to be a contextual application of OI 2.0. Despite their increasing popularity and some reporting of stakeholder benefits, relatively little is known about their ultimate contribution to societal impact (Hossain et al., 2019). This suggests that a better understanding of collaboration mechanisms and collective value capture opportunities can aid a growing movement of multiple parties constructing collective value propositions.

²⁰ More recent work in OI 2.0 explores the context of reinventing public sector organisations through ‘cluster-based innovation’ (Tamburisi & Bonacci, 2021), which begins to bridge the two concepts.

2.3.2 Partnerships and Alliances

Business literature on partnerships and strategic alliances, and in particular business partnerships with non-profit organisations, has, since the early 2000s, developed as a distinct body of work. Partnerships and alliances can be considered “as a set of governance forms that generate richer, more multi-faceted relationships that support active problem solving and provide access to external knowledge...from a wide range of external constituents” (Felin & Zenger, 2014, p. 920). Given the mostly bilateral nature of these partnerships, the literature takes a much more organisation-centric approach, as distinct from the more ecosystem- or network-centric view seen in some of the recent evolutions of OI.

Gray & Sites’ (2013, p. 17) systematic review of business collaboration for sustainability highlights that although the terms ‘partnership’ and ‘collaboration’ are commonly used interchangeably, partnerships are not always collaborative or equitable in their outcomes. The authors suggest that a more rigorous definition of collaboration should:

- involve “decisions and/or actions on issues related to a [societally oriented] problem domain”
- represent “an interactive process that uses shared rules, norms and structures”
- involve “negotiations and consensus-building”
- address trade-offs between partner needs to achieve value-sharing
- explore skills and resource complementarity
- involve “partners assum[ing] joint risks and responsibilities for the outcomes of their joint efforts”.

Many of these elements come through in the concrete propositions for improved partnership process characteristics, which include actively exploring partners’ different perspectives, competencies and values, developing a shared vision and trust, managing and resolving conflicts that arise in these explorations, and genuinely sharing power in decision-making (Gray & Sites, 2013).

While business partnerships can take many forms, an area with a stronger focus on

societal value creation is business to non-profit/NGO/social sector partnerships. Within this domain, Austin and Seitanidi (2012b) develop the multilevel collaborative value creation (CVC) framework, which begins to unpick the ‘value for whom’ issue often unstated in the OI literature. The framework establishes a value creation spectrum, a set of collaboration stages, a set of partnering processes to describe “the value creation dynamics in the formation and implementation stages” (Austin & Seitanidi, 2012b, p. 726) and categorises collaboration outcomes and impacts. These four elements help to analyse and orientate the type and nature of value creation at different scales. They define CVC (at the macro level) as “societal betterment that benefits others beyond the collaborating organizations but which happens only with their joint actions” (Austin & Seitanidi, 2012a, p. 952). These benefits that are external to partner organisational boundaries can accrue on multiple levels. At the micro-level they can accrue to *individuals* (beneficiaries with needs the collaboration seeks to address), at the meso-level partnerships can strengthen other *organisations* that exist to create societal value, or at the macro *societal* level can “contribute to welfare-enhancing systemic change in institutional arrangements, sectoral relationships, societal values and priorities, and social service and product innovations, as well as improving the environment with multiple societal benefits” (Austin & Seitanidi, 2012a, p. 952).

The collaboration continuum is shown in Figure 11 below. With business/non-profit partnerships developing out of the realm of CSR, many historically sat in the philanthropic or transactional space (denoted as Stage I or II), and were commonly led and shaped by the large corporate entity. As the continuum suggests, however, the deeper and more strategic the partnership, the greater the integration with core organisational competencies and the more ‘integrative’ and ultimately ‘transformational’. Engaging core organisational competencies central to the mission (as distinct from a peripheral addition) hints at the collaboration being closer to the core activities defined in the organisational business model. In change creation terms, the more advanced collaboration stages tending towards ‘deep trust’, ‘conjoined’ and ‘synergistic’ value creation, and common ‘external system change’ speak to the terms of more genuinely transformative business activity outlined in Section 2.1.3. Two key markers of transformational partnerships, as distinct from integrative partnerships,

are (i) targeting outputs applicable across an entire industry rather than just participants in the collaboration (i.e., a systemic view), and (ii) bringing competitors to the table in dialogue to exchange resources and ideas (Del Pilar Quiroz Galvan et al., 2021).

Figure 11: The Collaboration Continuum within the CVC Framework

	<u>Stage I</u>	<u>Stage II</u>	<u>Stage III</u>	<u>Stage IV</u>
NATURE OF RELATIONSHIP	<i>Philanthropic>Transactional>Integrative>Transformational</i>			
• Level of Engagement	<i>Low←-----→High</i>			
• Importance to Mission	<i>Peripheral ←-----→Central</i>			
• Magnitude of Resources	<i>Small←-----→Big</i>			
• Type of resources	<i>Money←-----→Core Competencies</i>			
• Scope of Activities	<i>Narrow←-----→Broad</i>			
• Interaction Level	<i>Infrequent←-----→Intensive</i>			
• Trust	<i>Modest←-----→Deep</i>			
• Internal change	<i>Minimal←-----→Great</i>			
• Managerial Complexity	<i>Simple←-----→Complex</i>			
• Strategic Value	<i>Minor←-----→Major</i>			
• Co-creation of value	<i>Sole-----→Conjoined</i>			
• Synergistic value	<i>Occasional←-----→Predominant</i>			
• Innovation	<i>Seldom←-----→Frequent</i>			
• External system change	<i>Rare←-----→Common</i>			

Source: Austin and Seitanidi (2012b, Figure I). Republished with permission of SAGE Publications via RightsLink.

Elaborating the specific benefits of collaboration for participating organisations, Austin and Seitanidi (2012b, p. Table I) distil a large body of work to identify four types of value:²¹

1. Associational value: where merely collaborating with the other organisation achieves higher exposure, visibility and/or credibility, brand reputation, increased public awareness of a desired social issue, or heightened support for the organisational mission.
2. Transferred value: financial support or other complementary skills, resources or assets received by the organisation, increased volunteer capital, market

²¹ These types of value are somewhat tailored according to whether the benefit accrued is from the perspective of the business or non-profit partner. This summary represents a combined interpretation.

knowledge or technical capability.

3. Interaction value: development of unique capabilities and knowledge creation, access to networks, greater technical expertise, reduced costs, increased ability to change behaviour, or market knowledge.
4. Synergistic value: product and service innovation or process improvement resulting from the new combinations of resources, positive organisational change, sharing leadership, increased long-term value potential, greater ability to change behaviour, or garnering more political power.

On the negative side of the equation, Austin and Seitanidi (2012a) note that partnerships increase management costs to align the different organisational value creation logics, can cause confusion, demotivation or reduced trust from mismatched organisational goals and credibility risks, cynicism or scepticism if partnerships dilute organisational ambition or ethical standards.

An additional difference in the OI and partnerships literature also requires consideration: as partnerships are just one OI mechanism (albeit a multi-faceted one), the simplicity of a continuum (Figure 11) is not a perfect match with OI literature. Open innovation literature deals with the complexities of the strategic use of specific OI mechanisms for different purposes according to the breadth and depth of the knowledge search (e.g., Felin & Zenger, 2014; Saebi & Foss, 2015). A digital renewable energy purchasing platform, for example, may require a larger number of shallower partnerships to achieve its goal, which might be transformative in sustainability terms by connecting distributed buyers and sellers that previously had no means to meet or transact.

Despite these differences in perspective, the CVC framework helps to give language and structure to the analysis and discussion of societal value creation, which is otherwise lacking in OI literature.²²

In summary, partnerships literature reveals that a greater congruency of partner missions, values and strategies comes from the development of deeper relationships

²² For more recent applications of the Collaboration Continuum to supply chains in a sustainability context see Del Pilar Quiroz Galvan et al. (2021) or to sustainability partnerships more broadly see Gray and Sites (2013, p. 25).

and trust, which reveals opportunities for synergistic value creation that may not have been immediately obvious. As partnerships become more “strategic” (Byiers et al., 2015, p. 14) and extend to the integrative stage and beyond (in which they influence value creation logic and the core organisational activities), we see an increasing intersection with SBM literature. As Byiers et al. (2015, p. 3) note, “increasingly aligning commercial and social interests are creating new business models and logics that benefit from partnership”. While SBM literature has a distinct focus on BM structures and patterns towards achieving sustainability outcomes, collaborative activity features strongly and is thus reviewed in the next section.

2.3.3 Sustainable Business Models

Recalling the key distinguishing features of SBMs, as discussed in Section 2.1.2, value creation extends into social and environmental dimensions and the value creation benefits of BM innovation accrue to a wide range of stakeholders. While sustainability outcomes and BM structures tend to be the predominant focus of SBM literature, collaborative participation in the BM innovation process is emerging within the literature as a critical foundation to achieve the desired outcomes.

The review of Lüdeke-Freund et al. (2016) talks about analysing the external ecosystem and incorporating stakeholder perspectives through design thinking. Several pieces of SBM research engage with the notion of ‘boundary-spanning’ (e.g., Brehmer et al., 2018), often building on the activity systems perspective introduced in Section 2.1.1 (Zott & Amit, 2010). This terminology recognises that business models, particularly for sustainable innovations, begin to blur the boundaries, limits, and responsibilities of firms (Lujan Salazar & Guzman, 2017).

Organisations that actively engage and shape their value chain have been shown to help partners optimise processes (improve efficiency), or distribute economic power to empower partner organisations (Spieth et al., 2019). Similarly, OI practices have been shown to positively correlate with both economic *and* sustainability performance; the latter particularly when a broader network of stakeholders, such as intermediaries or NGOs, is involved (Rauter et al., 2019, p. 255) and when greater

synergies can be identified between stakeholder and business interests (Ayuso et al., 2006). A key reason for this is that stakeholder relationships aid ‘organisational intelligence’, which helps firms to learn from their environment (Lawson & Samson, 2001). In this context, collaboration has been identified as an important strategic driver for SBM innovation by improving an organisation’s ‘dynamic capabilities’ to align or adjust its business model with a strategic sustainability vision (Bocken & Geradts, 2020). Taking a scalability lens, collaborative business models have also been identified as a mechanism for increasing the adoption of sustainable innovation (Bocken et al., 2014).

Rossignoli and Lionzo (2018, p. 694) suggest the act of a business engaging with collaborative networks forces it to “widen their definition of value and include value creation for both company and society as a [business model] goal”. This invokes an interesting chicken-or-egg question: Does the act of engaging widely result in the forming of new value creation systems? Or does participation in the collaboration occur *because of* pre-existing societally aligned value creation goals, and a diversity of parties happens to be required to solve complex problems? If the former was true, then merely enabling business collaboration could yield societal dividends. If the latter was true, it prompts reflection on both the nature of the BM innovation goals and how collaborations form and operate. The reality no doubt lies somewhere in between, as while collaboration can lead to sustainability advancement, as per Rossignoli and Lionzo’s (2018) findings, it seems intuitive that the nature of the networks and stakeholder interests therein would have a strong bearing on the focus of collaborative innovation and thereby the type of value created. At the very least, understanding and considering the interests of the full range of internal and external stakeholders affected by its innovation system is key to thinking systemically about value creation (P. M. Senge et al., 2007).

2.3.4 Summary

We saw in Section 2.2 that openness can benefit businesses by increasing the exposure of participants to a greater breadth of ideas and resources, which can be

configured in novel ways to flexibly meet emerging innovation needs. While the vast majority of this work is focussed on financial measures of business success, Section 2.3 has demonstrated that a small yet diverse body of thought exists at the intersection of open/collaborative innovation and sustainability/societal benefits, but is fragmented by terminological differences or research origins.

Nonetheless, several convergent findings emerge. The features of openness that drive competitive advantage can also improve societal value creation, *providing* that the collaboration:²³

- explicitly targets a desired societal change objective
- involves deeper relationships built on mutual benefit and empowerment, rather than coercion
- embeds a diversity of stakeholder perspectives
- involves two-way (coupled) flows of knowledge
- considers system conditions impeding the social change objective to be changeable
- is allowed to shape the core activities (BM design) of participants, particularly with regard to challenging legacy BM tensions.

To more fully explore the relationship between openness and the business model, the next section takes a deeper dive into the concept of ‘open business models’ and where they intersect with societal value creation.

2.4 Open Business Models for Societal Value Creation

2.4.1 Open Business Models

Emergence and definition

Open innovation was originally focussed on the relationship between the firm’s innovation model and its research and development (R&D) processes (as in

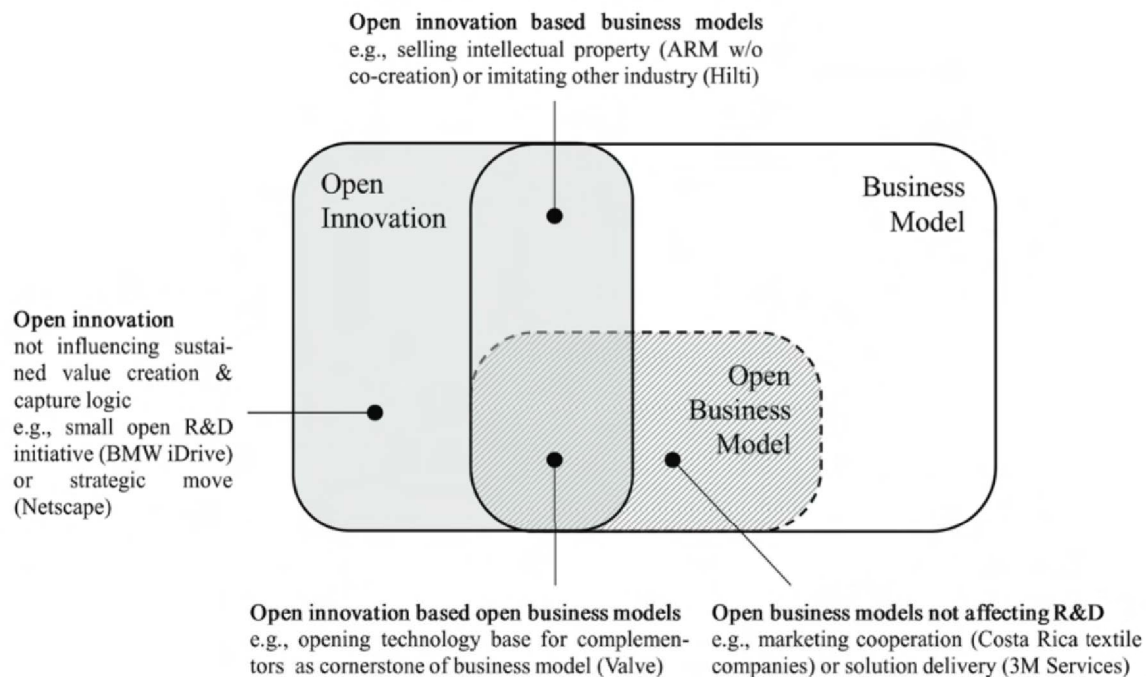
²³ This list also draws on the author’s wider reading and experience of the academic contributions.

Chesbrough, 2003). Chesbrough (2006) later went on to coin the term ‘open business models’ (OBMs), as he argued that OI yielded the greatest benefit when that innovation enabled changes to the business model logic.

Yet, while both concepts emerged at a similar time, OBMs has remained a relatively nascent area of research in comparison to the much larger body of OI research. As such, no single OBM definition has become prominent. Mejía-Trejo (2017) identified 26 different definitions or references to OBMs with subtly different, implicit relationships between OI and OBM. In my view, the distinction between OI and OBMs is best clarified by Weiblen (2016), as shown in Figure 12 below. It clarifies that some OI activities – if they are restricted to R&D – may not influence the logic of sustained value creation and capture (that is, the business model). For example, a collaborative R&D product initiative can bring new outside ideas into the innovation process, but the customer value proposition of the product and the way it reaches the market may remain closed. An example cited by Weiblen is carmaker BMW, which collaborated with a high-tech company for the development of its iDrive control system. He argues that while this clearly represents a collaboration, openness would not otherwise be considered central to the BMW business model as an automotive manufacturer.

Conversely, there are elements of OBMs that are not based on R&D ideas or technologies, which broadens the application of OBMs to include other elements of openness, such as reaching customers through partner channels or using partner networks to serve a greater diversity of customer needs. Thus, the concepts of OI and OBMs need to be recognised as distinct phenomena, even if interchangeable in certain circumstances (Holm et al., 2013). For clarity, “open innovation looks at the permeability of a firm’s research and development for ideas, whereas open business models look at collaborative value creation and capturing” (Weiblen, 2016, p. 53).

Figure 12: Overlap and Distinction Between Open Innovation, Business Models and Open Business Models



Source: Weiblen (2016, p. 53).

While Figure 12 helps to clarify areas of intersection and distinction, in practice, ‘open’ and ‘closed’ are not black-and-white concepts, but rather a spectrum with many shades of grey. Reflecting on Chesbrough’s early work, this is perhaps why, in examining case studies, he does not clearly define an OBM but instead uses phraseology such as “Each [case study] used to function with a very internally focussed, closed business model. And each has since migrated to a business model that is *substantially more open* [emphasis added]” (2007, p. 25). As Weiblen (2016, p. 54) notes, “There is reason to believe that, in today’s networked economy, there is hardly any firm that does not collaborate with its ecosystem in one way or another”. As such, it is important that openness and collaboration with external parties should go “beyond simple interactions such as sourcing from suppliers or selling to customers” (Weiblen, 2016, p. 54).

To overcome the murkiness of a continuum, albeit not objectively, Weiblen proposes the BM concept itself as a means of abstraction. Consider Wirtz et al.’s (2016) depiction of the evolution of the BM concept shown in Section 2.1.1 (Figure 1), as

evolving towards a more abstracted company-level description of value creation and capture. In this context, if – in abstracting the description of the business model at the organisational level – you still require openness to explain the value creation and capture logic, then a business model is considered to be open. Weiblen (2016, p. 57) thus considers OBMs to be a “subclass of business models”, defined as:

the design or architecture of the value creation and value capturing of a focal firm, in which collaborative relationships with the ecosystem are central to explaining the overall logic.

This abstraction helps to distinguish relatively common circumstances where a broadly closed approach to value creation and capture at the organisational level contains partnerships for limited parts of the value chain at the product level.

Elaborating on the surrounding concepts, the ‘ecosystem’ refers to the focal firm’s key stakeholders, which may include civil society, governments, other firms, citizens, and/or customers. Other authors have termed these relationships ‘partner networks’, defined as a “network of co-operative agreements with other companies needed to efficiently offer and commercialize value” (Holm et al., 2013, p. 327), or ‘value networks’, described as “a set of roles and interactions that generates a specific business, economic, or social good or outcome through dynamic exchanges of tangible and intangible value” (Allee et al., 2011, p. 31). The value network definition is more suited to societal value creation as it includes non-business actors, albeit making clear that the exchanges of value are purposeful and role-based. This distinguishes value networks from social networks, which share interests or affiliations but are not organised to get something done.

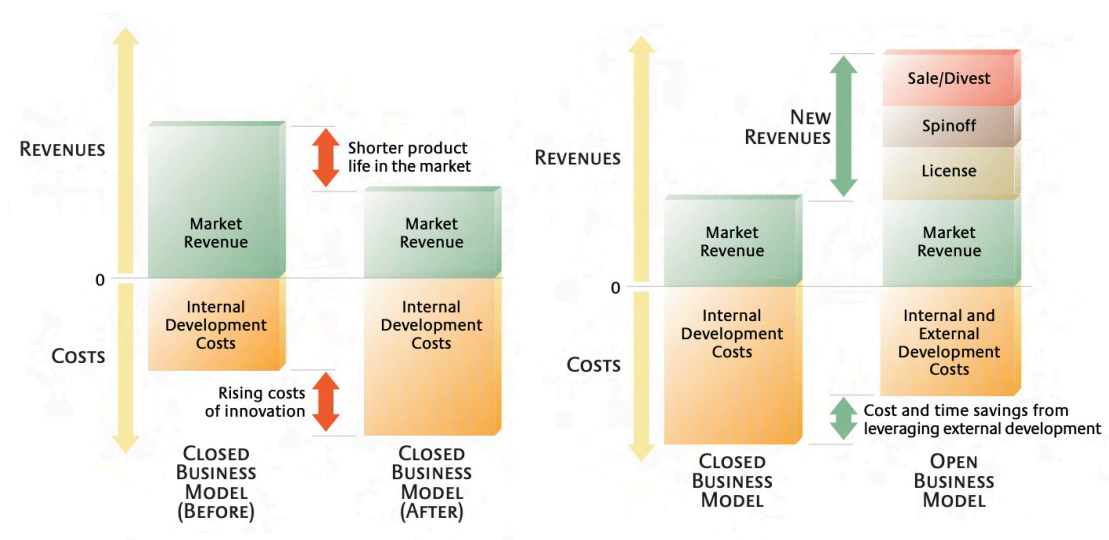
Drivers

It has been observed that OBMs are increasingly being explored by both firms and not-for-profit organisations (Benyayer & Kupp, 2017, p. 33). In explaining the rationale behind the emergence of OBMs, Chesbrough (2006) suggests that OBMs represent a novel division of innovation, in which a firm develops an innovation but sells it to other parties to bring the idea to market (representing an ‘inside-out’ OI strategy). This idea can be seen as a means of accelerating innovation and allowing

the organisation to “capture greater value by using key assets, resources, or positions not only in the company’s own business but also in other companies’ businesses” (Chesbrough, 2006, pp. 2–3). An open approach thus reduces the likelihood that good ideas lay idle.

The value of OBMs is explained diagrammatically by Chesbrough (2007, pp. 24–27) in Figure 13 below. As explained in the ‘closed’ business model on the left-hand side diagram, it used to be the case that internal R&D costs were outweighed by expected revenues. But under pressures of shorter product life in the market and rising costs of innovation, market revenues become insufficient to justify the innovation investment. Opening the business model to external innovation (right-hand side diagram) and allowing other companies to specialise in different parts of the value chain offers both new revenues and reduced costs.

Figure 13: Pressures on Closed Business Models (left) and the Relative Advantages of Open Business Models (right)



Source: Chesbrough (2007). Republished with permission of MIT Sloan Management Review.

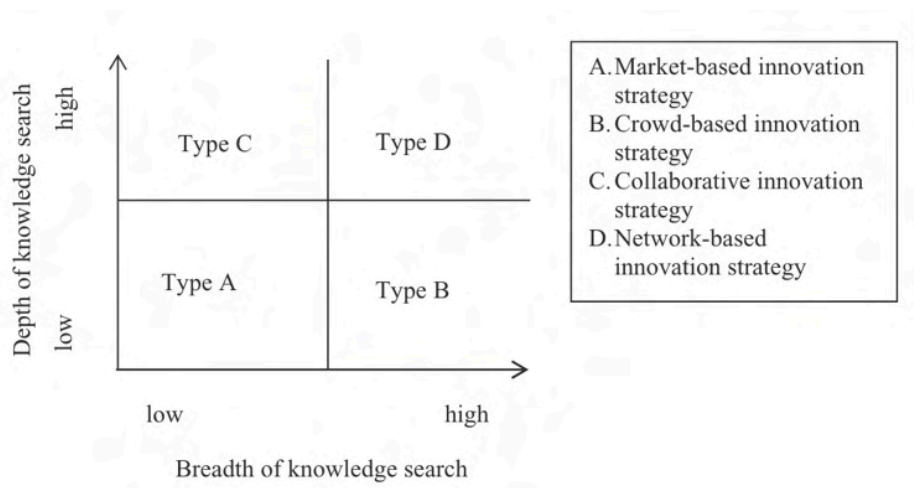
This theoretical rationale, whilst sound, explains a specific circumstance of having a surplus of ideas and only tells us about a firm’s optimisation of financial outcomes, and little about other value drivers and the use of openness to explore new business model logics to solve societal challenges.

Specific factors leading firms to shift towards more open business models include a

lack of skills to fully deliver on customer expectations, the need to create and capture new value (where previous innovation struggles to keep pace with competition), previous positive experience with collaboration (reflecting the personal experience of decision-makers), observation of other successful development of OBMs in the market, and the convergence of industries (such as electricity and transport), which make it more challenging for one company to hold all of the necessary expertise (Frankenberger et al., 2014). As such, with increasing openness, the role of resource ownership becomes less critical than *access to* resources within a network. To achieve ‘configurational fit’ between actors and their respective resources, however, collaboration and dialogue are critical (Nenonen & Storbacka, 2010).

Saebi and Foss (2015) develop a contingency model for OBMs, shown in Figure 14 below. The model employs two axes: ‘breadth of knowledge search’ (how *many* parties are involved in generating ideas), and ‘depth of knowledge search’ (the intensity with which external ideas are integrated into innovation processes) in order to define a typology of *inbound* (outside-in) OI strategies.

Figure 14: Typology of Inbound Open Innovation Strategies



Source: Saebi and Foss (2015).

A broad external search has been shown to be particularly important for BM innovation (as distinct from product or process innovation), as wider general and market knowledge is needed (Snihur & Wiklund, 2019), while deep collaborations with stronger relationships have been shown to increase access to specialised

knowledge (Brenk, 2020).²⁴

In reflecting on the Saebi and Foss (2015) typology, strong societal value creators appear to more closely fit collaborative and network-based innovation strategies (types C and D), which involve a higher *depth of knowledge search*, and also commonly utilise inside-out innovation, which is absent from this typology.

Vanhaverbeke and Chesbrough's (2014) work explicating OBMs does incorporate inside-out innovation and clarifies that an open *innovation process* can exist within either an open or a closed *business model*.²⁵ Likewise, an open business model can rely on either an open or closed innovation process. The critical distinction, they argue, is that openness in the innovation process is often temporary, with collaborative relationships coming to an end once knowledge is transferred. With OBMs, on the other hand, the joint creation of value means that collaboration partners remain in place through the product life-cycle. Given that the depth and longevity of relationships and collaborative focus on tackling societal challenges are key to societal value creation (see Section 2.3), OBMs appear to offer a greater opportunity than traditional OI. In the terminology of the CVC framework (Section 2.3.2), this places many traditional OI relationships more towards the transactional end of the continuum, and OBM relationships towards integrative or transformational.

OBM typologies

Numerous attempts have been made to categorise observed structures and patterns in 'OBM typologies'. The following are some of the most prominent examples:

- Chesbrough's (2006) early work described a six-stage BM maturity model, classifying BMs as *undifferentiated*, *partially differentiated*, *segmented* (serving multiple markets), *externally aware* (outward-looking), *integrated* (in which OI processes are harnessed within an OBM), or *platform-type BMs* (that can adapt to and shape the market around them). The latter two stages effectively describe OBMs and frame these as the most valuable BM types.

²⁴ This work suggests that BM innovation is also, albeit secondarily, supported by a broad knowledge search, where more loose relationships enable the organisation to act as a knowledge broker.

²⁵ Other authors have deviated from this position, contending that "the business model innovation process represents a necessary forerunner of an open business model" (Ghezzi et al., 2020, p. 40), although this research was rooted in a single deep case analysis.

- Kortmann and Piller (2016) typify the horizontally networked collaborative structures of OBMs as *independent firm collaborations* (bilateral relationships), *alliances* (multi-party arrangements), and *platforms* (where the focal organisation provides a connection between other distributed actors).
- Saebi and Foss (2015) describe a continuum spanning *efficiency-centric OBMs* (focussed on cost reduction), *user-centric OBMs* (externally guided value creation), *collaborative OBMs* (more radical innovations from collaboration along the value chain), and *open platform business models* (where the BM acts as an integration point for the collaboration point of multiple stakeholders).
- Frankenberger et al. (2013) categorise ‘customer solution’ oriented²⁶ firms with OBMs as having *controlled*, *joint* or *supported* configurations defined by the number of partner ties and depth of engagement with each partner. The joint and supported configurations progressively hand over control of the customer relationship to partners but allow a larger reach and number of relationships.
- Sandulli and Chesbrough (2009) talk of *partially open BMs* in the ‘buying side’ or ‘selling side’ or *fully open BMs*, which are open on both sides.
- de Man and Luvison (2019) classify three types of ‘collaborative BMs’: *sharing models* (where similar partners tightly integrate to drive economies of scale), *specialisation models* (where complementary partners loosely integrate to achieve economies of skill), and *allocation models* (where overlapping partners to share risk), each with different relationship structures, levels of partner integration and collaboration drivers.

As can be seen from the diversity of this list, OBM theory has yet to deliver common, widely used typologies that yield universal insight about particular recurrent patterns.

Recent developments and research needs

Recent work on OBMs has included barriers to development (Montakhabi et al., 2022; Montakhabi & Van Der Graaf, 2021), process guidance for when and how to

²⁶ Rather than just supplying a product, such companies seek to understand and service a whole customer problem situation.

develop an OBM (Tsutsui et al., 2020), including for SMEs and startups specifically (Ghezzi et al., 2020), and assessing the effectiveness and competitiveness of an OBM (Grabowska & Saniuk, 2022).

While theory on OBM strategy has slowly emerged, the need for more research on the dynamics of OBMs has been identified (Saebi & Foss, 2015), while analysis of sustainability or societal value creation in OBMs is scant. The subsequent sections will explore these two intersections.

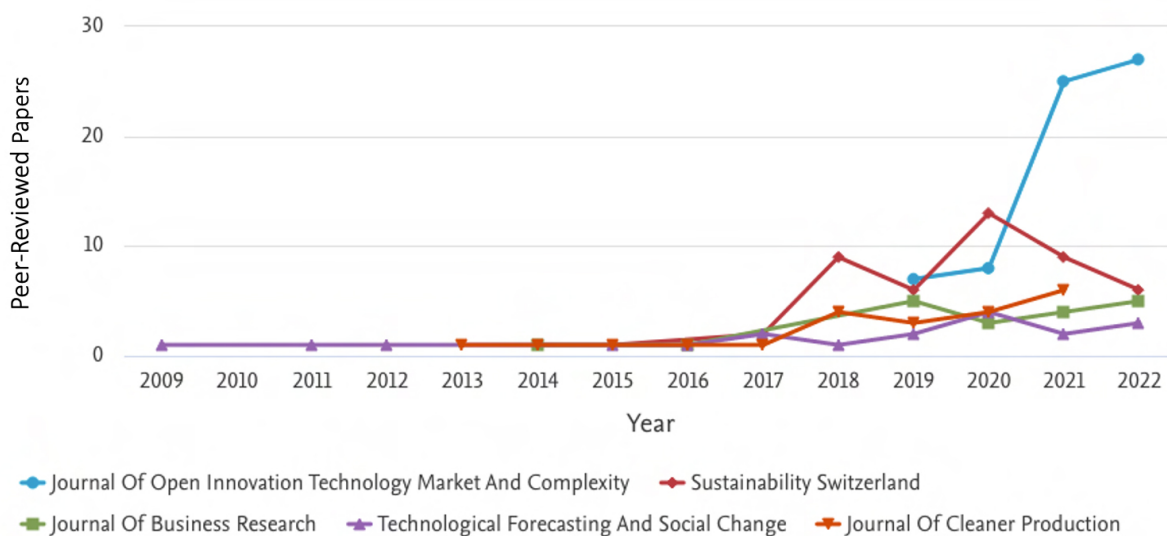
2.4.2 Where OBMs and Societal Value Creation Meet

Beyond the fleeting recognition of the existence of an ideological element in some OBM research streams, such as open-source software and the open cooperativism movements (Benyayer & Kupp, 2017), there is a very limited crossover of explicit OBM research with sustainability or societal value creation. Much of the societal problem-oriented work, such as OSI and OI 2.0 (discussed in 2.3.1), has had a limited focus on the participating and coordinating firms and the direct BM implications of the collaboration.²⁷ Sustainable business models research often touches on collaborative activity but does not use collaboration or OBMs as a lens through which to view the phenomenon. Therefore, the closest areas in which the literature crosses into the territory of business models, openness and societal value creation are *boundary-spanning SBM design, collaboration mechanisms* and *organisational capabilities* of SBMs, and isolated contributions on networked business models.

Much of the literature has emerged since the initiation of this thesis, as shown in Figure 15 below, and does not yet constitute a coherent body of work. The relevant insights of this work are explored below.

²⁷ This is despite new BMs being explicitly within the remit of OI 2.0.

Figure 15: Prevalence of Literature at the Intersection of OBMs and Sustainability/Societal Value Creation



Source: Scopus. Search criteria: “open business model” AND sustainab* OR “societal value” OR “public value”, 24 Jun 2022.

Boundary-spanning SBM design

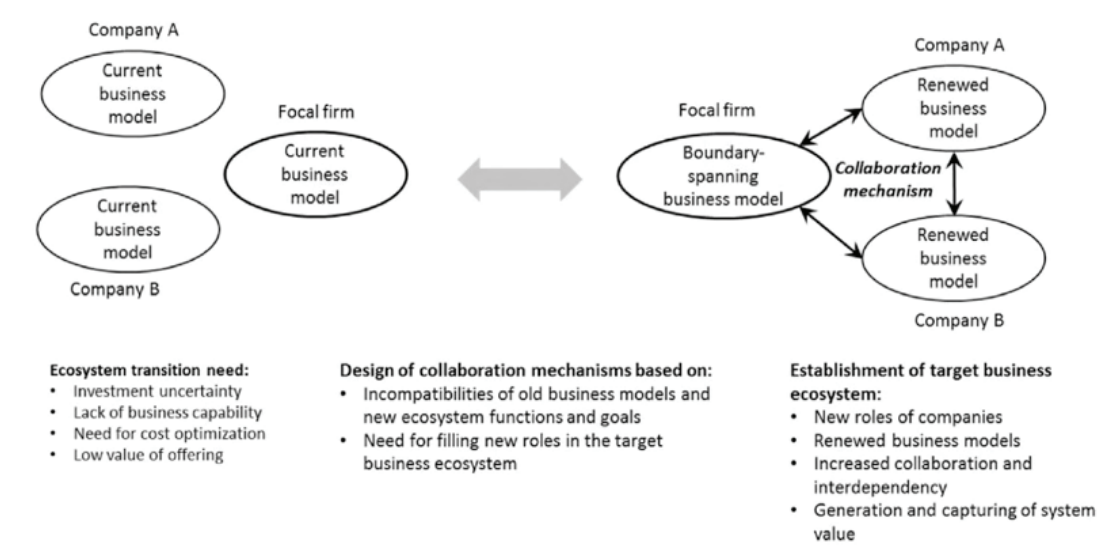
The work of Brehmer et al. (Brehmer et al., 2018) suggests in boundary-spanning SBMs, environmental value is most often observed in *value creation* components of the BM, while social value is most often observed as a product of targeting specific vulnerable or excluded customer groups, or changing which stakeholders *capture value* (that is, how the benefits of innovation are distributed). The authors suggest the delivery of social value “always constitutes a leak in value capture that is compensated by a different value transfer somewhere else in the BM” (Brehmer et al., 2018, p. 4520) which suggests that there is always deliberate financial trade-off made by the BM participants. The BM structures within which value creation and capture occur tend to represent combinations of known patterns found in conventional firms, consistent with prior observations (Rauter, Jonker, et al., 2017).

Collaboration mechanisms for societal value creation

A small body of SBM work has examined ‘collaboration mechanisms’ that underpin the establishment of BM relationships (Hansen & Schmitt, 2021; Hellström et al., 2015; Reficco et al., 2018). While none explicitly draw on an OBM perspective, it is

likely that many of the documented cases would meet this definition. Hellström et al. (2015, p. 234) use the collaboration mechanism concept²⁸ to “signify something that both triggers and enhances collaborative value creation and capture”. While somewhat loosely defined, they contend that collaboration mechanisms need to be considered in BM design alongside other commonly understood value drivers of novelty, complementarity, efficiency and lock-in (defined in Zott & Amit, 2019). The authors argue that collaboration mechanisms tie together the BMs of different organisations in new ways, while simultaneously reshaping the ecosystem towards a new desired state, as shown in Figure 16.

Figure 16: Representation of ‘Collaboration Mechanisms’ within Business Model Innovation towards Ecosystem Transition



Source: Hellström et al. (2015, fig. 4). Republished with permission of Elsevier via RightsLink.

This idea of reshaping the system is reflected in both Reficco’s (2018) ‘social construction of new markets’ and Hellström’s (2015, p. 233) finding that in all examined cases “the need of a focal firm to develop its business, ultimately requires [the] redesign of the business ecosystem it operates within”. Across these exemplary cases of sustainable and collaborative BM design, reshaping the system was vital as the targeted market segments were unable to be serviced without changes to the

²⁸ The concept of collaboration mechanisms also appears in sustainable supply chain management literature. While supply chain research broadly concurs on enablers such as resource complementarity, relationship strength and knowledge exchange (Touboulic & Walker, 2015), the lack of a BM perspective limits the application of insights in this research.

activities of a large number of parties. The complementarity of the combination of the partners' resources leads to the enabling of new activities, products or services: "none of the companies are, on their own, able to achieve the system level goals, but it is possible only within a functioning ecosystem" (Hellström et al., 2015, p. 233). Thus, the connections between internal, collaborative external, and systemic levels appear to be critical.

Taking the lens of overcoming barriers to innovation, Fichter's (2009) concept of multilevel 'innovation communities' suggest a similar point: innovation communities are present internally at the *firm level*; at the *value chain level*, covering upstream and downstream partners; and at the *framing and linking level*, which includes intermediary organisations and broader interest groups. Other 'multilevel' conceptualisations of organisational capabilities speak to similar ideas (Bidmon & Knab, 2018; De Silva et al., 2021; Slawinski et al., 2017). For example, De Silva et al. (2021) find that to deliver on dual social and financial goal requires key *founder* capabilities at the opportunity 'sensing' stage of innovation, *organisational* capabilities at the 'seizing' stage and *ecosystem-level* capabilities at the 'transformation' stage of innovation.²⁹ Innovation communities at the ecosystem or framing and linking level are important in environmental innovation in particular.³⁰ Others have suggested that 'promotor' agents that enact specific collaboration mechanisms at each of these levels are required to deliver sustainability outcomes (Hansen & Schmitt, 2021).

Approached from the opposite direction, van Waes et al. (2018) consider the scaling potential of business models to be greater where the level of friction with prevailing institutions and industry structures is lower. This connects to the paradoxical tensions of scale, discussed in Section 2.1.4, in that societal value creation requires the reshaping of the current system, but to do so is difficult and presents substantial impediments to success.

Critical to the ability of collaborative SBMs to create social and/or environmental value was the discovery of substantial new (novel) value through product or BM innovation, allowing greater dividends to be shared (Hellström et al., 2015; Reficco et

²⁹ Sensing, seizing and transforming reflects the terminological framing outlined in Teece (2018).

³⁰ The important role of innovation intermediaries has been recognised for some time in both innovation management and sustainable innovation, but is not explored in depth for this thesis.

al., 2018). To do so, the focal firm – as the collaborative coordinator – requires a deep understanding of the broader business ecosystem to identify potential value propositions for the range of partners (Hellström et al., 2015).

While Hellström et al. (2015) focussed on the economic business model dimensions of sustainable business model cases, Reficco et al. (2018) extend this to argue that social and environmental collaboration mechanisms are also required. Reficco et al. found that the range of collaboration mechanisms required a set of ‘enabling conditions’ within the focal firm. These enabling conditions included: organisational identity; policies or processes for enacting these values that underpin that identity; and capabilities such as developing deep, long-term relationships that “helped to consolidate a shared macroculture among BM partners” (Reficco et al., 2018, p. 1182). Reficco et al.’s more direct reflection on cross-boundary sustainable value creators suggested that the founding ethic of these organisations was dramatically different to incumbent enterprises: they came into existence to create change, not just to make money. Financial goals were not absent but were a means to a greater end, which flowed on to a ‘satisficing approach to value capture’ which played out in ‘fair’ pricing based on cost-to-supply rather than customer-willingness-to-pay, and the acceptance of limits to growth. These organisations had a willingness and ability to openly engage with customers where consumption of the product or service potentially conflicted with environmental limits. These antecedent identities, policies and capabilities go beyond BM design and into organisation design and culture, and raise the question of the relationship between organisation design and BM design in creating sustainable OBMs.

Mixing organisational types

The application of BM thinking beyond for-profit firms is supported by research on corporate-NGO sustainability partnerships that identify circumstances where existing BMs are redefined to combine previously incomplete value propositions of each partner or are freshly created through new partnerships. As Dahan et al. (2010, pp. 334–335) contend:

some of the most exciting, challenging and innovative developments have been multiple-organization, cross-sector partnerships, often involving national

governments, transgovernmental organizations, firms and NGOs. In these complex partnerships, the co-imagining and co-creation of complex multi-organizational business models has been as critical as the actual execution of the diverse activities by various players.

This hints at the transformative potential of diverse collaborations of organisations (with different profit models) in tackling intractable issues using BM innovation.

Watson et al. (2018) suggest that while different organisational types clearly have different value logics, organisations with the capability to understand other stakeholders' value frames and recontextualise the innovation problem from a range of different perspectives are better equipped for sustainable innovation. New institutional structures may even be created through collaboration to enable hybridised logics to coexist (Reay & Hinings, 2009).

De Silva and Wright's (2019) typology of co-creation mechanisms that generate societal impacts proposes that for-profit entrepreneurs in co-creation are more likely to achieve social impact *indirectly*, such as via services received, as a flow-on effect of profit generation. Not-for-profit entrepreneurs in co-creation, on the other hand, were seen to generate social value *directly*, in relation to their organisational objectives. The authors' cited example, however, is that a for-profit banking startup accelerator that improves the profitability of the financial services sector, generates 'indirect' social value by filling capability/skills gaps to improve financial services. This somewhat optimistic view fails to recognise, however, that alongside such indirect social benefits can often come significant direct and indirect social harms (Hinton & Maclurcan, 2017). The theory nonetheless picks up on the important point that the ultimate legal purpose of an organisation – and its associated incentives – are largely defined by its profit orientation (Hinton, 2021a).

Such binary theories, while broadly representative, may struggle to explain interactions between organisations with more mixed value drivers. As for-profit businesses seek to drive societal change agendas, and not-for-profits engage in revenue-generating activities, the boundaries between organisational types are beginning to blur (Porter & Kramer, 2011). Thus, I contend that this trend may lead to the breakdown of binary understandings of organisational motivations, and

increase the importance of understanding the collaborative dynamics of open business model logic.

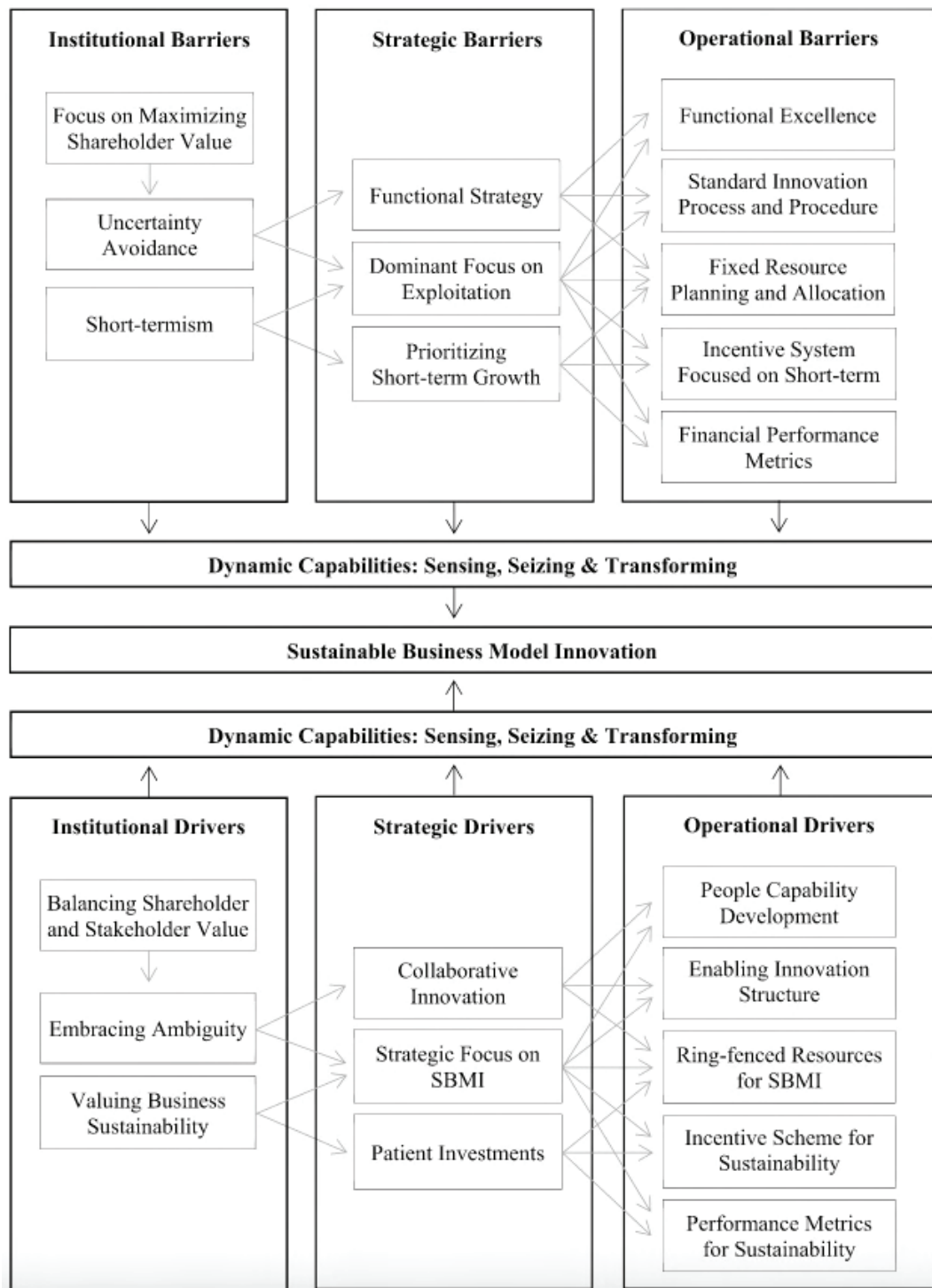
Organisation design

As alluded to above, there is clearly a relationship between BMs and organisation design (Fjeldstad & Snow, 2018). Organisation design focuses on developing effective institutions, as combinations of people, processes, structure and strategy, but also touches on management philosophy (Burton et al., 2006). Examining the influence of organisation design on the dynamic capabilities underpinning sustainable BM innovation in multinational for-profit firms undertaking SBM innovation, Bocken and Geradts (2020) identify a series of institutional, strategic and operational barriers and drivers, shown in Figure 17 below.

This work sketches out some tentative causal relationships and identifies collaborative innovation as a strategic driver that helps organisations embrace the ambiguity required to successfully identify opportunities for shared value and counteract short-termism. Bocken and Geradts (2020) also touch on elements such as the source of finance ('patient investments'), which is rarely considered in BM literature, and supports making sustainable value creation the focus of innovation. This work also provokes questions such as:

- Where are *two-way* relationships between collaboration and sustainable outcomes present, and might positive or negative feedback loops exist?
- How does collaborative innovation ultimately manifest in SBM designs, and how does sustainable value creation endure or evolve over time with continued openness?
- Can openness in BM design, in and of itself, promote sustainable outcomes? If not, what combination of other ingredients is required?
- Enablers often (but not always) appear as the inverse of, or possible solutions to, the barriers. Can they be integrated within a holistic model of dynamics towards sustainable outcomes?

Figure 17: Barriers and Drivers to Dynamic Capabilities for Sustainable BM Innovation



Source: Bocken and Geradts (2020, Fig 2.). Republished under CC BY NC ND Licence.

2.4.5 Positioning Open Business Models for Societal Value Creation

The literature review has revealed that there are numerous overlapping conceptualisations of collaborative activity in business, which use different analytical lenses such as innovation, business models, networks or ecosystems. Even when concentrating solely on literature with a BM lens, we find that open characteristics that most likely fit the OBM definition may be referred to as ‘collaborative’ business models (de Man & Luvison, 2019; Jonker et al., 2020), ‘network-based’ business models (Lund, 2012), ‘networked’ business models (Gay, 2014) or business models relating to ‘value networks’ (Breuer & Lüdeke-Freund, 2014; Enquist et al., 2015). The common feature of these BM concepts is that the logic of value creation and capture transcends an individual organisation and needs to be informed, to some extent, from a network or system perspective.

This research ultimately adopts the activity-system inspired view of the BM as the analytical unit, aligned with the position argued by Zott et al. (2019, Chapter 15, para. 34):

The perspective of the business model acknowledges that the locus of value creation has shifted beyond firm boundaries. But at the same time, it asserts that the firm remains an active shaper of its own destiny by purposefully designing the links and activities by which it embeds itself into its multiple networks. These design activities, as well as their outcomes, transcend the firm, but they remain firm-centric, and are intended to help the focal firm not only to create value in concert with its partners, but also to understand and frame its approach to appropriating a fair share of the value created.

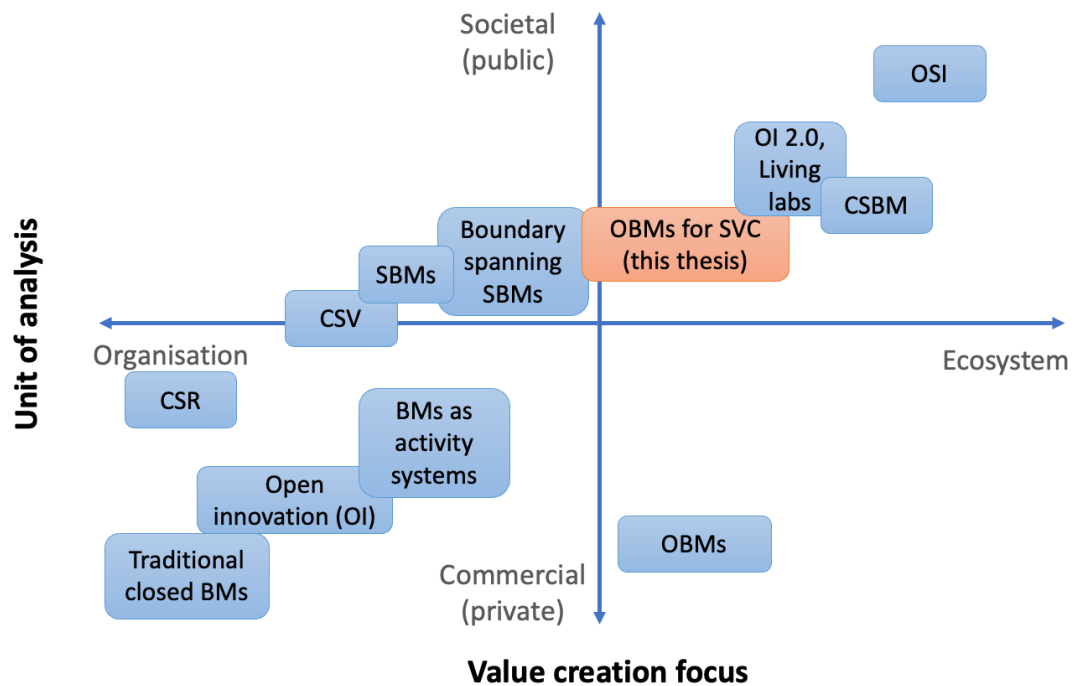
This framing allows a focus on the collaborative relationships over which an organisation has control, but with a systems-based view of the influences on societal value creation. This aligns with Hellström et al. (2015, p. 227), who (given a sustainability focus) argue that “...the business model is the appropriate unit of analysis for understanding what connects businesses and eventually triggers a system change or the formation of distributed energy (system) business ecosystems”.

To summarise the positioning of the OBMs in this thesis, the diverse bodies of work reviewed are mapped onto a two-dimensional matrix shown in Figure 18 below. The

horizontal axis maps according to the unit of analysis, from organisation-centric at one end, to ecosystem-centric at the other. The OBM lens acts as a bridge between these perspectives.

The vertical axes maps according to the value creation focus. Down the bottom, traditional BM and innovation literature are squarely focussed on private value creation. This thesis applies OBMs in a less familiar context of societal value creation, but retains the importance of the private value capture among collaborating partners.

Figure 18: Positioning of Open/Collaborative Activity in Business with Respect to the Unit of Analysis



Source: Author representation.

While OBMs have been situated within the literature from the perspective of societal needs and business drivers, the final dimension to explore is that of BM change, given the speed and scale of change required to address our most pressing collective challenges.

2.4.4 Understanding the Dynamics of how OBMs Create and Maintain Societal Value

Early work on business models in the context of OI has evolved from seeing the business model as static (Chesbrough, 2003), to having stages of maturity in which more evolved stages are more responsive to external changes (Chesbrough, 2006). Furthermore, it is increasingly recognised that the business model is a highly dynamic construct (Casadesus-Masanell & Ricart, 2007; Vanhaverbeke & Chesbrough, 2014). In the case of OBMs, in particular, this is even more so. As discussed in Section 2.2, the knowledge feedback from openness is a source of dynamism, and one of the key benefits of an OBM is the ability to rapidly evolve the business model to meet new external conditions.

Yet common tools for understanding BMs, such as the business model canvas, capture the business model as a snapshot in time, and understanding this dynamism remains a challenge. Scholars have argued that conceptualising a dynamic understanding of business models is fundamental to future research (Holm et al., 2013; Snihur & Bocken, 2022; Wirtz et al., 2016) and have specifically called for more research on the dynamics of OBMs (Saebi & Foss, 2015). Likewise, SBMs have primarily been more studied in terms of their business model characteristics at a point in time, and relatively limited effort has focussed on their evolutionary development (Rauter, Jonker, et al., 2017). The centrality of dynamics in current research needs comes through strongly in the conclusions of Zott et al. (2019, p. Ch. 15):

More research is needed into business models. What factors give rise to and shape business model designs? How do regulations, customer preferences, and competition influence the emergence and evolution of these designs? What are the dynamics and costs of business model design change, and how stable are business model designs across time? Organization scholars might be particularly interested in exploring how the firm's architecture of boundary-spanning transactions is linked to its internal organization and how the interaction of the two affects firm performance in a networked world.

What are BM dynamics?

Prima facie, the interpretation of the BM dynamics concept appears relatively straightforward: “how companies change and develop their business models to achieve sustained value creation” (Achtenhagen et al., 2013, p. 427). Yet the literature on dynamics in relation to BMs reveals substantial diversity in content and approach.

The main concepts surrounding strategic changes in a firm’s business model are BM adaptation, innovation and evolution. As summarised by Peñarroya-Farell and Miralles (2021):³¹

Business Model Adaptation (BMA) relates to strategic settings to external effects with the main goal of guaranteeing economic sustainability of the firm. Business Model Innovation (BMI) refers to radically reconfiguring firm’s competencies to respond to the external effects. Finally, Business Model Evolution is an incremental reconfiguration of some components of the business model to face the strategic challenges derived from the external effects.

Thus, the distinctions primarily lie in the degree of radicality or scope of change (how substantially the business model is changed) and the degree of novelty (newness of the business model to the organisation or industry) (Saebi, 2015). Given the scale and speed of change required to confront societal challenges, BMI (at the more radical and novel end of the spectrum) may be an appropriate frame for business model change for this research. To this radical end of the spectrum, Gauthier and Gilomen (2016, p. 139) add ‘BM redesign’, to refer to a “complete rethinking of organizations’ BM elements to bring radically new value propositions to the market”.

One stream of the heterogeneous literature on BMI views it as an *organisational change process* (Foss & Saebi, 2017)³² that implies an ability to innovate – and thereby evolve – the business model (Heikkilä et al., 2018). BMI has been described, in and of itself, as a core ‘dynamic capability’ (Sniukas, 2020) which, recalling Section 2.4.2, are

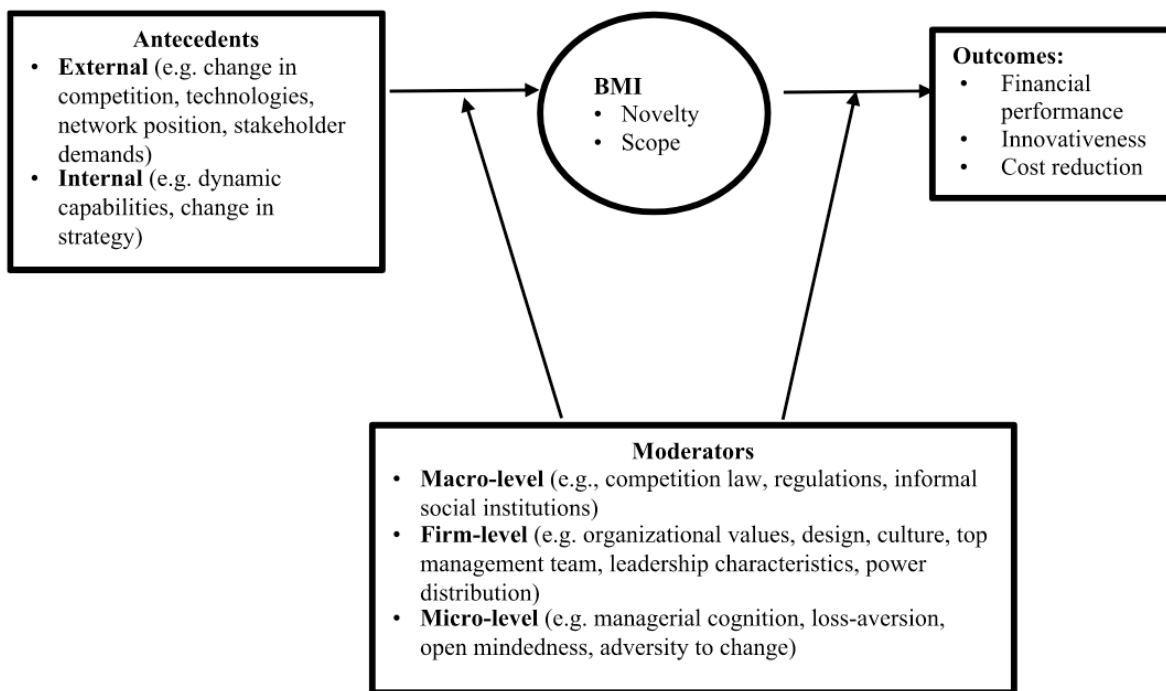
³¹ Based on the work of Saebi (2015).

³² Other streams consider BMI as an outcome or a performance variable and thus do not focus on dynamics.

considered vital to help a business modify its resource base, or develop new configurations of resources to adapt to market changes (Nenonen et al., 2019).

In their comprehensive literature review on BMI, Foss and Saebi (2017) note that BMI occurs in order to reduce cost or improve processes, to develop new products, or to access new markets, generally with the goal of driving financial performance. As of yet, the literature lacks specificity on *how* this occurs and more work on the antecedents is required (Foss & Saebi, 2017). The research framework shown in Figure 19 below proposes some helpful concepts to clarify academic research on BMI. A series of *antecedents* – internal and external stimuli – drive the phenomenon of BMI, which manifests according to the key dimensions of novelty and scope, and lead to a set of *outcomes*. Both the BMI change and the outcomes that change delivers are influenced by a set of *moderators* at the micro-, firm- or macro-(external) levels.

Figure 19: Research Model for Business Model Innovation (BMI)



Foss and Saebi (2017, p. 215). Republished with permission of SAGE Publications via RightsLink.

While this research model provides structure and language surrounding BMI, it also raises important questions, such as: How can outcomes broader than financial performance be incorporated? How do the antecedents and moderators of BMI interact? Under what conditions do they lead towards societal value creation

outcomes?

Foss and Saebi (2017, pp. 213–214) point to two key BMI research gaps relevant to the consideration of OBM dynamics: the first is clarity on **boundary conditions**. That is, the influence of factors such as organisational history or market setting on BMI choices. This may be particularly important if comparing entrepreneurial versus incumbent, young versus old or single industry versus diversified firms.

The second is the role of **organisation design**. As Foss and Saebi (2017, pp. 213–214) note:

...while BMI is often defined in terms of changing components and/or the architecture of the BM, the extent to which organizational design and control mechanism[s] need to be changed to support BMI and the extent to which a BMI requires a new organizational design are issues that have only been touched on.

A recent contribution targeting this gap is a longitudinal case study of an incumbent energy utility under the pressures of digitalisation (Latilla et al., 2019). The research demonstrated how seeking BMI precipitated the creation of a new organisational division covering numerous functions, more open to external collaboration and acquisitions, and responsible for balancing and integrating the new product and business model innovations alongside existing offerings. This had to occur alongside organisational culture and process change, to engender a culture of innovation and experimentation that was not previously present within a market incumbent.

Given the importance of foundational organisational form and values-based cultural elements to societal value creation outcomes (discussed in Section 2.4.2), this is an important relationship to continue to explicate.

Dynamics of societal value creation in OBMs

The key area of interest in this thesis is the *dynamics of how societal value is generated and maintained in OBMs*.

While SBM research has begun to examine BMI as a force for sustainability transformation in recognition that BM change is critical to achieving sustainability outcomes (e.g., Bocken et al., 2014; Breuer et al., 2018), these tend to focus on BMI

as an outcome rather than as a dynamic change process (Foss & Saebi, 2017). They also offer a greater contribution to the ideation of new BM designs than the reconfiguration of existing BMs (see Lüdeke-Freund et al., 2018).

At the organisational level, the mechanisms of societal value creation and capture have been documented in non-profit business models, recognising that societal value is a key currency for social mission-driven organisations (Cotterlaz-Rannard, 2021). A central finding of this research is that these organisations can effectively “accumulate and convert complementary forms of capital” (Cotterlaz-Rannard, 2021, p. 1). They trade a mix of economic, cultural, social and symbolic capital to deliver societal value creation, which is ultimately captured as economic capital for the non-profit through increased donations, or human resources in the form of new volunteers (thereby reducing the cost base to aid financial viability).

In for-profit organisations, resource dependence theory (RDT) has been used to describe business model change for sustainability. RDT suggests that companies’ dependence on external resources drives networked inter-organisational relationships. Rossignoli and Lionzo (2018) provide empirical evidence of a single case in which numerous product and service companies with pre-existing business models bring complementary resources together to fill a sustainability need. In doing so, the BMs of partners are extended or revised to change the value proposition, value creation and value capture and delivery. The creation of novel BM logic to share risk and reward between public and private actors in OBMs has also been described (Coombes & Nicholson, 2021).

System dynamics modelling has also been applied to demonstrate the underpinning business logic of an SBM. The dynamic relationships between basic business case drivers of reputation of brand value, risk reduction, cost reduction and employer attractiveness are linked and a set of positive feedback loops between the sustainable value proposition, the customer value proposition, and the captured value are identified (Abdelkafi & Täuscher, 2016). While this model recognises the importance of outside sources of information, it does not account for the processes of openness or the partner interdependence that we know are particularly important in OI-based networked business models that connect large firms and innovative small companies

(Gay, 2014). A more recent SBM system dynamics application uses Osterwalder and Pigneur's (2010) nine-point business model canvas decomposition, which incorporates key stakeholders as sources of strategic resources (Cosenz et al., 2020). Key sources of societal value creation represented are donations to social and environmental NGOs, social investments – which, although vague, are presented as supporting earnings and/or reputation – and providing jobs with associated pay and employment conditions. Indirect sources of societal value are public spending from taxation (clearly not specific to SBMs), along with a general indication that involving other social entrepreneurs as partners may contribute to community wellbeing. This work provides a foundation for describing the interrelationships between business model components and social, environmental, economic and customer value propositions. It falls short, however, of articulating variables that represent many of the complex governance decisions, business model choices and value creation trade-offs that commonly dilute societal impact and result, for example: the favouring of investors' over other stakeholders' interests.

2.5 Research Gaps

2.5.1 OBM's as a Lens for Societal Value Creation

This thesis seeks to contribute knowledge to the achievement of a substantial and meaningful shift in the operation and core activities of our business institutions towards the achievement of a regenerative and distributive economy. To do so, the research explores a key business model ingredient that sits at the intersection of transformation and scale: openness to external collaboration.

This review has highlighted that there are many ways in which collaboration occurs in business, primarily because it broadens the perspectives and ideas underpinning innovation. The knowledge exchange with external parties reduces delays in feedback loops, and diversifies the available resource base to more rapidly develop products and services that respond to customer needs. Bodies of work on OI and user innovation have demonstrated the positive impact of strategically managed openness on business financial performance.

However, the concept of involving beneficiaries in the innovation process appears consistent whether they are customers (in the context of refining the *customer value proposition*) or socially oriented businesses, NGOs or others (in the context of refining the *societal value proposition*). Further, we know that collaborative external relationships, if allowed to shape the core activities of the organisation, can be transformative in the context of societal value creation as they can influence the incentive system of the business.

The concept of the OBM, therefore, provides a useful frame for analysing organisations in which external collaboration inherently defines the core logic of value creation and capture. Yet OBM literature has, to date, largely been applied as a means to understand networked relationships to improve competitiveness. This reflects its emergence from OI and BM literature, in which the concept of value is rarely defined and the critical questions of “what type of value?” and “for whom?” are seldom asked. We are left to assume or deduce that financial performance is the sole yardstick of value creation. OBMs has unrealised potential with respect to understanding the conditions under which collaborative business models deliver not only private value, but societal value. This is signalled by the emergence of disconnected areas of research such as Open Innovation 2.0 and Open Social Innovation, networked SBMs, and open sustainability.

2.5.2 The Dynamics of Societal Value Creation in OBMs

This review has highlighted calls for a greater understanding of the dynamic nature of business models (Zott & Amit, 2019), SBMs (Snihur & Bocken, 2022), OBMs (Saebi & Foss, 2015) and of transformative business partnerships seeking to tackle social challenges. As Austin and Seitanidi (2012b, p. 745) note:

Given that these [more transformative] partnering forms are less common and more complex than earlier stages such as philanthropic and transactional, in-depth case studies are called for, with longitudinal or retrospective analyses required to capture the evolutionary dynamics.

This recognises that we currently lack frameworks for understanding the dynamism

that is inherent in open ways of operating, particularly with the increasing speed at which organisations must adapt to meet evolving market and societal demands. Thus, any consideration of OBMs needs to attempt to understand the process of change. If the end goal of that change is reshaping business models towards societal value creation, it is important that we understand the conditions under which collaborative activity within OBMs can contribute to achieving this goal.

Literature emerging from stakeholder management, partnerships and social innovation converge in suggesting that *how* businesses involve people matters when it comes to creating shared value: relationship depth, diversity, values, intent and shared goals are critical, alongside the concepts of mutual benefit and partnership resource complementarity. Sustainable business models literature has begun to document the social and environmental dimensions of value exchanges within the framing of BM design. This generally occurs at a ‘snapshot-in-time’. It is less clear, however, the *process* through which those exchanges emerge, and are progressively reflected in BM change over time. If the dynamics of how societal value creation is created and maintained can be better understood, this holds the potential for progressive organisational realignment with societal challenges, at the level of the business model. This is at the heart of rewiring who our businesses serve.

2.5.3 Understanding the Importance of Context

Where a direct focus on collaborative mechanisms between partners exists, studies have either not fully considered the breadth of societal value creation that is both possible and necessary (in the case of Hellström et al., 2015), or have not yet examined how such mechanisms operate outside organisations that were born sustainable (in the case of Reficco et al., 2018).

It is likely that societal value creation in OBMs may need to be understood from a range of different entry points: young/old, small/large, born sustainable/incumbent, or born open/newly open, which represents a current knowledge gap. Indeed, OBMs will commonly involve numerous partners from different starting points, with each finding its role in the eventual constellation of societal value creation, which

underscores the value of understanding the influence of context.

This review has raised several gaps in our understanding of the dynamics of societal value creation in OBMs, which inform the subsequent framing of the broader research questions for this thesis in Section 4.1. Gaps include:

- What are the prerequisites for collaboration to ultimately manifest in societal value creation within an OBM? Put another way, can the process of opening the business model in and of itself promote societal value creation? If not, what other ingredients are required?
- Are outgoing flows of knowledge also important to supporting societal value creation in OBMs?
- How does societal value endure or evolve over time with continued openness? What conditions help or hinder the maintenance of societal mission within the collaboration?
- We understand some enabling factors that precede collaborative sustainable value creation, but where do two-way relationships (feedback loops) exist between the customer and societal value propositions that help³³ deliver multiple value propositions?
- How do a firm's boundary conditions – such as its historical development or the market space it occupies – influence its BMI choices or its SVC outcomes? Is the BM innovation process in such cases different, or can it be understood using the same conceptual framework?
- How do these dynamics depend on, or relate to, the dominant body of work on sustainable BM designs?

2.5.4 Societal Value Creation Linkages to Organisation Design

There are clearly elements beyond what would traditionally be considered within the realm of BM design that have a bearing on societal mission objectives and the

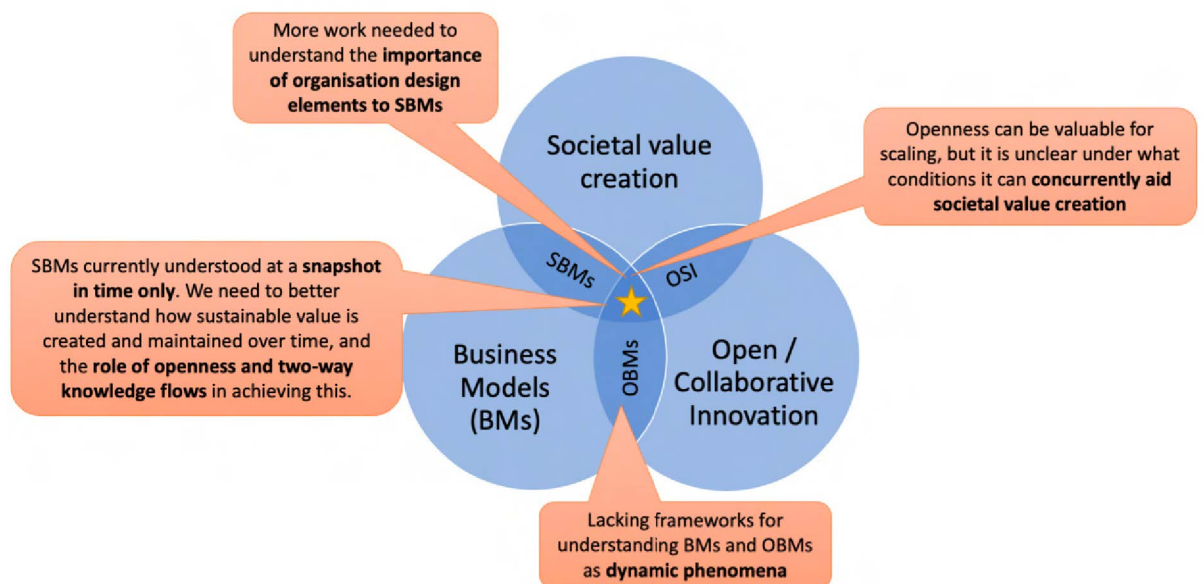
³³ Such questions are seeded by De Silva et al. (2021).

creation and longevity of societal value (Ebrahim et al., 2014; Santos et al., 2015). Collaborative SBMs commonly involve a range of organisational types, values, legal structures, governance processes, and sources of capital and profit orientation that define organisational goals. And the review has highlighted that social and environmental outcomes are often richer when a greater diversity of stakeholder types is involved, particularly non-profits, NGOs and governments with an explicit public benefit focus. Yet the role of such societally oriented actors is underresearched in innovation literature (Rauter, Perl-Vorbach, et al., 2017) and OI in particular (West et al., 2014).

The main frameworks we use to understand BMs tend to omit or gloss over these aspects. More work is, therefore, needed to understand the importance of these organisational design elements on societal value creation outcomes in the business model. This knowledge would help to inform the extent to which organisational design and control mechanisms need to be changed to support SBM innovation.

These research gaps are summarised in Figure 20 below.

Figure 20: Summary of Research Gaps



Source: Author representation.

2.6 Energy Sector: Fertile Ground for New Business Models and

Value Logic

A microcosm of the forces of societal change

The energy sector is undergoing a once-in-a-lifetime transition under the forces of the ‘three Ds’: decarbonisation, decentralisation and digitalisation (Di Silvestre et al., 2018). *Decarbonisation* represents one of the critical challenges that society must collectively address to ensure that business success aligns with societal prosperity. As a carbon-intensive sector, energy is a lead indicator of the broader progressive transition towards a net-zero-carbon economy. The associated *decentralisation* of energy generation, management and storage technology is destabilising established power structures that were founded on large, centralised infrastructure assets, which has also disrupted other sectors such as telecommunications. The emergence of the Internet enables new digital communities and exchanges and increases the flexibility of how businesses arrange processes and transactions between external partners (Amit & Zott, 2001). These processes are ‘cutting out the middle man’ in existing supply chains (dis-intermediation), creating new ways to connect buyers and sellers (re-intermediation) and increasing the flexibility of businesses to redefine their value chains, particularly across sectoral boundaries (Deloitte Center for the Edge, 2014).

As such, the energy sector represents a microcosm of some dominant social and technological forces for change and is commonly used in exemplar discussions regarding shifts in the business operating landscape. Many of the concepts raised in this review were developed with energy sector case studies, such as collaboration mechanisms (Hellström et al., 2015), organisational change (Latilla et al., 2019), networked business models (Rossignoli & Lionzo, 2018) and demonstrating connections between business models and sustainability transitions (Bidmon & Knab, 2018; Wainstein & Bumpus, 2016). Such forces are leading to energy markets that are “more flexible, fast-changing and highly dependent on the collaboration of different companies along the value chain” (Rohrbeck et al., 2013, p. 10). But this rapid change presents challenges for large hierarchical organisations built on business models that have remained largely unchanged for decades.

As a lead market, the German energy transition has specifically attracted research attention given its pioneering government policy (Bidmon & Knab, 2018; for

example, see Löbbe & Hackbarth, 2017; Rohrbeck et al., 2013). In this context, the impacts on BMI outcomes and the processes of incumbent and startup firms responding to these changes are better documented than in other markets. Hoffmann (2016) provides supporting evidence that incremental business model innovations may be best handled by incumbent firms, but more radical or disruptive BMI may need to be housed in spin-off firms or other business units outside the parent firm boundaries, to avoid challenges posed by conflicts with pre-existing business model logic. This points to a critical question touched upon in Section 2.1.2 with regard to how we collectively manage the shift of prevailing business models to more sustainable business models: is an incumbent organisation whose operations carry substantial societal tensions (such as fossil fuel generation) better off progressively reshaping its core business model to zero-carbon supply, or spinning off those innovation units to compete with it head organisation? While the challenge of business model transition could impede the success of the new model, from a societal perspective, eliminating business interests advocating for the preservation of the status quo may promote more rapid systems change. This debate has been playing out for large vertically integrated utilities or energy generator/retailers in both Europe (e.g., Steitz, 2014) and Australia (e.g., Parkinson, 2018) as they grapple with the extent to which they embrace or block the energy transition. Engaging with external partners and strategically choosing business model deployment strategies compatible with the respective partner's current business model has been recognised as a critical part of this process (Hoffmann, 2016).

Openness in the energy sector

The preceding context hints at a trend of increasing openness. Yet key energy sector institutions – which hitherto had not been required to adapt rapidly to external changes – had relatively closed modes of operation, and have only begun to embrace OI, driven by a desire for more rapid innovation and the recognition of limitations of legacy business models (Greco, Locatelli, et al., 2017).

Network- and partnership-based business models have been the subject of recent energy sector explorations in which multi-party arrangements overcome resource gaps when sustainability solutions require skills and knowledge from multiple sectors

(Rossignoli & Lionzo, 2018). Some of this work has questioned the prior findings regarding the inability or unwillingness of incumbents to radically change their BMs, arguing that the capacity for BMI was greater than previously thought, particularly where networked partnerships were present (Gauthier & Gilomen, 2016). Gauthier and Gilomen also found that many of the more radical innovations were *organisational* rather than technical, and are best explained through multi-party business model value propositions.

Ownership and collectivism

Literature on ‘community energy’ and related examination of specific organisational forms such as co-operatives – which are prominent in the renewable energy transition in Germany and Denmark in particular – are areas that most closely intersect with the ideas of societal value creation, openness and knowledge sharing. In seeking to clarify what makes a community energy project, Walker and Devine-Wright (2008) argue the importance of both *process* and *outcome* dimensions. That is, community energy should not only have local and collective value creation outcomes, but also be open and participatory in its process, as distinct from closed and institutional, in the case of large-scale commercial utility wind farms, for example. This phenomenon has led some to argue that the commonly cited ‘three Ds’ of the energy transition should in fact include a fourth: democratisation (Soutar, 2021).

While community energy takes diverse organisational and legal forms (Hewitt et al., 2019), co-operatives, as one well-researched form, cover the full value chain from generation/production to distribution/transmission and trading, and tend to have motivations of democratic participation and support of more localised renewable energy (Yildiz et al., 2015). Democratisation is also, in part, linked to ownership, which is recognised as an important element in typologies of emerging energy sector business models. The decentralisation of energy generation, management and storage technology inherently places asset ownership or control in the hands of customers or third parties, breaking down the historical dominance of large, centralised institutions (Hamwi & Lizarralde, 2017).

Both the collective societal goals and the democratic principles tend to be enshrined in the organisational governance of energy co-operatives. The latter occurs through

one member, one vote provisions, as compared to shareholder-owned companies, which generally allow governance influence proportional to the share of ownership. The combination of these features creates a key distinction from investor-owned organisations, as motivations and decision-making are anchored in serving the member base, which is often societal mission-oriented and is rarely solely profit-driven (Österberg & Nilsson, 2009). Consistent with the findings of the review thus far, trust is a critical ingredient in the control and coordination of governance in these organisations and can be foundational in building social capital (Österberg & Nilsson, 2009). Related to the building of social capital, co-operatives have been observed to play a role in overcoming barriers to the uptake of renewable energy (Viardot, 2013) and collective ownership as an objective has been the source of cross-country policy learning (e.g., Romero-Rubio & de Andrés Díaz, 2015).

The link between business models and organisational design

More recently, the BM dimensions of community energy transitions have begun to be explored, recognising the increasing complexity of BMI required to achieve market deployment (Nolden et al., 2020) and the increasing breadth of business model mechanisms to achieve collective community goals (Curran, 2021). Thus the dual importance of *organisation* and *business model* design discussed in Section 2.5 comes through in the community energy literature.

On a consistent theme, work on a deep single case study has examined the organisational changes that BMI engenders in energy incumbents, such as new structures to support OI processes, decentralisation of decision-making authority, and cultural and procedural shifts to support more agile or lean operation (Latilla et al., 2019). This case, however, approached BMI primarily from a profitability and competitiveness perspective and did not engage with the wholesale re-orientation of organisational mission or purpose, as suggested in Section 2.1.2 for organisations to become genuine agents for systems change.

Summary

The energy sector is thus rich territory for business model examination and contains a diversity of small and large players with varying degrees of ‘open’ and ‘closed’

business models and a broad spectrum of societal value creation outcomes. We are starting to see clusters of specialised organisations linking value propositions to increase the speed of innovation towards systems change. The more we understand the relationship between openness, organisation and BM design and societal value creation, the more we can direct the development of these new energy innovation ecosystems towards societal needs.

3. Conceptual Approach

3.1 A Critical Realist Perspective

What constitutes 'reality' is pivotal in defining the researcher's view of the world, and the forms of evidence that are considered valid to inform research. As a sustainability scientist grappling with the intersection of complex ecological and human systems, I find that I am forced to reckon with inherent systemic differences in what constitutes reality. From an ecological perspective, the earth has a set of fixed environmental bounds within which all life must exist or be subject to the implications of overstepping those bounds. In this context, there is clearly a reality that is critical to humanity's survival that exists outside of any individual construction of what is real, or what is important. Ecological reality exists outside of the observer. The behaviour of human systems, on the other hand, is strongly shaped by social and cultural norms and expectations that are not fixed in space or time. They are socially constructed. The social systems and institutions that govern our interactions are the result of complex interacting forces over the course of history, and what is perceived as real will differ between individuals as they engage with these systems and institutions.

While the interactions between actors in human systems could be considered to constitute an objective reality, the construction of the significance and meaning of those interactions will differ according to the observer. For example, from an organisational perspective, I consider the greenhouse gas impacts on the earth's climate system and the open and collaborative nature of the direct interactions of an organisation's employees with a host community of a renewable energy facility to be objective realities. These realities are commonly the 'what' of the phenomena of interest. In seeking to elucidate the 'how' and 'why' of the phenomena, the researcher must delve into contextually determined realities of organisational behaviour, which is guided by the legal and social norms that have evolved over time. The appropriateness and associated social licence of those actions are collectively and individually determined and will be very different in 2022 versus 1952, in Australia relative to Latin America, and to a geographer with a history of environmental activism versus a business scholar who may have come to the same research

questions from a background in CSR. Thus, my philosophical position needs to be sufficiently flexible to account for these different constructions of reality across both social and ecological systems.

This thesis takes a *critical realist* ontological position to reconcile these multiple perspectives on reality. Such a position sits between the extremes of naive realism which claims a single objective reality, and relativism, which claims that no reality exists beyond its construction by individuals (Moon & Blackman, 2014). Critical realism allows us to recognise a layered conceptualisation of reality “consisting of surface-level events and real entities with particular structures and causal properties” (Sorrell, 2018, p. 1271). Essentially this means that entities like societies or organisations cannot be studied in isolation from their environment, due to complex systemic interactions that result in unpredictable emergent outcomes (Edwards et al., 2014). This does not suggest that the ‘top-level’ systems that are most readily observable are determined by their constituent sub-systems (their ‘parts’) or by other lower-level entities. Rather, the entity under examination “has causal properties that are more than the sum of its parts” (Edwards et al., 2014, p. 7) and thus should consider those interactions in seeking to understand the emergent phenomenon. The belief that social structures such as organisations, innovation networks and relationships have causal power is a key reason for my alignment with a critical realist perspective as distinct from a constructivist perspective, which sees social structures merely as taxonomic groups (Peters et al., 2013).

This critical realist ontological stance has significant implications for what constitutes the construction of knowledge (my epistemological position), as knowledge is viewed as being constructed individually and collectively. Following from the critical realist position that there is no such thing as perfect objectivity, I recognise that the researcher and the subject are embedded within the same system, and there are no clearly defined boundaries between where the organisational system begins and ends. My perception of the organisational system as a researcher, and expert in the energy sector from within which the organisation operates, is shaped by previous research and my own understanding of what is important in its functioning. This understanding evolves with exposure to new ideas and insights. Research subjects carry a rich lived experience of organisational functioning from the role that they

inhabit as CEO, partnership manager, or innovation specialist. This research views interviewees as the primary ‘sensors’, as it is their first-hand interpretation of the system they inhabit that the research is attempting to document and compare with other similar organisational systems. But, ultimately, the sensemaking process is driven by the researcher and the insights and biases that they bring to the work. As such, I do not hesitate in incorporating an iterative knowledge production process between the subject and researcher, which seeks to enable the less visible, layered causal mechanisms to be brought to the surface.

This integration of the researcher within the knowledge-creating system is consistent with Midgley’s (2000) philosophical positioning for systems analysis, which breaks with traditional scientific practice of seeking true objectivity and delineation of subject and object of the research. Midgley convincingly argues that reductionism driven by subject/object dualism is counter to the core objectives of holistic systems thinking (Midgley, 2000). While this philosophical position is particularly important for systems *interventions* (research that expressly seeks to intervene in organisational systems as a research goal), it is equally valuable for *observational* systems research as a sub-type (or earlier stage) of action-oriented research (Midgley, 2000). Indeed, the end goal of this research is action-oriented, to improve the operation of organisational systems and system design through a fuller understanding of the systemic influences on societal value creation.

Finally, I approach this research not with the dogmatic position that a critical realist philosophy is the only true or correct lens through which to view knowledge creation. Indeed, I believe that theoretical and methodological pluralism can only enrich the insights that a collective body of research can provide, and when applied in the right circumstances, and with the right study boundaries, more realist or idealist perspectives can help to break down overly rigid framing that impedes the furthering of our understanding of the mysteries of complex systems.

3.2 Adaptive Theory Approach

This research applies an adaptive theory (Layder, 1998) approach, which takes an

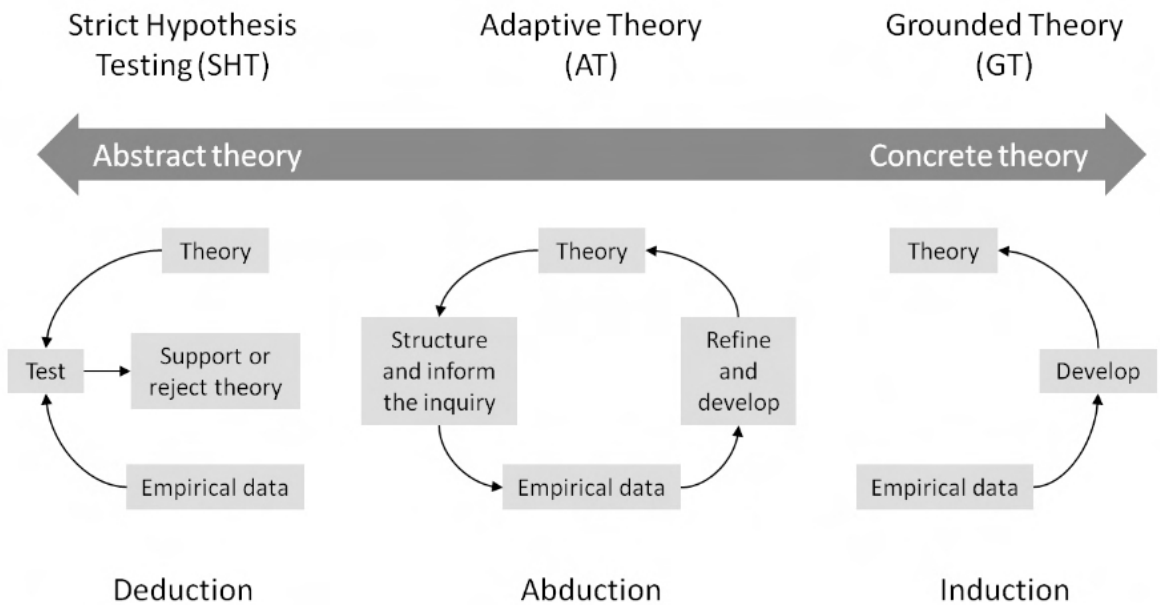
intermediate position between strict deductive hypothesis testing, and an emergent, inductive grounded theory approach. Adaptive theory recognises the need for a more flexible approach where established theory is nascent or partial, but is cognizant of the influence of existing theory in directing the focus of the research questions. This is represented graphically in Figure 21 below. In the case of this research, there is a substantial body of partial theory covering different micro-aspects of business model design, open innovation and organisational governance, but very little that touches on the systemic confluence of these factors. It is expected that a new combination and extension of existing theory will be required to explain the forces at play in shaping the systemic relationship between collaborative innovation processes and societal value creation.

Adaptive theory uses *both* processes of deduction and induction, often referred to as 'abduction'. As Behrisch (2013) describes in Figure 21, theory – often partial – provides the basis for structuring the inquiry. The understanding of the phenomena gained from empirical data aids in the refinement of theory, or the opening of new bodies of relevant theory. Refined theory then helps to iteratively restructure the inquiry, and so on. As such, the use of adaptive theory enables researchers to “see a theoretical framework as a flexible guide that can be altered according to the insights gained through empirical enquiry” (Behrisch, 2013, p. 110). For example, given that there is a wealth of governance research outlining the importance of organisational purpose in steering everyday organisational decision-making, it is reasonable to deduce that this will influence business model design decisions regarding value-sharing between stakeholders. Therefore, governance structures formed a prominent section of my lines of interview questioning. Empirical data may then reveal that other factors relating to the innovation process sit alongside the governance mechanisms to achieve benefit-sharing. This opens a new set of innovation theories to consider in order to adequately explain the phenomenon.

Adaptive theory should not be thought of as a theory *in and of itself*, in that it does not seek to explain anything, but rather as an approach to the *application of theory*, akin to grounded theory. Adaptive theory is epistemologically aligned with my critical realist positioning, in that the researcher and their prior understanding of the theory, context and values that they bring to the work, is recognised as a starting point in the

iterative process.

Figure 21: Adaptive Theory Positioned Relative to Strict Hypothesis Testing and Grounded Theory

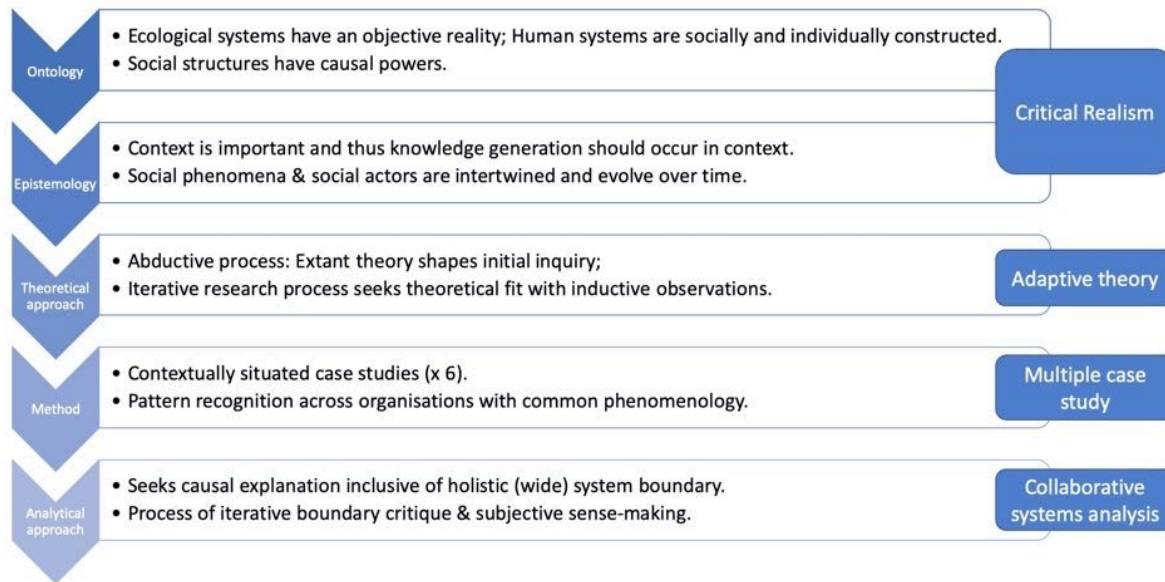


Source: *Bebrisch (2013, p. 110)*.

3.3 Relationship to the Research Design

The critical realist ontological and epistemological positioning and the adaptive theory approach to the research have several important implications for the research design and method. Each of these layers and their respective elements of importance are shown in Figure 22 below, allowing a line of sight to be drawn from philosophy through to analysis. For example, the importance of context in critical realism lays the foundation for a case-study-based approach, which aligns with a holistic systems analysis that draws a wide boundary of study, while the recognition of social structures as having causal properties sits comfortably with the analytical strategy of causal diagramming.

Figure 22: Relationship Between Ontology, Epistemology, Theoretical Approach, Method and Analytical Approach



Source: Author representation.

More detailed components of the research design are discussed in the subsequent chapter.

4. Research Design

4.1 Research Questions and Definitions

The central research question of this thesis is “Under what conditions does opening the business model lead to richer societal value creation?”

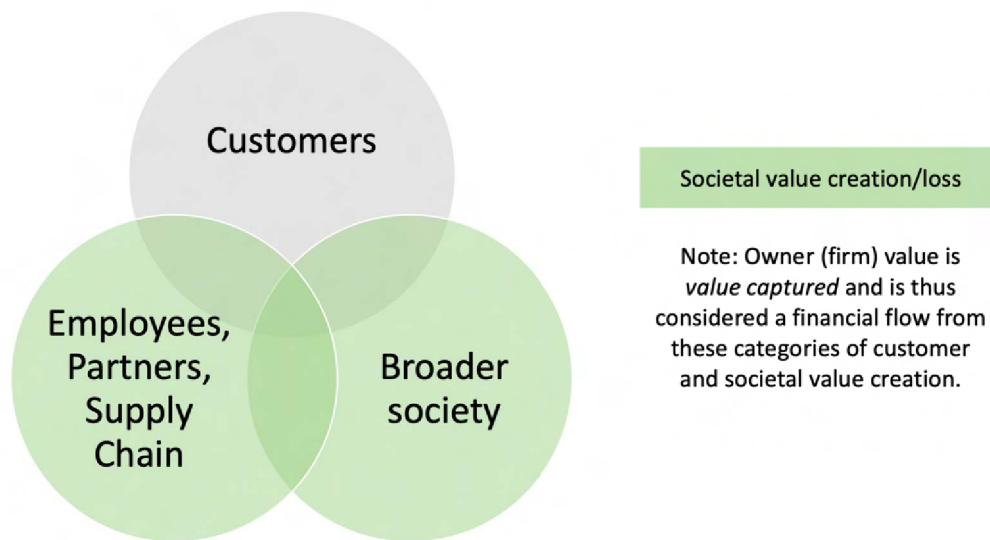
For this research, I define ‘societal value’ as:

the social, environmental or economic value that accrues to or is borne by parties other than the organisation’s owners and its customer base.

Note that this definition focuses on the *beneficiary* of the value and that ‘social value’ is just one *type* or *form* of societal value. These terms are not used interchangeably in this thesis, although discussion of existing literature may refer specifically to social value, as per the source author’s work.

Note, also, that ‘societal value creation’ considers not only how societal value is proactively *generated* by the activities encompassed by an organisation’s business model, but (where relevant) it also considers how it is *destroyed* through unresolved tensions in the business model. Thus, it implies a holistic consideration of the business model’s (intended and unintended) influence on societal value. Figure 23 below graphically represents the above definition, illustrating that societal value considers value creation accruing to (or costs borne by), broader society as well as employees, partners and supply chain stakeholders. Figure 23 also illustrates that customer value may often also be considered societally beneficial. The clearest examples of this are when the customer type being served is a marginalised customer segment (such as a product that allows renters to invest in solar power, or to cross-subsidise a low-income customer group). Thus, I am not suggesting that customer value has negative connotations, as no business would survive without creating substantial customer value. This definition, however, by separating societal value from customer and owner value, allows the analysis to isolate where customer, societal, and owner value creation and capture converge and diverge.

Figure 23: Definition of Societal Value Creation (or Loss) According to the Beneficiary



Source: Author representation.

The ‘richness’ of societal value implies consideration of the quantity of societal value creation, and the quality and diversity of societal value. For example, a business may create a large *quantity* of societal value by achieving a small environmental gain that reaches a large number of customers, a high *quality* of societal value by achieving a more transformative environmental gain, or a strong *diversity* of societal, economic and environmental value for a breadth of stakeholders.

‘Opening the business model’ refers to the process of exposing the initial design or ongoing evolution of the business model to influence from actors outside traditional organisational boundaries. This may include civil society, customers, other firms, governments, specific communities (such as those affected by the supply chain), or citizens.

Other authors have focussed on concepts similar to societal value creation, with different framing. For example, collaborative value creation (Austin & Seitanidi, 2012b, p. 728), which emerged from CSR origins, is defined as “the transitory and enduring benefits relative to the costs that are generated due to the interaction of the collaborators and that accrue to organizations, individuals, and society”. This definition is broader in terms of the types of value creation, as it includes more traditional economic or financial value capture for the organisation’s owners, and

value that accrues to customers. Both of these value creation types were intentionally excluded from my societal value definition to more clearly differentiate from private financial gain in mapping causal influences, the prioritisation of which is highlighted as an organisational governance challenge in for-profit entities. 'Public value' (Mazzucato & Ryan-Collins, 2019) has more of a focus on reframing the role of state and civic actors in value creation, although the concept of collaborative value creation between multiple stakeholders supports the notion that societal value is something most effectively generated collectively. 'Sustainable value' creation is a largely analogous concept used in numerous SBM contributions (e.g., Brehmer et al., 2018; Lüdeke-Freund et al., 2020; Yang et al., 2014). A useful 'sustainable value' definition for comparison is 'business model innovations for sustainability', which are "innovations that create significant positive and/or significantly reduced negative impacts for the environment and/or society, through changes in the way the organisation and its value-network create, deliver value and capture value (i.e., create economic value) or change their value propositions" (Bocken et al., 2014, p. 44). While very similar in intent, the societal value framing was chosen as it is explicitly concerned with *whose* interests are being served by the organisational activities, and the alignment of these interests with core societal needs. Societal value more clearly implies, for example, that economic value creation for external stakeholders (such as regional communities, that may not be explicitly marginalised or be direct participants in the supply chain), is also an important outcome in and of itself, providing the means through which this is achieved does not result in other societal externalities. Sustainable operation of society with ecological bounds is clearly a critical inclusion with the serving of societal needs. Societal value has been referred to by Eppinger (2021) as 'societal benefits', which although not explicitly defined, refers to the benefits of innovation accruing to societal stakeholders. The term 'societal value' is also used in CSR and analysis of non-profit organisations (Cotterlaz-Rannard, 2021; S. P. Lee & Babiak, 2017), as a key distinguisher from corporate shareholder financial value.

To explore the central research question, I pose three sub-questions to probe the systemic influences shaping BM evolution, as well as the different features of BM design itself:

1. What dynamics support societal value creation in open business models (OBMs)?
2. What is the relationship between the design elements of the OBM and the dynamics of societal value creation?
3. How does the business' context shape the relationship between the OBM and societal value creation?

These sub-questions are framed to cover many of the gaps identified in Section 2.5.3, picking up on the dynamics of societal value creation and their relationship to BM design and external context.

Through sub-question 1, I aim to explain *business model dynamics*³⁴ by constructing a holistic picture of the interaction of different variables that shape societal value creation in OBMs. The OBM definition adopted in this research (see Section 2.4.1) is that of Weiblen (2016) which refers to a subclass of business models in which collaboration with civil society, governments, other firms, citizens, and customers plays a central role in explaining their value creation and capture. Understanding these factors and how change occurs over time helps us to recognise desirable or undesirable conditions in shaping the organisational development towards societal value creation. As outlined in the literature review, BM dynamics constitutes an important research gap, particularly in the context of sustainable businesses.

Sub-question 2 considers *business model design*. I aim to understand how central the content and structure elements of a business model – recognising that such design elements represent only a snapshot at the time of analysis – are to societal value creation outcomes. And more specifically, how does business model design influence the operation of the dynamics analysed in sub-question #1? This helps us to understand whether positive dynamics for societal value creation can operate in the absence of good business model design features. Or conversely, to understand whether good business model design can persist without the right supporting dynamics in the form of governance or innovation processes.

³⁴ Here dynamics refers to "how companies change and develop their business models to achieve sustained value creation" (Achtenhagen et al. 2013, p.427), which requires an understanding of both the organisational conditions influencing value creation and capture, and how that change manifests in terms of BM design.

Finally, as organisational decisions and the factors that shape them are often highly contextual, my sub-question 3 focuses on the extent to which a business' context shapes aspects of research questions 1 and 2. My aim, here, is to help distinguish more universally applicable dynamics and patterns from the effect of peculiarities such as the nature of a business' particular product or service type, its place in the market, organisational history, geographical scope of operation, or external market or policy circumstances.

4.2 Unit of Analysis and Study Boundaries

The unit of analysis for this research is the focal firm, with explicit consideration of the broader partner network within its value chain. Thus, the description and analysis of the BM centre on the focal firm and consider the exchanges with:

- Primary value chain partners and collaborators, which includes those directly involved in the value chain from product or service conception to customer delivery, and with whom a direct relationship exists.
- Secondary suppliers, which includes those with whom only an indirect relationship exists, at least one degree removed. These parties have a stake in the BM either as beneficiaries (such as a network of community energy groups indirectly empowered by the focal organisation) or where they are affected by societal tensions in the BM (such as nearby communities experiencing pollution from a production process).

Consistent with other OBM research (such as Weiblen, 2016, p. 48), the rationale for this choice is that each organisation has a network of partners that may partly overlap with other organisations' networks, but is seldom an identical group. This recognises that organisations need a compelling value proposition to warrant investment in each and every partnership, given the transaction costs involved (Storbacka et al., 2012).³⁵

³⁵ An ecosystem- or network-based unit of analysis would be considered more appropriate to assess the efficacy of specific open innovation initiatives coordinated by government or innovation intermediaries, clustered alliances of organisations within a prescribed membership group, or whole-of-system

A related discussion on the process of boundary critique, undertaken as part of the systems analysis, is raised in Section 4.4.2 below.

4.3 Multiple Case Study Approach

Businesses are complex institutional systems with diverse contextual influences guiding their actions and decisions. As such, the quantitative measurement and comparison of performance between organisations, and the attribution of causality for observable outcomes, is challenging. This is particularly true in areas where theory is partial or nascent, such as the dynamics of OBMs towards societal value or sustainability outcomes. The research questions require a sufficiently deep understanding of an organisation's business model and market strategy, and a nuanced examination of the different variables influencing societal value creation. None of these variables is adequately visible from publicly available information to enable the selection of case study organisations, let alone to undertake quantitative examinations across large samples. Qualitative case study research carries value in such applications as it allows a depth of investigation of a phenomenon in the specific business context where it is taking place (Farquhar, 2012). As the research questions seek to understand the 'how' and the 'why' of the phenomenon, case studies help to more clearly understand the boundaries between the phenomenon and the contextual conditions (Yin, 2014).

As the research question seeks to develop a model of dynamics of societal value creation applicable *across* OBM organisations, a sufficiently broad sample of organisations is also required to identify common patterns and to achieve saturation in observations (Eisenhardt, 1989; Yin, 2014). Therefore, a multiple case study approach was taken, covering six focal organisations and their associated value networks, to identify similarities and differences within and between cases. The number of cases sits within the range of common practice in comparative case studies of four to ten cases (Creswell, 2018; Eisenhardt, 1989; Yin, 2014).

assessments of a sectoral innovation cluster to identify gaps and opportunities for intervention.

4.3.1 Sampling Strategy and Case Study Identification

While many business and management studies maximise coverage of different industries to aid the transferability of results, the scope of this research was confined to the energy sector to manage the potential for under-appreciation of the evolutionary circumstances that might be driving observed trends in organisational behaviour. Cases were selected from a wide range of energy sector organisations operating in Australian and/or UK energy markets. This sectoral and jurisdictional selection was guided by the researcher's deep knowledge of these markets and associated BMs, and of the key trends of decarbonisation, decentralisation and digitalisation that have shaped the sector globally over the past decade.

Within the defined sectoral and jurisdictional boundaries, purposive sampling of both businesses and subjects was utilised (as opposed to random or stratified) to obtain information-rich cases (Flyvbjerg, 2006). Focal businesses with clearly open BMs were sought, covering a range of origins ('born sustainable' versus 'transitioned to sustainability'), energy market niches (e.g., retail, manufacturing, software, financing), sizes, ages, and finance, ownership and governance circumstances to represent the range of businesses in the energy market. Businesses were required to be at operating for at least 3–5 years, with a clear product offering in the market, to avoid nascent startups that may be too early in the establishment phase to provide reliable perspectives on the evolution of their OBM.

Purposive case selection can be challenging when it is often not possible to understand the detail of an organisation's business model or innovation strategy from public information, such as its website. Therefore, a self-identification survey (elaborated further in Section 4.3.3 below), was necessary to establish whether a business conformed to the OBM definition, at the same time as gathering contextual data such as organisational size, age, governance and finance.

Whilst critical cases, such as unsuccessful attempts to orient business models towards societal value creation or failed attempts to shift business model strategy towards openness, may be of interest to test theory if using a progressive 'replication logic' (Yin, 2014, p. 57), there was little incentive for such businesses to volunteer participation as a negative case example. As such, the logic applied to case selection

was to obtain as much natural variation in business types and contexts within OBM organisations that fell within the study boundaries.

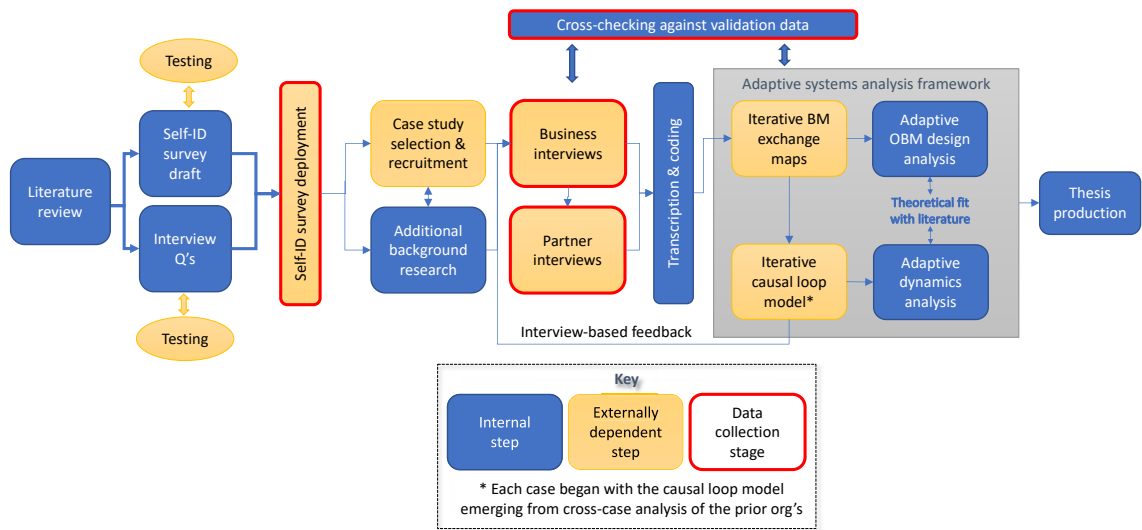
Thus, rather than testing the breadth of application of the results through replication logic across industries, the analysis employs a comparison of the emerging findings with a broad range of business literature (Eisenhardt, 1989), which covers a wider array of industries.

The selection of respondents within organisations is discussed in Section 4.3.3 below.

4.3.2 Research Process Overview

The research process is described in the flow diagram in Figure 24, below. An initial literature review informed the development of a self-identification survey and interview questions, both of which were tested with colleagues and business owners known to the researcher. The survey was designed to serve a dual intent: primarily, to identify a balanced and market-representative set of organisations with OBMs; and secondly, to help understand the diversity, maturity and prevalence of OBMs in the energy sector more broadly. After case selection and background research on participating organisations, a series of semi-structured interviews formed the core of the data collection phase. As part of an adaptive systems analysis framework (detailed in Section 4.4), two forms of iterative visual analysis were then undertaken and cross-checked with informants and other sources of data for validation. A subsequent adaptive theory-driven process of analysis sought to identify both a theoretical fit with the literature and new tools that better revealed the specific affordances of OBM designs with regard to societal value creation.

Figure 24: Research Method Process Diagram



Source: Author representation.

4.3.3 Data Sources

The data gathering for each case was based on three sources of data, each highlighted with a red border in Figure 24, then discussed in more detail below:

- Self-identification survey to inform case selection (primary data).
- Semi-structured interviews with focal and partner organisations (primary data).
- Validation data such as organisational websites and supporting documents (secondary data).

Self-identification survey

Applying Weiblen’s (2016, p. 56) OBM definition to complex real-world organisations often does not yield a clearly delineated group: the openness of activities covers a broad spectrum, and whether an organisation’s external relationships “plays a central role in explaining value creation and capturing” is to some extent a matter of interpretation. Other OBM studies, such as Frankenberger

et al. (2013, p. 674) select OBMs by ensuring “a significant amount of externally sourced activities is included in the value creation process”. However, such interpretation requires a relatively sophisticated understanding of that organisation’s BM, often beyond what can be readily ascertained from the company’s website. Further, as clear language is lacking to describe OBMs in common parlance, businesses were not always clear whether their BM was indeed ‘open’. Business identification was also complicated by the issue of what constitutes a ‘collaborator’ (or partner) versus a more traditional contractual service provider to whom a service or skill set is merely outsourced. Contractors were considered to be providers of ‘commodity’ products or services within an organisation’s BM, with whom no direct innovation knowledge exchange occurs (and in many cases, could be readily substitutable for an alternative product/service). Therefore, I extended Weiblen’s (2016) OBM definition as follows:

‘Open business models’ refer to a subclass of business models in which collaboration with civil society, governments, other firms, citizens, and/or customers plays a central role in explaining their value creation and capture. ‘Collaboration’, in this context, refers to a non-exclusive relationship between two autonomous entities that work jointly to create mutual benefits, in which purposively managed knowledge flows across organisational boundaries.

This definition elaborates on key components of the Chesbrough and Bogers (2014) open innovation definition to explicitly distinguish collaboration from more traditional transactional product or service exchange relationships. For example, a business utilising a web server company in a basic commodity service transaction would not be deemed a collaborative relationship; however, working with a software provider to share knowledge to create a bespoke offering that is core to the business model, would meet the definition.

To tackle this OBM organisational selection challenge, a self-identification survey was developed to allow an organisational representative to nominate the roles and functions of external parties in their business model design and evolution. The survey was promoted through channels such as open innovation networks, sustainable business networks, relevant social media groups (Facebook, LinkedIn), mailing lists,

and via relevant Australian and UK industry contacts known to the researcher and researcher's organisational colleagues. The social media-based marketing of this survey to 'collaborative energy businesses' is shown with the survey questions in Appendix D.

The survey included four sections:

1. Organisational Profile (covering organisation size, age, market, and growth trajectory).
2. Purpose, Business Model & Value Creation (e.g., mission, products/services, and customer and societal value propositions).
3. Openness to Collaboration & Innovation (types of open innovation activities, and knowledge transfer).
4. Ownership, Governance & Finance (covering legal form, ownership and control rights, and sources of finance).

Finally, respondents were asked if their organisation was interested and willing to participate in a deeper case study.

Beyond selecting cases, the survey was also intended to help understand the diversity, maturity and prevalence of open OBMs in the energy sector more broadly. Obtaining sufficiently high response rates to achieve the latter was challenging, however.

Ultimately, only 33 responses were received out of the desired sample of 100. This included switching from an initial 'publicise and wait' strategy, to a specific organisational targeting strategy based on identifying potential candidate organisations from conversations with industry experts (referral-based 'snowball' sampling),³⁶ attending relevant public events, and targeted online research. As such, the final sample was a mix of self-selected and specific researcher-initiated participation requests via social media, email or in-person events. The survey largely informed organisational eligibility for case study interviews and provided a suite of background data that enabled interview questions to be more targeted. The key question through which OBM eligibility was determined is shown in Figure 25 below: if an organisation selected one or more external collaborators in the 'initial

³⁶ See Merriam and Tisdell (2016, p. 98).

business model design’, ‘testing or adapting your business model’ or ‘ideation phase of new product/service design’ rows, this was interpreted to constitute an OBM, as collaboration in these phases is considered was considered central to shaping the BM.

As open practices exist on a spectrum, a more strongly open business model would include external collaboration either in more stages (rows) or a greater diversity of collaborator types in one or more stages. A second question on the type of open innovation activities also deepened the contextual understanding of the answer to the key OBM eligibility question. Section 5.1 reports the frequency of different types and stages of collaboration and open innovation activities in the final set of case studies.

Figure 25: Key Eligibility Question for OBM Selection

Please note any stages in which external collaboration has played an important role in your organisation
(select as many per row as relevant; SCROLL RIGHT to see all)

	Other businesses	Professional or innovation networks	Civil society (NGOs & non-business institutions)	Customers	Governments or regulators
Formation of your organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Initial business model design	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Testing or adapting your business model	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ideation phase for new products/services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commercialisation phase of new products/services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Marketing or distribution channels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Source: Self-identification survey developed for this research.

Semi-structured interviews

Each focal organisation participated in a minimum of two semi-structured interviews

of at least 60 minutes, but generally up to 90 minutes in length. Where iterative visual analysis diagrams were produced, additional interview time was added within the same or additional sittings to incorporate feedback on the visual representations of emerging findings (discussed further in the analysis approach in Section 4.4 below).

Focal organisations were also requested to nominate and refer a partner organisation within their value network for an additional 45- to 60-minute partner interview to obtain an external perspective on the complementarity of the collaboration within the partner organisation's business model. Only two of six focal organisations ultimately were comfortable referring a partner, so this remained a limited component of the dataset.

The total interview time was 26.3 hours, thus averaging 4.4 hours per organisation across the sample of six organisations.

All interviews were undertaken remotely via a video conferencing platform due to cross-border logistics and COVID-19 pandemic lockdown restrictions at the time of data collection. The interview period ran from December 2019 to March 2021.

The interview content was nominally broken down into the following topic areas:

1. Organisational profile, business origins and purpose, current BM and value creation, BM tensions, and BM change;
2. Feedback on BM Value Exchange Maps (explained in Section 4.4.1);
3. Openness and innovation processes, and reflections on organisational governance; and
4. Feedback on Causal Loop Diagrams that aim to show emerging results in terms of the influential links between business activities and societal value creation (explained in Section 4.4.2).

A semi-structured, conversational interview design was employed to target lines of enquiry on the above topic areas, using open-ended questions. The order of discussion of these 'prolonged case study interviews' (Yin, 2014, pp. 110–111) was adapted to allow sufficient flexibility for the interviews to follow emergent themes. The ability to follow emergent themes supported the goal of setting wider, more holistic study boundaries (boundary 'critique' is discussed in more detail relating to

causal loop model building in Section 4.5 below).

Regarding respondent selection, the research purposively targeted key informants within organisations who were at a senior level and had worked for the organisation for at least three years,³⁷ thus being familiar with significant changes over time in the innovation strategy, openness and societal value creation. These respondents were considered proxies for their organisation (Lavrakas, 2008). For topic areas 1 and 2, organisations were requested to nominate interviewee/s that had been with the organisation for a long time and were well-versed in business model details and strategy. For topic areas 3 and 4, organisations were requested to nominate interviewee/s familiar with partnerships and collaborative innovation processes. Ten respondents were interviewed across the six focal organisations, plus two additional respondents from partner organisations. Of the 12 respondents, 7 were male and 5 were female. In some organisations, the CEO or Director was the primary respondent for all interviews, supplemented by attendance from certain specialists where the interviewee deemed this to be valuable. Other organisations selected different team members such as the business development leads (Topics 1 and 2), and executives with a strong focus on partnership strategy and management (Topics 3 and 4). Generic (deidentified) titles/levels of interviewees are shown in Appendix E.

All interviews were recorded, transcribed and deidentified to reduce potential sensitivities associated with public disclosure of business strategy. Transcripts were shared with participants for record-keeping and to allow the opportunity for corrections or clarifications to be issued.

Organisational websites and supporting documents

The credibility of interview data is also established through the triangulation of interview data with other sources, either publicly available or provided directly by focal organisations (Farquhar, 2012; Yin, 2014). Where available, media stories and independent, published industry research were used to verify claims or statements and to comparatively position organisational performance relative to peers or industry norms. For example, for the large global organisation (Organisation D,

³⁷ Most interviewees had been with the organisation since the early years of its inception or at least since the open business model strategy had been adopted.

Enel), the InfluenceMap online resource was used to obtain an independent review of the lobbying positions of Organisation D to determine alignment with interviewee statements and published documents such as Sustainability Reports and Codes of Ethics. This was, however, not available for most businesses in the sample. A full list of additional data sources is provided in Appendix E. In the case of Organisation D, substantial existing published case study material and reporting were used in place of additional questions on certain lines of enquiry.

4.4 Adaptive Systems Analysis Framework

My research questions are principally concerned with understanding the *relationships* between a diverse range of factors that contribute to everyday strategic business decisions, with regard to how they positively or negatively influence societal value creation in the BM. While a growing body of work has identified design patterns of SBMs, little work has focussed on the ongoing processes and dynamics that underpin the realisation of those design patterns. Consistent with a critical realist perspective that recognises layers of hidden causal structures that create emergent outcomes (Edwards et al., 2014), a systems-based analytical perspective is adopted to document this process of emergence.

I initially adopted two visual analysis tools in this research (represented in the furthest right yellow boxes, earlier in Figure 24): mapping of value exchanges to clarify the operation and design features of the OBM, and causal loop model building to describe the *dynamics* of OBMs with respect to the creation of societal value. A subsequent 'adaptive BM design analysis' was then undertaken as the initial value exchange maps were not sufficient to reveal the desired depth of insight with regard to highly dynamic OBMs. Each of these three components is outlined below.

4.4.1 Mapping Value Flows

One of the key features of OBMs is the interaction across traditional organisational boundaries. This can take the form of economic, social or environmental value that is

either created or captured through these exchanges. Yet because these exchanges span organisational boundaries, traditional analytical structures from business model theory do not adequately describe these critical interactions (Zott & Amit, 2010).³⁸ Therefore, the research applies the visual value exchange mapping approach of Brehmer et al. (2018) to clarify the nature of the value created and captured by the business and its collaborators. The resulting draft value exchange map was then presented to key informants in one or two iterations to finalise the map.

The purpose of this iterative feedback approach was twofold: to receive organisational validation of the business model interpretation, allowing errors or clarifications to be highlighted; and to further interrogate how and for whom value is created and captured. This method coded value exchanges as social or environmentally sustainable if they create social or environmental value “*relatively more than their peer organizations*” (Brehmer et al., 2018, p. 4515). The issue with this approach – and a critique that is valid across much SBM research – is that it only tells us relative performance. It is silent on absolute social or environmental performance and the extent to which this performance is compatible or otherwise with a regenerative and distributive economy. To do so is a much more challenging and data-intensive task, beyond the scope of this research. Nonetheless, a feature added to the value exchange maps was business model “tensions”, to identify exchanges that have a potentially negative social or environmental dimension. Environmentally, this is where resource-intensive processes commonly occur, such as product manufacturing or energy consumption. Socially, this is where human rights issues in the supply chain may exist, for example.³⁹ In each circumstance, these were coded as ‘weak/managed’ or ‘unmanaged’ and were either directly controlled by the focal organisation or were further up or down the value chain.

³⁸ For example, this research found that using component-based BM canvas representation was less useful in understanding sustainability, suggesting this was because sustainable business models are “inherently dependent on their network environment...which is underrepresented in the typical component-based view” (Brehmer et al., 2018, p. 4524).

³⁹ This is speaking more generally, as was not the case in the studied organisations.

4.4.2 Causal Loop Model Building

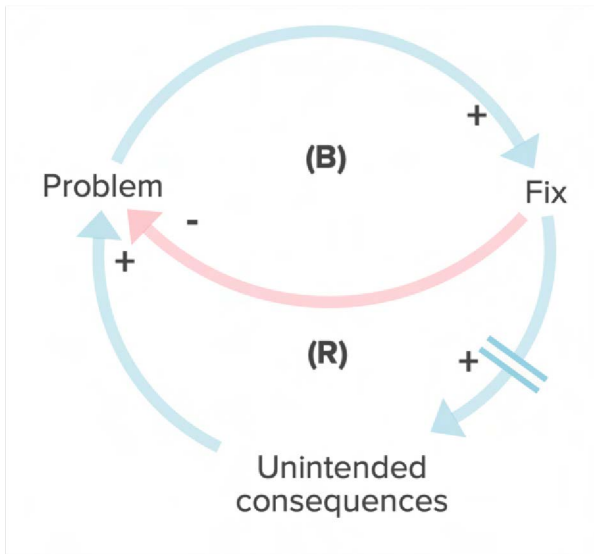
Causal Loop Diagrams (CLDs) were employed as a visual analytical tool to document and analyse the dynamics of how openness influences the creation and maintenance of societal value in the business model. A commonly applied tool in systems analysis, CLDs enable the researcher to progressively describe relationships between different variables while keeping a contextual view of the whole system in mind. In the context of modelling business and social systems, the ‘hard’ notion that there is a singular, objective reality that models seek to replicate has progressively given way to the ‘softer’ notion that formal models can be developed to aid our understanding, as tools for holistic thinking and making sense of complex situations. Clarifying and developing our *mental models* ultimately helps shape our decisions and actions (Morecroft, 2015, p. 406). Thus, constructing a formal visual model using CLDs, even as a qualitative tool in the absence of quantifiable input data, was considered appropriate for elucidating complex influences on societal value creation. ‘Hard’ system dynamics model building has a deep history in analysing complex sustainability problems at a global scale; most notably underpinning the Club of Rome’s famous 1972 *The Limits to Growth* report (Meadows, 2009, p. 146) which warned of the environmental perils of the economic growth trajectory.

Building on work like Checkland (2000) and Midgley (2000), ‘soft’ approaches using CLDs, as one tool for qualitatively understanding system dynamics, have also been applied in contemporary global sustainability applications, such as an analysis of the role of profit seeking in driving social and environmental harm (Hinton, 2020).

Perhaps the most prominent application of CLDs at the *organisational scale* is Peter Senge’s *The Fifth Discipline* (P. Senge, 1990), which typified the patterns associated with familiar dysfunctional dynamics in organisations. A simple example of one of Senge’s abstracted organisational CLDs is shown in Figure 26 below to describe “fixes that fail”. In this case, the key variables are a given organisational problem, a given fix, and some unintended consequences. These variables are connected by a causal relationship marked with a ‘+’ or ‘-’. The growth of a problem leads to the implementation of a corresponding fix, which in turn, reduces the prevalence of the problem. This is known as a ‘balancing loop’, marked (B), that serves to keep the

problem in check. However, the fix also leads to unintended consequences, which manifest over time with a delay (represented as two straight lines). The unintended consequences then accentuate the original problem, resulting in a ‘reinforcing loop’, marked (R). This simple example typifies variables, causal relationships, and feedback loops that define the system’s behaviour.

Figure 26: Senge’s “Fixes that Fail” Archetypal Example



Source: Author produced image based on work of Senge (1990).

More recent work has codified additional real-world organisational examples into guides to explain the relationship between feedback loops, system behaviour and management strategies to diagnose and address issues (see D. H. Kim & Anderson, 1998). While some OI work takes a systems perspective, drawing linkages between OI and complex adaptive systems perspectives (Tani et al., 2018), the use of system dynamics in BM research is relatively limited. Examples include descriptions of virtuous and vicious cycles in interactions between cost, volume, price and market strategy (Casadesus-Masanell & Ricart, 2007), a causal explanation of general business model dynamics in the capital goods industry (Lerch & Selinka, 2010), the car-sharing industry (Yun et al., 2020), understanding the ontology of e-Business models (Kiani et al., 2009) and to complement business strategy and management (Casadesus-Masanell & Ricart, 2010; Groesser & Jovy, 2016). Regarding *sustainable* business models, studies have only begun to develop system dynamics modelling structures to represent sustainable value creation (e.g., Abdelkafi & Täuscher, 2016;

Cosenz et al., 2020; Seelos & Mair, 2007).⁴⁰

The method employed for developing CLDs based on qualitative interview data builds on Kim and Andersen's (2012) coding system. The adapted version of the coding schema is shown in Appendix F alongside deidentified examples from the case organisations. As these examples show, the interpretation of a single statement often required multiple variables and relationships within the diagram. A causal variable was often mentioned along with an eventual effect, but the interviewee may not have directly mentioned an intermediary variable connecting the two, which was filled in according to the researcher's interpretation from case comparisons and was cross-checked with the informant. The degree of certainty regarding each causal relationship code was recorded in three factors:

1. **Knowledge source:** whether the informant or other data source (a) directly stated the cause-and-effect variables, in response to having *observed* both factors; (b) was based on an *assumed or perceived* result; or (c) the *researcher interpreted* cause-and-effect based on indirect information in the informant's response. These 'researcher interpreted' factors were the initial focus of the CLD feedback interviews to check the less certain variables or relationships.
2. **Relationship strength:** representing the importance of the relationship in the operation of that organisational system. For example, some degree of shared socially aligned values were present between all partners, but this was rated as stronger (more influential) in organisation with a co-operative legal structure.
3. **Confidence level:** representing the researcher's level of certainty regarding the coded variable/relationship, taking into account the knowledge source, relationship strength and 'degree of fit' when translating the direct evidence to the abstracted variables in the CLD.

The answer categories for the three factors discussed above are presented in Appendix F.

Interview content was coded into an average of 65 CLD codes per case study (ranging from 45 to 93 codes, depending on the total interview time and content

⁴⁰ For a more comprehensive review of the application of causal diagramming and other visual methods in the context of business model representation, see Täuscher & Abdelkafi (2017).

coverage).

Variables and their causal links were then arranged into a CLD as a model representation of the system of societal value creation within the OBM. A chain of evidence is maintained (Yin, 2014, pp. 127–128), tracing each variable and/or relationship in the CLD to specific quotes and CLD codes from the primary interviews or supporting data sources. The draft CLD was then tested with key informants and iterated based on the resulting feedback. A diagrammatic representation of the iterative feedback process used to develop the CLDs, is shown in Figure 27 below.

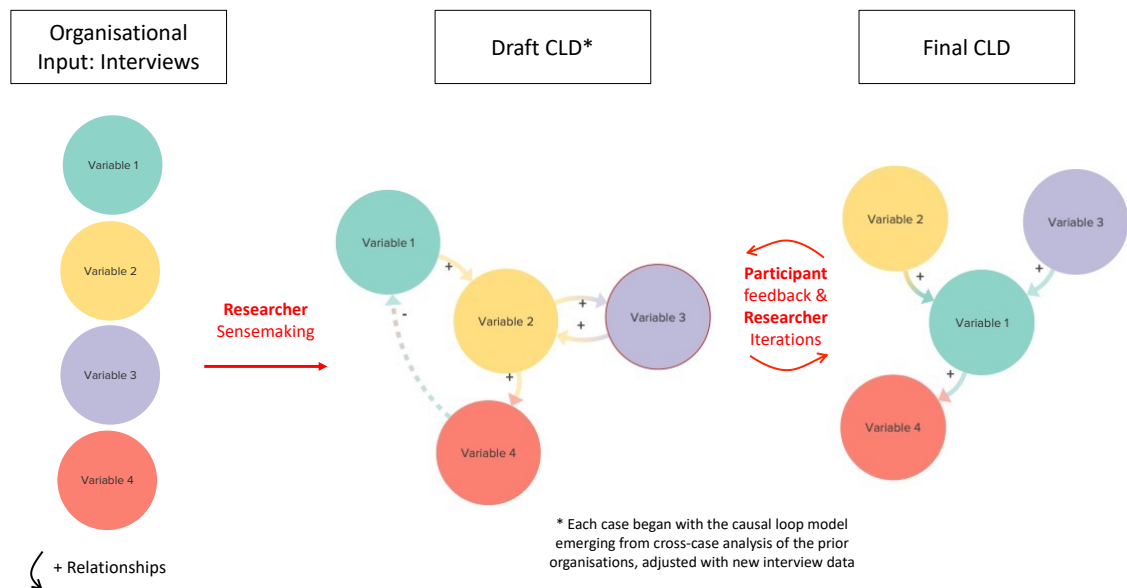
The findings of the second case study were overlaid on the foundation of the first case's CLD as its starting point, and new features were added or edited to achieve fit with the new case and pre-analysed case/s. This iteration continued across the sample, with the goal of achieving a conceptually coherent relationship framework across all OBM cases. Note that, in some cases, a variable appeared in one or more, but not all organisational contexts. These variables were flagged as 'distinct/unique' and are coloured red in the common CLD model. Case iterations thus evolved the common CLD model throughout the research, with the final case resulting in little to no adjustments, indicating a high degree of fit and thus saturation of researcher observations.

The model building process was cognisant of common 'traps' in building CLDs (Richardson, 1997) and applied reflective tests to build confidence in the model (Forrester & Senge, 1979; Morecroft, 2015, p. 414). The end result is an iteratively tested visual representation of a mental model of when and how OBM-based enterprises successfully align the business model with the creation of societal value.

The visual style of the CLDs selected incorporated additional circles around variables to allow for analytical colour coding. Noting that such design additions should be carefully applied,⁴¹ this allowed me to experiment with visualisation and analysis of the system according to emerging themes, or to draw the audience's attention towards specific variables of interest in the context of a given discussion.

⁴¹ For example, Sterman (2000) discourages the use of shapes around variables unless they carry meaning.

Figure 27: Conceptual representation of the Iterative Process Utilised to Develop Causal Loop Diagrams



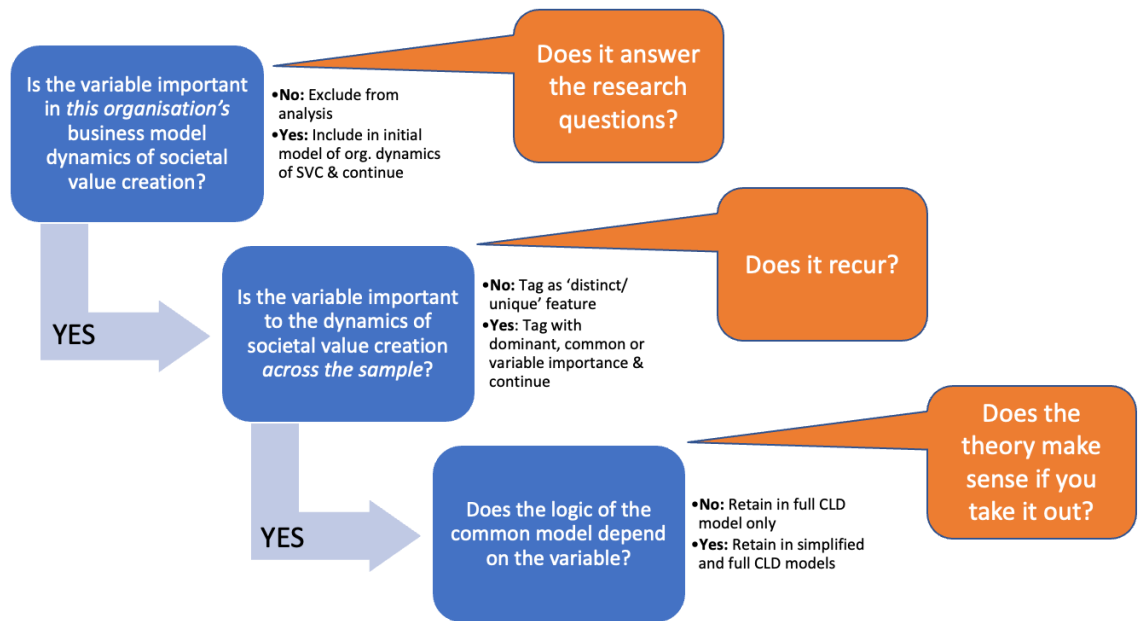
Source: Author representation.

A key strength of case study research is the ability to understand a phenomenon in its contextual setting. However, this strength can also create a weakness: intensively drawing on empirical evidence can lead to overly complex theory. A lack of quantitative indicators as to the significance of given variables can lead to the desire to capture everything, and, in doing so, risks missing the elegant simplicity of good theory (Eisenhardt, 1989). The goal of this systems analysis is to include as wide an array of interview content and other source material as possible to elucidate a rich picture of the factors shaping business models for societal value creation, without over-complexifying and paralysing the analysis (as explained by Ulrich, 1983). Addressing the tension associated with capturing the ‘right’ level of detail involves a critical and constant reassessment of which variables to exclude or include from the analysis, which is referred to by systems thinkers as “boundary critique” (Midgley, 2000, p. 135). Boundary critique essentially involves judgements: a researcher’s subjective decisions that reflect the underpinning philosophy, values and goals of the research. In keeping with Midgely’s (2000) theory, study boundaries were set broadly to encompass a greater degree of inclusivity; being open to recognising a broader range of complex interactions on the phenomena. This boundary critique

flows from a “process-based philosophy” designed to overcome the tendency towards reductionist analyses that seek to identify simple, objective, linear, uni-directional causal relationships. Such narrow analyses often fail to recognise that the phenomena of interest are, in fact, emergent properties of a system with wider boundaries that may be excluded if the study fails to take a holistic, systemic view of boundary critique (Midgley, 2000, p. 70).

My boundary critique involved a three-stage process of reflective questioning, shown in Figure 28 below. Firstly, with a wide range of variables surfacing in interview data, it was necessary to reflect on the general importance of a given variable in answering the research questions. If relatively inconsequential, the variable was excluded from the analysis. If material, the variable was retained in the initial model of OBM dynamics of societal value creation. Secondly, seeking common patterns across multiple case studies inherently reduced unwarranted focus on idiosyncratic variables with limited broader relevance. If a variable was observed to recur as a pattern across the sample of analysed organisations, it was included in the ‘common model’ of business model dynamics. If the variable did not recur, it was tagged as ‘distinct/unique’ (as alluded to earlier), and the contextual reasons for its importance were noted. In some instances, a variable that was initially considered of limited interest in Step 1 was revisited in Step 2 for inclusion if the variable recurred across the sample. In other instances, new variables appearing in the analysis of later organisations were revisited for relevance to earlier analysed cases. If present – but perhaps not mentioned explicitly, or discussed using different terminology – a new or reframed variable was added to the common CLD model. This process revealed a CLD with a relatively high level of abstracted detail. Therefore, a third and final process asked whether the logic of the common model still made sense if the variable was removed (based on the work of Hinton, 2021a). If the answer to this question was ‘no’, the variable was not considered critical and was retained in the full CLD model only. If the answer to this question was yes, the variable was also retained in the simplified CLD model. For example, if the ‘length of (investor) time horizon for value creation and capture’ variable were removed, the model would be unable to explain how organisational governors balance investor returns and reinvestment of profit in the organisation.

Figure 28: Reflective Questions as Part of Boundary Critique



Source: Author representation.

4.4.3 Adaptive BM Design Analysis

The causal loop model building process successfully documented the abstracted dynamics of societal value creation, but leaned heavily on a set of critical, contextually relevant BM design elements not visible in the model. These design elements were required to make concrete the concept of “Business model structuring for stakeholder value alignment” (discussed in Section R1.3 of the results), and precisely how this process creates societal value or eliminates societal tensions in the business model. Therefore, to adequately examine research sub-question 2, “what is the relationship between the structure and content of the open business model and the dynamics of societal value creation?” required a separate analysis of these business model design features.

Such an analysis is possible, based on the value exchange maps that were produced to ensure that the researcher and informant shared a common understanding of how each business model operates (described in Section 4.4.1 above). These maps, even for relatively early-stage or small OBM organisations, contained a very high level of complexity even when multiple partners were grouped by their common ‘type’ or

function. It thus proved challenging to derive higher-level insights regarding patterns across the sample without a very detailed coding approach similar to Brehmer et al. (2018), which was not possible within the scope of this study.

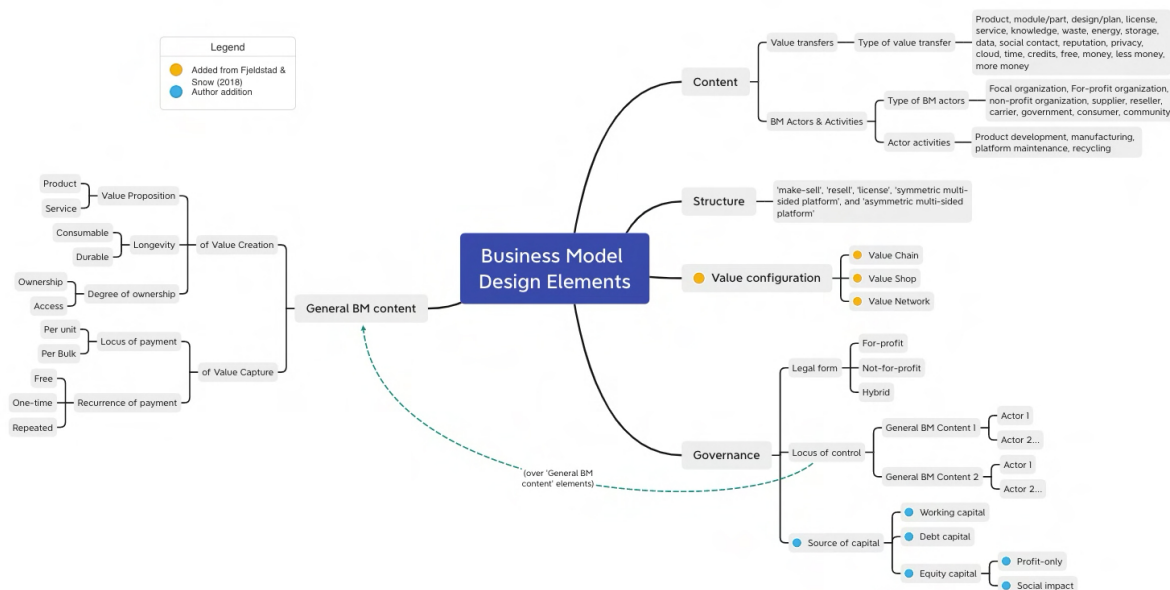
Brehmer et al.'s (2018) BM design analysis applied the 'activity system' language and concepts developed by Zott and Amit (2010), further developing prior work of Amit and Zott (2001). This activity system perspective views business models as a "system of interdependent activities that transcends the focal firm and spans its boundaries" (Zott & Amit, 2010, p. 216) and involves three key analytical components of content, structure and governance:

- **Content:** The value that is being transferred (such as a product, service, or money), as well as the activities and resources of the business model actors that are necessary to conduct the value transfers.
- **Structure:** The forms in which the business model actors are linked by their value transfers.
- **Governance:** The legal form of the focal organisation, as well as who holds the 'locus of control' over information, resources, and goods.

Content is specific to each transaction and each BM actor, while *structure* applies to the whole BM, and *governance* may apply at either or both levels (Brehmer et al., 2018, p. 4524).

Figure 29 below lays out the first- and second-order analytical structure used to identify specific social and environmental BM design features, to help the reader understand the elements that fall within each category.

Figure 29: Business Model Design Elements Analysed



Source: Author representation of the coding schema of Brehmer et al. (2018), based on BM coding categories of content, structure and governance⁴². Additions from Fjeldstad & Snow (2018) and the author are also marked.

Following the adaptive theory approach, two elements emerging from interviews were found to be inadequately represented in the initial analytical structure. These two elements were retrofitted into the coding structure shown in Figure 29: firstly ‘source of capital’ was added within the governance dimension; and secondly, ‘value configuration’ was included within the structure dimension. The concept of value configuration, proposed by Fjeldstad and Snow (2018, pp. 34–35), uses the following typology:

- **Value chain:** A “sequentially linked value system of suppliers, partners, and customers” that “transforms inputs into products, as in a manufacturing firm. The customer is a recipient of the product, which embodies the value created by the firm’s transformation process”.
- **Value shop:** “Reciprocally linked value systems of referring, sub-contracting, and collaborating firms that together harness the knowledge required to develop the desired solutions” to resolve “customer problems on a case-by-

⁴² Based on the work of Amit and Zott (2001) and Zott and Amit (2010).

case basis”. Examples include hospitals and consulting firms, and customers actively participate in creating solutions.

- **Value network:** “[L]inks nodes – customers, things, and places – and provides services that allow various kinds of exchanges among them” in which “[c]ustomers co-produce their own value but also value for other customers by making themselves, or nodes that they control, available for networking...The value systems are vertically layered and horizontally interconnected. Layering allows one service to use another service as its infrastructure. This is common in Internet service ecosystems”.

Like BM structure, value configuration applies to the whole BM system.

Given the activity system perspective’s usefulness for BM analysis and theory development,⁴³ a higher-level reflection on the (slightly augmented) elements of content, structure and governance⁴⁴ was undertaken with regard to which BM design elements play a role in societal value creation.

While invaluable for understanding the nuances of a business model’s external relationships and exchanges, the Brehmer-style (2018) approach focuses heavily on the essence of a BM at a snapshot in time. This largely static analysis delivers only partial insight into how the open business model *dynamics* contribute to improvement in societal value creation relative to (i) the market incumbents and competition⁴⁵ it is challenging, and (ii) its prior performance.

Following the adaptive theory approach (Layder, 1998), my reading of extant BM and organisational theory suggested that it was unclear which existing frameworks and methods would most appropriately complement activity system analysis to provide insight into the relationship between OBM design elements and dynamics. Therefore, a set of alternative business model visualisations and partial theories were reviewed as potential candidates for applying aspects of their approach to shed light on this question. Ultimately two additional BM visualisation approaches were utilised to explore the value of *simplicity* and *change* in understanding BM design:

⁴³ Such as Saebi and Foss (2015) and Hellström et al. (2015).

⁴⁴ Similar to the approach taken by Hellström et al. (2015).

⁴⁵ The value of comparing sustainable business models with incumbents can be seen in, for example, Reficco et al. (2018, Fig. 4).

1. A simplified representation of external partner roles and stages, based on the approach of Frankenberger et al. (2013).
2. The 'value chain' mapping approach structure of Wardley (2013), which focuses on strategic changes to the business model structure and function, and thus better encapsulates the dynamics at play. This was combined with elements of Brehmer's (2018) sustainability coding to better highlight societal value creation.

The relative advantages and disadvantages of each approach are evaluated in the results, as this was very much emergent from the analysis.

4.5 Validity Checks

Case studies examine real-world contexts within which there are commonly more variables of interest than there are data points, and it is important to tailor case study research design to comply with a common set of design tests to establish the quality of empirical social research. Yin (2014, p. 46) summarises the four design tests as:

1. Construct validity, relating to the identification of correct operational measures to the phenomenon under investigation.
2. Internal validity, which is required when seeking to identify causal relationships.
3. External validity, to clarify the domains in which the findings can be generalised.
4. Reliability, relating to the repeatability of operational research procedures.

While many of the strategies in the case research design appear in the above sections, this section extracts and elaborates on elements relevant to each of the four design tests, for clarity.

In order to achieve **construct validity**, the research process involves direct feedback from focal business informants on the emerging findings, to ensure that the business model value exchange maps and CLDs adequately represent the respondent's

understanding of the system. The common CLD model maintains a supporting chain of evidence through which all variables and their relationships can be traced to the coded primary data upon which research coding and judgements were made. While the main primary data source is focal business interviews, these are supported by triangulation with partner interviews (where available), and review of public or supplied procedural or stakeholder documents and media reports to verify or challenge informant responses.

To achieve **internal validity**, the main methodological process of building a common CLD model represents iterative pattern matching and explanation building across the cases. In the case and cross-case analysis, I have sought to address rival explanations or relationships to test and challenge the interpretation of the data. For example, the presence of an “ecosystem-builder mindset” began as a *foundational* element flowing on from the worldview of the executive leadership, until Organisation F data emerged that suggested that its mindset grew out of a market need to compete, while Organisation D explicitly adopted an open strategy at a specific point in time. Therefore, this was shifted to a variable representing the “strength of ecosystem-builder mindset” that contributes to the ongoing dynamics of openness in innovation knowledge exchange.

External validity was informed by a process of cross-referencing with literature across a range of subjects, from open innovation to SBM analysis, BM dynamics and organisational design.

Finally, the **reliability** of research processes was supported by following a case study protocol (provided in Appendix E), and developing an accompanying spreadsheet record to document pertinent data interpretations across each of the cases as they were made, with additional notes for traceability or clarification where required.

5. Results and Analysis

To answer the overarching research question “Under what conditions does opening the business model lead to richer societal value creation?”, the results are structured according to the three sub-research questions presented in Section 4.1:

1. What dynamics support societal value creation in OBMs?
2. What is the relationship between the design of the OBM and the dynamics of societal value creation?
3. How does the business’ context shape the relationship between the OBM and societal value creation?

Firstly, **Section 5.1** presents an overview of the selected case study organisations to contextualise the results. **Section 5.2** approaches sub-question 1 using qualitative CLD model building to explicate and test the relationships between the innovation process, business model design, organisational governance and societal value creation. **Section 5.3** addresses sub-question 2 through an adaptive theory approach that explores the use of a combination of visual business model analytical techniques to clarify the specific relationships between focal businesses and their exchange partners, and how this relates to the dynamics documented in Section 5.2. Finally, **Section 5.4** tackles sub-question 3 using comparative case examples, grouping and contrasting different contextual settings across the cases. Focussing on areas of context-specific divergence from the common CLD model, this section examines value chain roles, the geographic scope of operation, and whether a business has ‘transitioned to’, or is ‘born’, sustainable.

5.1 Case Study Sample Overview

Each of the case study focal organisations exhibits an OBM whereby external parties are critical in understanding the totality of the organisation’s value creation.⁴⁶ While all case study organisations share this common feature, Table 2 below explains how

⁴⁶ See Section 4.4 of the research design for further discussion of case study identification.

each organisation differs across other important institutional or contextual factors such as country of operation, legal structure, size, age and other characteristics. All case study organisations are for-profit organisations with private ownership rights. However, some are private companies with a small number of investors to manage (Organisations A, B, E), two have a larger number of investors with small private ownership stakes (C, F), and one is a publicly listed group of companies with a large and varied investor base (D). Organisational size, in terms of full-time staff equivalent numbers, varies from small (< 20 people) to medium (21–100) people, up to very large (> 1,000 people). Organisational age varies from less than 10 years (relatively mature startups or scale-ups in the strong growth phase) to well-established companies operating for over 25 years.

The column entitled ‘sustainability origins’ refers to whether the organisation was born with sustainability as one of its key reasons for being (‘founded’), or if this came later (‘transitioned’). ‘Openness over time’ captures whether an organisation: (i) was open by design, and its openness remained ‘steady’ over time; (ii) was historically closed and openness was strategically introduced as a ‘new concept’; or (iii) always possessed some open characteristics but ‘increased’ its openness over time. Finally, ‘constitutional social mission’ refers to whether the legal constitution specifies the social purpose of the organisation (Bates Wells, 2022). Table 2 is intended as a reference table for interpreting specific common or unique results across the cases.

Due to potential sensitivities regarding business model design or strategy, most organisations elected not to be named. They are thus deidentified as Organisations A to F. The exception is Organisation D, which preferred to be named. This is the Italian multinational electricity and gas company Enel Group, parent company to organisations such as Enel Green Power and Enel X (formerly EnerNOC in Australia). For consistency, ‘Organisation D (Enel)’ is adopted throughout the results and discussion of this thesis. Some figures and tables refer to the organisations in shorthand, such as “Org. A” or Org. B”, for visual clarity.

Table 2: Comparison of Characteristics of Case Study Organisations

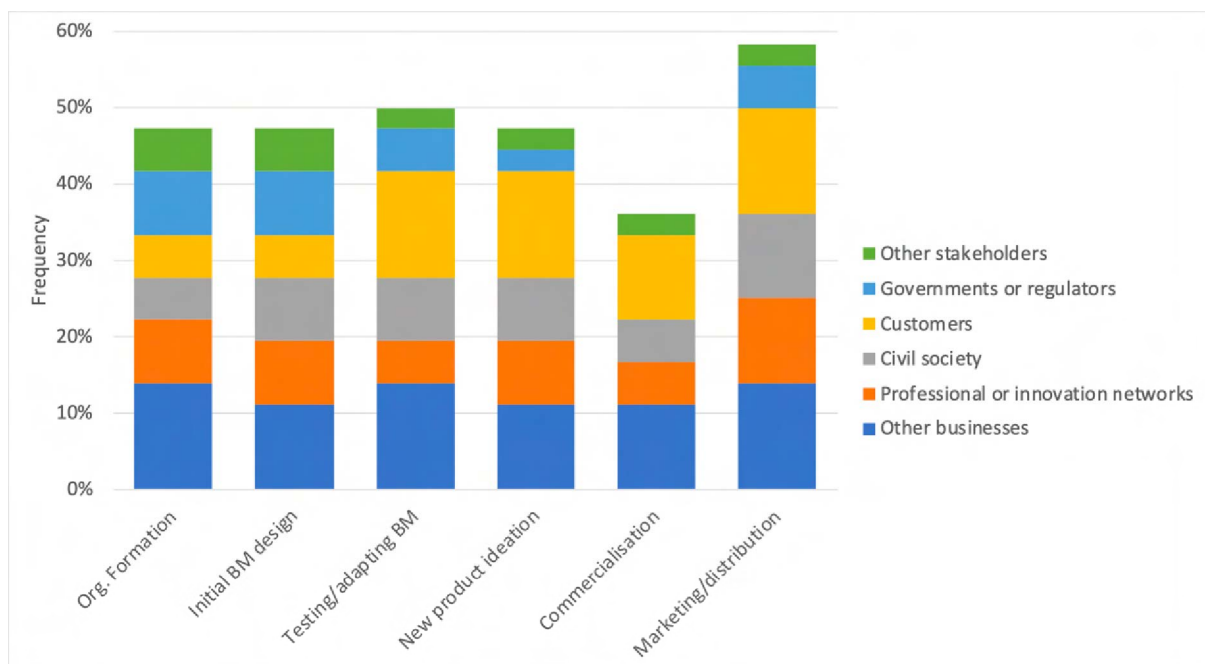
Case Study	Legal structure	Size	Age (yrs)	Sustainability origins	Openness over time	Country of operation
1. Org. A (Energy retailer)	Private company	Small	3-5	Born	Steady	Australia
2. Org. B (Energy data company)	Private company	Small	11-15	Born	Increased	Australia, UK
3. Org. C (Renewable energy co-operative)	Distributing co-operative	Small	6-10	Born	Increased	Australia
4. Org. D (Diversified energy multinational)	Publicly listed company group	V. large	> 25	Transitioned	New concept	Global (incl. Aus)
5. Org. E (Energy software platform)	Private company	Med	6-10	Born	Steady	Australia, UK
6. Org. F (Renewable energy investor)	Private company (Small investors)	Small	> 25	Born	Increased	UK

Figure 30 shows the extensive *breadth* (types of different collaborators) and *depth* of collaboration (involved in many innovation activities or stages) in these OBMs.

External collaborators were quite strongly represented across most innovation activities. The most common innovation stage in which external collaborators were involved is ‘marketing/distribution’, where collaborators act as channels to reach the customer base. This is reflected in the highest cumulative bar on the right-hand side of Figure 30. The least common innovation activity for external involvement was commercialisation.

As represented by the colours in Figure 30, the most common external collaborators were other businesses (dark blue), that were involved in 5 out of 6 cases during the ‘formation of the organisation’, ‘testing or adapting the business model’ and in ‘marketing/distribution’ stages. The next most common collaborator was customers (yellow), who were more commonly involved in the middle and later innovation stages, followed by civil society groups such as NGOs and community groups (grey). These top three groups were involved in one or more innovation stages for every case study organisation. ‘Professional or innovation networks’ and ‘Governments or regulators’ were slightly less commonly involved, although still appeared in at least one stage in 4 of the 6 cases.

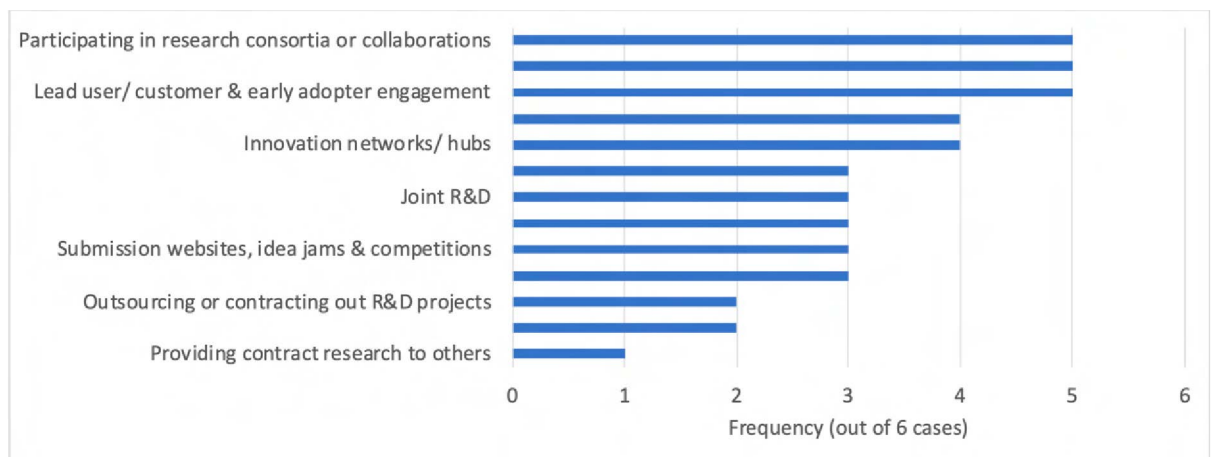
Figure 30: Frequency of Involvement of External Collaborators by Stage or Activity



Note: Organisations were asked to “Note any stages in which external collaboration has played an important role in your organisation” (Survey question no.56); Frequency represents the percentage of responses out of a possible 36 instances (6 stakeholder types across 6 cases).

Figure 31 illustrates the specific types of open innovation activities in which these organisations have engaged over the past three years. Research consortia or research collaborations, joint marketing/co-branding, and engaging directly with lead users/customers are the most common activities, undertaken by 5 of 6 case organisations (83%). Case organisations participated in between 3 (Organisation F) and 13 (Organisation D) of these open innovation activities, at an average of between 7 and 8 activity types.

Figure 31: Open Innovation Activity Types Undertaken by Case Study Organisations (% of cases)

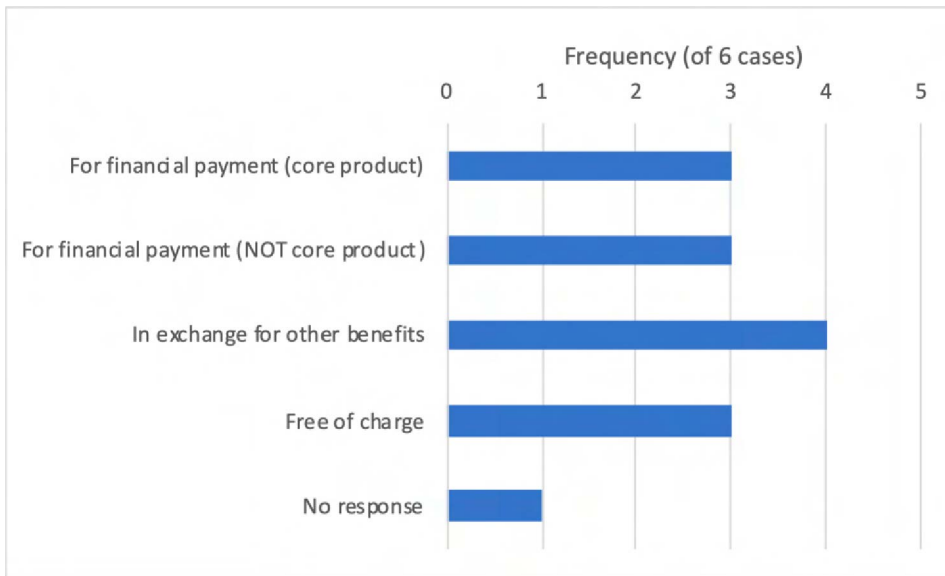


Note: n=6. Organisations were asked, “In the last 3 years, in which of the following activities has your organisation engaged with external parties to accelerate innovation?” (Survey question no.18, see Appendix D).

Five of six case organisations reported transferring their intellectual property (IP), technology or informal knowledge to external parties.⁴⁷ As shown in Figure 32 below, this occurred equally commonly as part of sales of the organisation’s core product/service (such as consulting), outside core product sales, or free of charge (directly or via creative commons licensing). External IP sharing was most common in exchange for other (non-financial) benefits.

⁴⁷ One organisation did not answer this question.

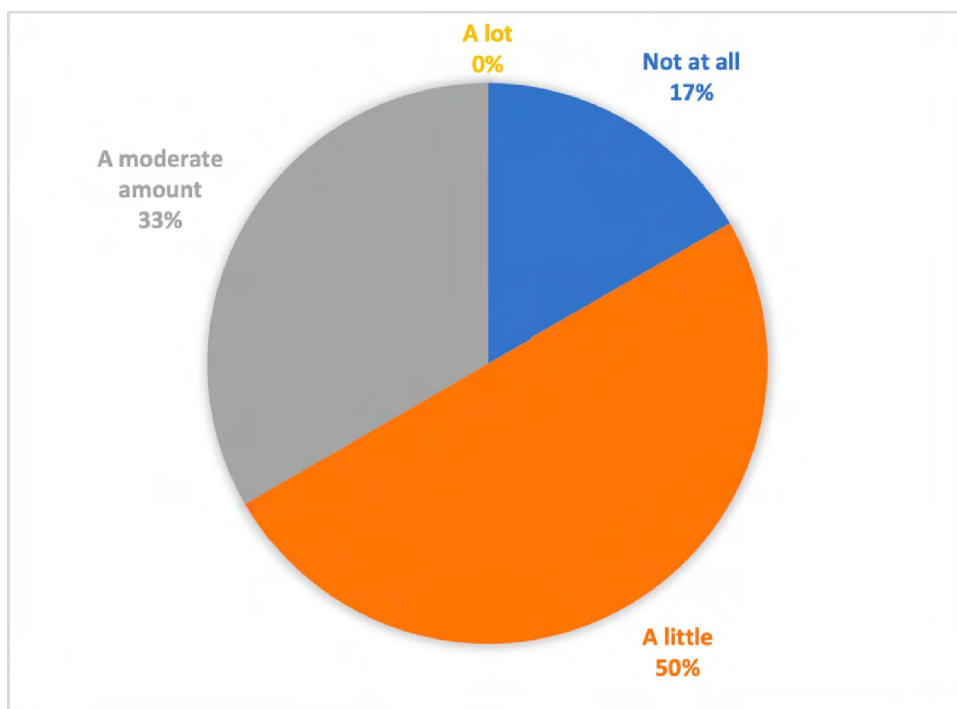
Figure 32: Compensation or Exchange for External Knowledge Transfers



Note: n=6. Organisations were asked, “Were these transfer(s) [of IP, technology or informal knowledge to external parties] made:” (Survey question no.20, see Appendix D).

With regard to the sustainability performance of these OBMs, businesses were asked to what extent they considered their core business model would need to change for their organisation to thrive in a truly sustainable economic system, as shown in Figure 33. While representatives of one data-based sustainability-oriented organisation felt that its business model was already fully designed with this objective in mind, others recognised the need for minor, moderate or major changes to their business models. An example of minor evolution would be addressing the resource circularity of some product components, while major changes refer to issues like the full closure of fossil fuel assets.

Figure 33: Extent of BM Change Required for True Sustainability (% of cases)



Note: n=6. Organisations were asked, “Assume that the future economic system is truly sustainable. To what extent would your core business model need to change for your organisation to thrive in this future?” (Survey question no.48, see Appendix D).

The subsequent sections of this chapter now present the results of the analysis of these six case study organisations, according to the research sub-questions.

5.2 System Dynamics of Societal Value Creation

This section presents the results addressing research sub-question 1: “What dynamics support societal value creation in OBMs?”

This question is approached through the development of the “common model” causal loop diagram (CLD) that describes OBM dynamics across the range of case studies examined. The analysis examines influential variables controlling societal value creation, and where these influence feedback loops that amplify (or in some cases, constrain) societal value creation. The analysis is broken down into the following sections:

- 5.2.1 Thematic clusters, including: finance, ownership and governance; value

creation and capture mechanisms; and collaborative innovation processes.

- 5.2.2 Common mechanisms for societal value creation.
- 5.2.3 Feedback loops.
- 5.2.4 Other dominant variables.

Box 2

Online access link

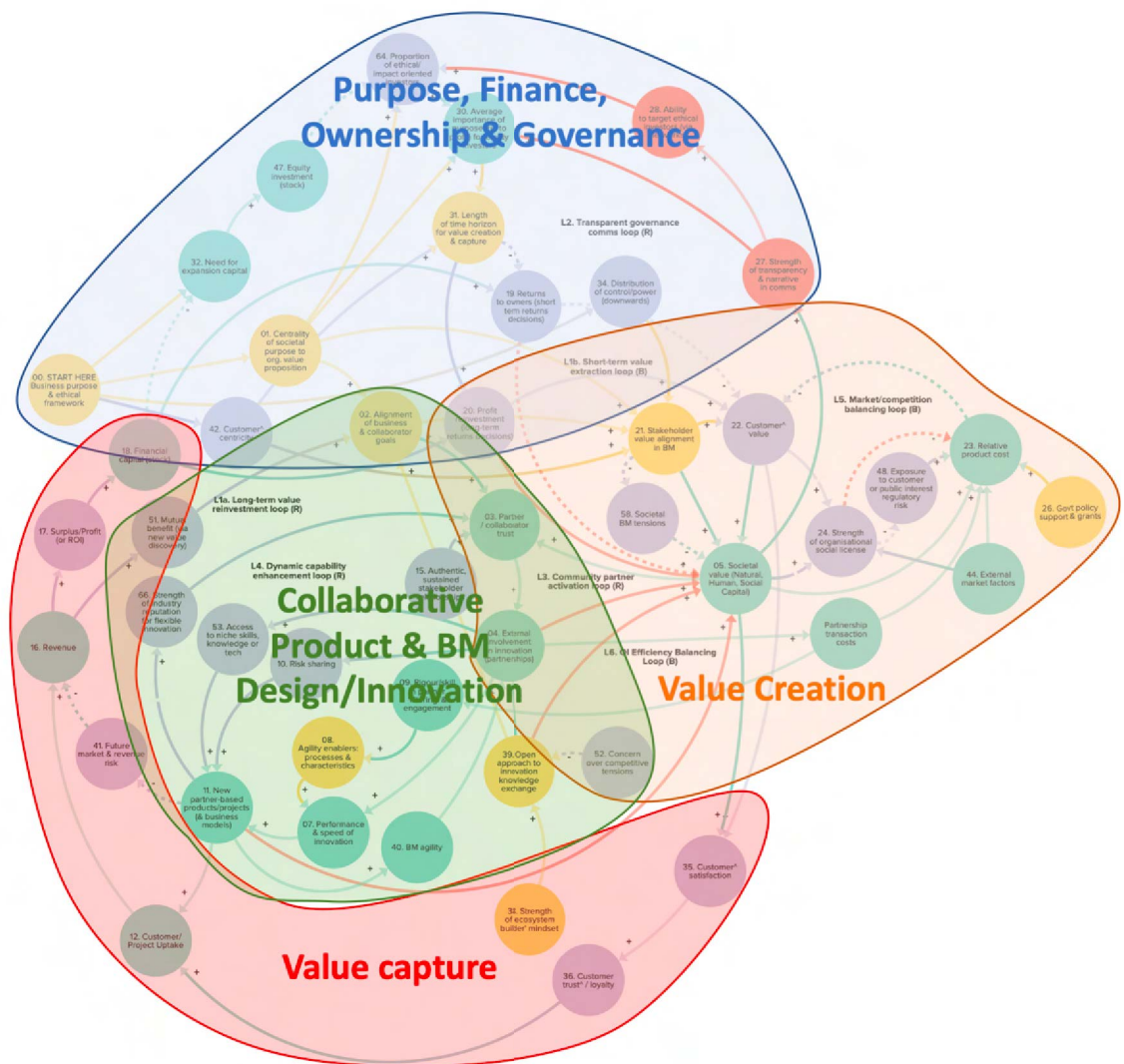
This analysis is supported by an online interactive version of the common CLD model accessible at: https://bit.ly/CLD_Common_Model



5.2.1 Thematic Clusters of Important Variables

The common CLD model of system dynamics of societal value creation shows important commonalities across the case organisations. Figure 34 below reveals the common CLD model overlaid with four “thematic clusters” of variables influencing the dynamics of societal value creation in energy businesses with OBMs. Using an adaptive theory approach, based on a combination of initial lines of enquiry developed through analysis of extant theory and emergent interview results, the thematic clusters serve to orient the reader to the high-level structures at play in OBM dynamics towards societal value creation. Figure 34 is intended to be used as a ‘reference map’ to allow the reader to place in context the more granular analysis of individual variables and feedback loops in subsequent sections. Each thematic cluster is briefly discussed below.

Figure 34: Four Thematic Clusters of Variables in OBM Dynamics of Societal Value Creation



Purpose, finance, ownership and governance

This cluster emerged as the most influential set of factors controlling the creation of societal value in OBMs. These variables define who holds power in the organisation, and what motivates their decisions.⁴⁸ It contains variables defined by a cumulative set of historical decisions, such as organisational purpose, the nature of the financial interests governors are required to serve, legal structures, and constitutionally enshrined elements of governance. The factors in this cluster are more difficult to

⁴⁸ As expressed by the Purpose Foundation (2019).

influence through day-to-day organisational management decisions.

Value creation

The next theme flowing on from foundational factors of finance, ownership and governance are the processes that define how and for whom an organisation creates value. These variables describe the common processes influencing decisions regarding how resources are combined to deliver the organisational purpose and interests of the owners. The variables within the value creation cluster tend to be somewhat less fixed than finance, ownership and governance, in that they can be changed with a new strategic direction. Nonetheless, the combination of linked internal influences (as per cluster no.1 above) and external market influences can mean these variables are also difficult to change.

Value capture

The other side of the business model is value capture, which is how a business is rewarded or 'captures' a portion of the value that it creates. This is predominantly concerned with monetisation (the revenue model) but can include other forms of value capture. As with the value creation cluster above, value capture is also defined in the process of business model design and refinement. Themes emerging from the specific external exchanges that define how each BM creates and captures value are analysed separately in Section 5.3.

Collaborative Innovation Processes

These processes are the key link between how value is created and how value is captured in OBMs: that is, they connect the two sides of the BM. Collaborative innovation processes can be thought of as the engine that drives BM and product evolution. In organisations with closed BMs, this cluster would be transplanted with other more internally facing ('closed') processes that deliver an equivalent function.

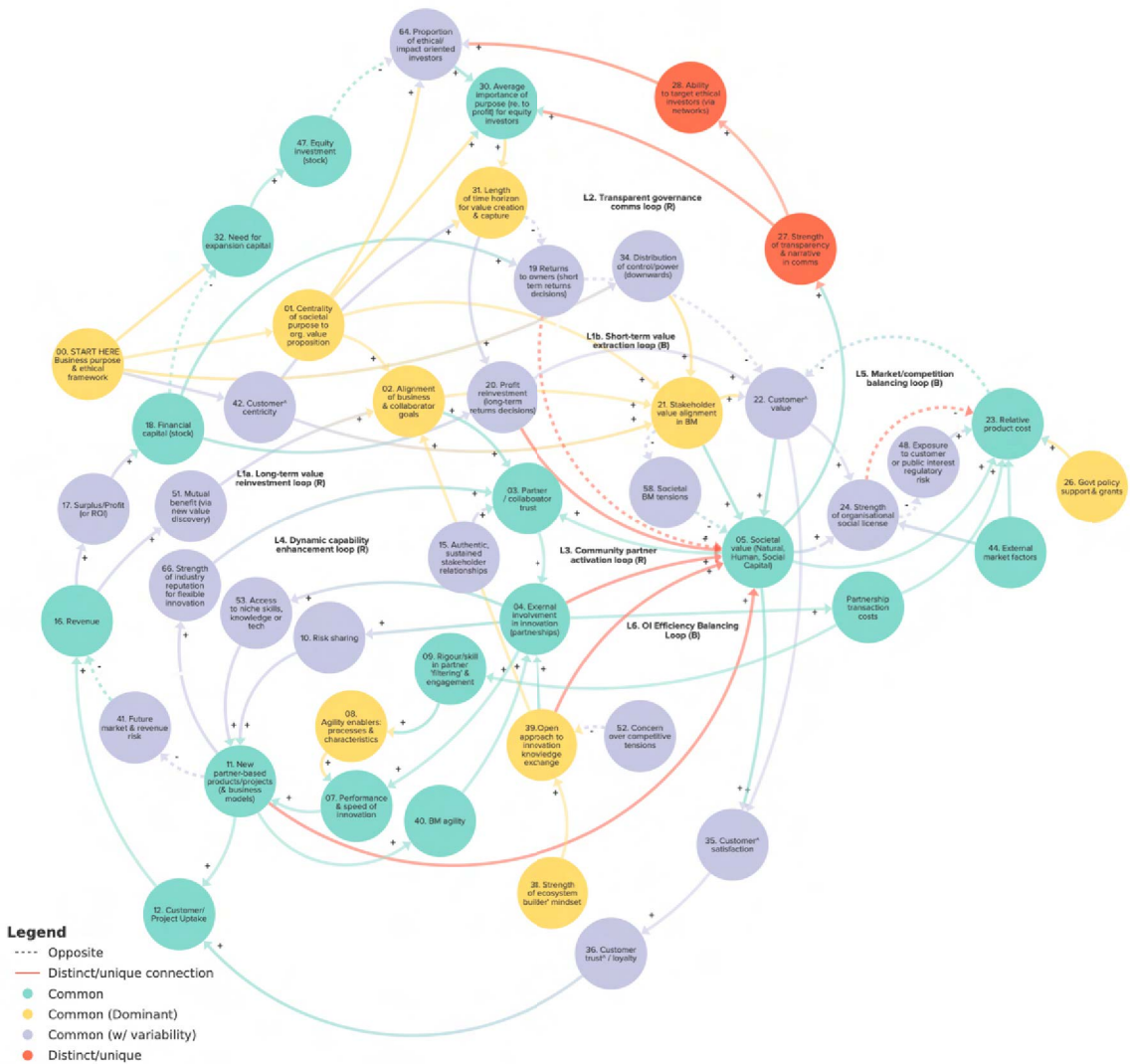
Each of these four thematic clusters is critical to the operation of the system. A vital additional dimension not captured in the CLD is BM *design*. The specific structure and content aspects of BM design are analysed using other visual analytical tools to document both evolutionary and snapshot-in-time views, in Section 5.3.

The common CLD model is shown in Figure 35 below. As it is too complex to

analyse as a whole, it is shown here for reference, solely to gain an appreciation of the broader context within which the analysis of smaller components occurs. Sections 5.2.2 to 5.2.4 focus on specific areas of the CLD to progressively explain the overall picture.

This version of the CLD is the simplified version. The full version is provided in Appendix A, which retains a number of additional distinct/unique elements. These additional elements of the full version are often shown in the zoomed-in images accompanying the analysis.

Figure 35: Common CLD Model Representing the Dynamics of Societal Value Creation in OBMs



Note: The CLD displayed here is the simplified version. The full version is provided in Appendix A. The

bolded text highlights the identified feedback loops. Source: Author analysis of case study interviews and supporting data.

Interpreting CLDs

While a brief overview of the concepts of variables and feedback loops was given in the research design (Section 4.4.2), more specific guidance as to the precise design choices of the common CLD model is provided here to aid the interpretation of the results.

Each of the circles in the CLD represents a ‘variable’: a factor assessed to have a meaningful bearing on the dynamics of how societal value is created and maintained in the business model. Regarding the legend in Figure 35, the colour represents the relative prevalence or importance of the variables across the organisations. Individual variables are marked as:

- ‘Common’, which were found to recur across all OBMs analysed. Standard common variables are represented as **blue/green** circles, and in some cases are further categorised as:
 - ‘Dominant’ (**yellow** circles), which carry greater influence in the behaviour of the overall system; or
 - ‘with variability’ (**purple** circles), which appear in all organisations but with more widely differing levels of importance in each case.
- ‘Distinct/unique’ (**red** circles), which only apply to a subset of organisations due to contextual factors.

The arrows represent causal relationships between variables. A solid arrow with a plus symbol (+) represents a ‘same direction’ relationship. That is, an *increase* in variable 1 leads to an *increase* in variable 2. Conversely, a dotted arrow with a minus symbol (-) represents an ‘opposite direction’ relationship. That is, an *increase* in variable 1 leads to a *decrease* in variable 2. There are some (limited) instances of arrows with no plus or minus signs. These are occasionally included for simplicity to represent a complex bundle of sub-factors that could have a positive or negative bearing on the connected variable, or to show foundational variables that have important implications but tend not to actively influence the ongoing dynamics of the

system. Some of these foundational organisational choices are also used to give the reader a starting point for interpreting the diagram, as this can be challenging – given CLDs do not commonly have a start or end point.

Aligning with the red ‘distinct/unique’ variables, red connections are used to represent distinct or unique connections that only apply to a subset of organisations due to contextual factors.

The component relationships between variables may then combine to form “feedback loops” that either accelerate or decelerate the dynamics. Each of these feedback loops is marked separately with a bolded name and notation of either ‘(R)’, for reinforcing loops, in which an action is amplified towards further growth or decline, or ‘(B)’, for balancing loops, which stabilise the growth or decline of an action.

In keeping with the notion of CLDs as sensemaking tools rather than representations of reality (as outlined in Section 4.5.2), CLDs should not be viewed as evidence that ‘proves’ a particular relationship. They merely seek to document the connectedness of different factors in the organisational system dynamics relating to societal value creation, open innovation and the business model. Documenting the dynamics of these loops is useful for isolating influences on organisational behaviours or outcomes, and for recognising how the dynamics of those loops could change.

Interpreting customer and societal value creation

The common CLD model uses the terms ‘societal value creation’ and ‘customer value creation’ (defined in Section 4.2). Firstly, the contextual interpretation of a ‘customer’ is not always clear or consistent across organisations. This is particularly true when some businesses occupy a business-to-customer (B2C) transactional positioning in the value chain, while others are business-to-business (B2B), or are even one step further removed from the end customer.⁴⁹ As a representative from Organisation B noted, “[what] we’re always struggling with, is any particular group...a customer, or are they a partner? Or [are they] both of those things on different days and in different [circumstances]?” Thus, for each business, it is important to clarify the contextual definition of the ‘customer’, such that the common model makes sense across the sample. The contextual customer interpretation is generally as close to the

⁴⁹ Theoretically, if using consistent notation, this might be represented as ‘B2B2B2C’.

‘end consumer’ in the value chain as possible, except where this is too far removed from the organisation’s activities to be meaningful (as for Organisations E and F). Note that external collaborators – including other businesses, collaborators and host communities within the supply chain, and those who might, in some cases, also be considered ‘customers’ – are included in the CLD as ‘partners’.

Table 3 below outlines the contextual customer definition for each organisation, alongside some specific examples that help to contextualise the specific forms of societal value creation documented in each case. Comparing with Brummer’s (Brummer, 2018) 30 community energy benefits, these primarily fall into the categories of *climate protection and sustainability/renewable energy targets*, economic and civic *participation, community building and self-realisation*, and community-based *economic benefits*.

Table 3: Range of Contextual Interpretations of the ‘Customer’ and Examples of ‘Societal Value’

Business	Contextual customer definition	Examples of societal value creation
A (Retailer)	The residential or commercial customer that purchases energy or other services.	Greenhouse gas reduction. Improved matching of customer demand with timing of renewable energy generation. Average quality/reliability/cost efficiency of electricity system benefits. Social ties strengthened through community partners. Advocacy for customer-centric retail regulation.
B (Energy data company)	The residential or commercial occupant who has equipment installed. (Note: This is a B2B2C or B2B2B2C model, and other businesses that could alternatively be defined as customers, are included in	Greenhouse gas reduction. Improved matching of customer demand with timing of renewable energy generation. Social ties strengthened through community partners.

Business	Contextual customer definition	Examples of societal value creation
	CLD as "partners".)	Contribution to raising awareness of or standards regarding consumer data protection.
C (Renewable energy asset developer/owner)	The purchaser of commercial products created by, or in partnership with, the focal organisation. (Note: As a co-operative, members appear as 'investors' in the diagram; local geographic community also appears in 'local input to governance'.)	Greenhouse gas reduction. Financial or economic value accruing to the local community or other stakeholders in the supply chain. Social ties strengthened through activating the community directly or via partners. Contribution to the development of industry standards for community value creation or advocacy.
D (Diversified multinational energy utility)	End customer purchasing energy products or services of a retail or network business.	Overall greenhouse gas reduction associated with increased renewable energy generation or electric vehicles. Value accruing to the host community or other stakeholders in the supply chain.
E (Energy software platform)	Monopoly network businesses that are licensed to access the software (as opposed to the end customers they serve).	Greenhouse gas reduction associated with higher penetration of local renewable energy generation or electric vehicles. Average quality/reliability/cost efficiency of electricity system benefits. Contribution to the development of industry standards for DER

Business	Contextual customer definition	Examples of societal value creation
		data and integration.
F (Renewable energy investor)	The developer or the community for whom the company designs or builds a product or project. In many cases, these are <i>also</i> “partners”. PPA off-takers are considered relatively inconsequential to the dynamics and are not explicitly included in the diagram (but appear in the Business Model Value Exchange Map).	Greenhouse gas reduction. Financial or economic value accruing to local communities or other stakeholders in the supply chain. Social ties strengthened through activating community directly or via partners. Contribution to the development of industry standards for community value creation or advocacy.

5.2.2 Mechanisms for Societal Value Creation

Across the OBM case organisations, four mechanisms were identified through which societal value creation occurs. Two relate to how multiple stakeholder interests are balanced in the business model design, one relates to the activation of social purpose organisations in selecting collaborative partners, and one relates to the openness of access to tools or knowledge for utilising or replicating innovations pioneered by the focal organisation. The detail of each mechanism is elaborated below.

Mechanism 1: Profit re-investment in stakeholder value alignment

The main and most important mechanism for societal value creation is the balancing of value creation across a wide range of stakeholders, within the business model design itself. This essentially involves seeking ‘alignment’ between customer and societal value creation, to ensure that the reinvestment of profit into greater customer value creation also creates (and does not deplete) societal value. While some types of businesses are more benign than others in the nature of the technology or innovation space in which they operate, this stakeholder value-sharing seldom occurs by accident. A well-designed business model with balanced value creation across the

breadth of stakeholders was found to be the result of careful and ongoing planning of the inherent incentives for different stakeholders that result from financing, ownership, revenue model, and partner selection decisions. The range of specific BM structures and content that are observed in the sample that achieve this goal are analysed in more depth in Section 5.3. The details of this mechanism are elaborated as a 'feedback loop' in section 5.2.3, but some reported strategies to create or maintain business model value alignment include:

- Careful or targeted investor selection: for example, Organisation A, which has very carefully weighed up prospective investors' asset portfolios to identify potential conflicting incentives before new equity is taken. Another example is Organisation C, which set locality criteria for a proportion of shareholders to ensure local concentration of societal benefit.
- Explicit benefit-sharing tools and active engagement processes: for example, Organisation D's (Enel) processes to transparently identify project design options that benefit multiple stakeholders (elaborated in Sections R1.3 and R3.2).
- Transparent revenue model design: such as Organisation A structuring its entire revenue model to break the prevailing tension that retailers profit from selling customers more energy, which works against both customer and climate change mitigation objectives.

Mechanism 2: Community partner activation

Several of the organisations have partner selections that include charities or local social purpose-oriented organisations that take on a particular function within the business model. The most common role is as an engagement channel to reach new customers. In these OBMs, however, community partners are rarely contained to this function, and partnerships are often more deeply intertwined. Half the sample involved NGOs and civil society in initial business model design, testing or adapting the business model, or ideating new products and services (refer back to Figure 30). The currency being traded by the charity or social enterprise tends to be trust and established relationships, which enables them to promote partner (focal organisation) products that have a social benefit angle that will appeal to their network. The

commission or payment for this service then supports the ongoing work of the partner to deliver its mission. An example is energy retailer Organisation A's payment of charity partners (active in community energy, sports or health, for example) to harness the asset of their supporter community database as a recruitment channel to reach socially and environmentally minded customers. According to the collaborative value creation (CVC) spectrum (Austin & Seitanidi, 2012b), this mechanism constitutes *transferred resource value*, where the NGO – and by extension the public purpose it supports – benefits from the resource transferred by the commercial partner.

To varying degrees, this mechanism also creates *synergistic value* that enables each partner to create entirely new forms of value that would not have otherwise been possible without the partnership. An example is Organisation F's partnership with a co-operative support organisation: the partner brings grass-roots community buy-in and gains stronger and more up-to-date commercial market knowledge. The societal value created is that local communities are allowed sufficient time to raise capital to take ownership of formerly commercial renewable energy assets, increasing their participation and stake in the renewable energy transition.

The community partner commonly, although not exclusively, has a not-for-profit legal structure. In the case of Organisation A, it has elected to replace the industry-standard model of customer acquisitions via price comparison websites, to instead engage with social purpose-oriented communities via charities, unions, co-operatives and community energy associations, whose pre-existing networks are more likely to be receptive to Organisation A's social value-added product, and may also be less exclusively price-sensitive. In the case of Organisation D (Enel), NGOs and other local organisations were employed as partners as part of its approach to developing new assets in Latin America. This allowed Enel to more deeply integrate an understanding of the needs of the local communities in which new renewable energy projects were planned, and to better deliver services or benefits that did not closely fit Enel's expertise.

The societal value referred to in Mechanism 2 is not directly from the launch of the product or service itself (this is captured in Mechanism 1, where the product generates new customers and revenue which is reinvested in balanced new value

creation for a range of stakeholders), but from supporting an organisation that provides complementary societal value through beneficial *parallel activities*.

Mechanism 3: Knowledge and data commons

The third mechanism relates to the level of access to the outputs of the open innovation process. Some of the organisations see the development of open-source or knowledge commons resources as core to their change creation goals, to aid others in replicating or improving their work. Commons resources created can be knowledge or data, and are shared, either proactively, or upon request, by the focal organisation. This mechanism is strongest in Organisation C, which operates in a specific geographic region and sees knowledge sharing via social-purpose-based alliances as central to achieving replication of its learning in other regions. This strategy has seen legal and business case templates, lessons learned, or business model insights shared as commons resources, or directly with partners. To a greater or lesser extent, Organisations B, E and F have all engaged in the development of creative commons standards to improve industry benchmarks for societal value creation. The utilisation of this mechanism is either to accelerate progress towards a systems change goal or where the organisation identifies a risk to its social licence from broader industry practices, with which they do not agree.

Mechanism 4: Social benefit funds

The final mechanism relates to business model designs that incorporate a discrete financial allocation of an amount or proportion of profit or revenues quarantined for community or social benefit funds. The operation of this mechanism is different from Mechanism 1 because it does not require the acquisition of more customers or sales to generate societal value, which increases the flexibility of societally beneficial activities that can be undertaken. Organisation C provides the strongest example, allocating an unconditional, fixed financial value irrespective of company performance to a community benefit fund. The fund has spawned a large, often in-kind collaborative innovation ecosystem explicitly for community benefit within the region, without carrying conditions that require the generation of associated revenue streams. This freedom has increased the diversity of activities delivered via the fund, including free energy upgrades for community premises to reduce energy bills of

community organisations, training local volunteers to undertake energy audits for interested residents, development of community gardens, and installing free renewable energy-sourced electric vehicle charging. Organisation C's fund is a particularly interesting case as it has evolved into a 'climate resilience fund' collaboration between other locally active social benefit fund *grantor* organisations, enabling a more coordinated and strategic approach to local and regional grants. This increased the quality and delivery of applications. This case is examined more deeply in Section 5.4.1.

A more common case is Organisation F, which allocates a percentage of *profits* to its community fund, which therefore follows the financial success of the organisation. Organisation D's (Enel) approach is more project-specific and determines what types of community benefit activities to fund to improve supply chain buy-in and social licence for their projects. In some cases, this might include building a school or other community infrastructure if this is the highest priority for the community, even if this is not related to the core business of the focal organisation. In other cases, distinct mutual benefit is achieved. Fuller examples of mutual benefit are provided in the deeper case study of Enel, in Section 5.4.2.

The dynamics of the four mechanisms, as they appear in the CLD, are shown in Figure 36 below. Mechanism 1 is represented in variables 20 (profit reinvestment) and 21 (stakeholder value alignment in the BM). Combined, these variables drive customer and societal value creation (variables 22 and 05). Mechanism 2 is represented in the direct connection of variable 04 (external involvement in innovation, i.e., partnerships) to 05 (societal value creation), which explicitly does not go via the creation of a new product or service to generate value: it is the revenue stream from a partnership with the focal organisation that activates the complementary work of the community partner. Mechanism 3 is represented in the direct connection of variable 39 (open approach to innovation knowledge exchange) to 05 (societal value creation), which again does not go via the creation of a new product or service or revenue stream, as it involves the free sharing of innovation outcomes with others in the industry. Mechanism 4 is represented by variable 11 (new partner-based products/projects), which leads directly to societal value creation (variable 05). This does not go via revenue generation, as this mechanism does not require a financial

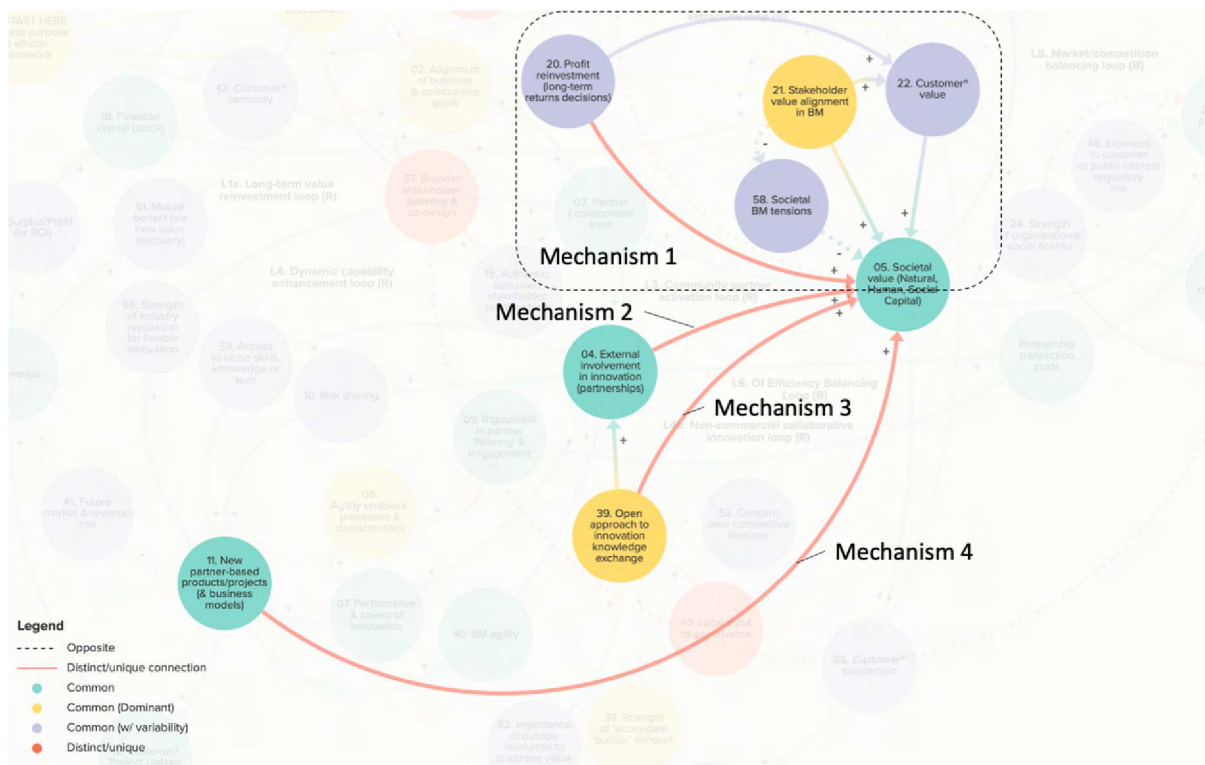
return.

Note that the connections in 3 of these 4 mechanisms are marked red, which indicates that they were not common across the entire sample. Three of the six case organisations (Organisation C, D and F) employed all four mechanisms to some degree. The remainder of the cases employed 2 to 3 mechanisms. Only Mechanism 1 was observed across all organisations.

Each of these mechanisms is analysed in the following sections, with reference to the broader dynamics of the surrounding causal variables:

- Mechanism 1: Section 5.2.3 (feedback loops) “long-term value reinvestment loop (L1a)”.
- Mechanism 2: Section 5.2.3 (feedback loops) “community partner activation loop (L3)”.
- Mechanism 3: Section 5.2.4 (dominant variables) “open approach to innovation knowledge exchange (39)”.
- Mechanism 4: Section 5.2.3 (feedback loops) “dynamic capability enhancement loop (L4)”.

Figure 36: Variables Comprising Four Mechanisms for Societal Value Creation



Source: Author analysis of case study interviews and supporting data.

5.2.3 Feedback Loops

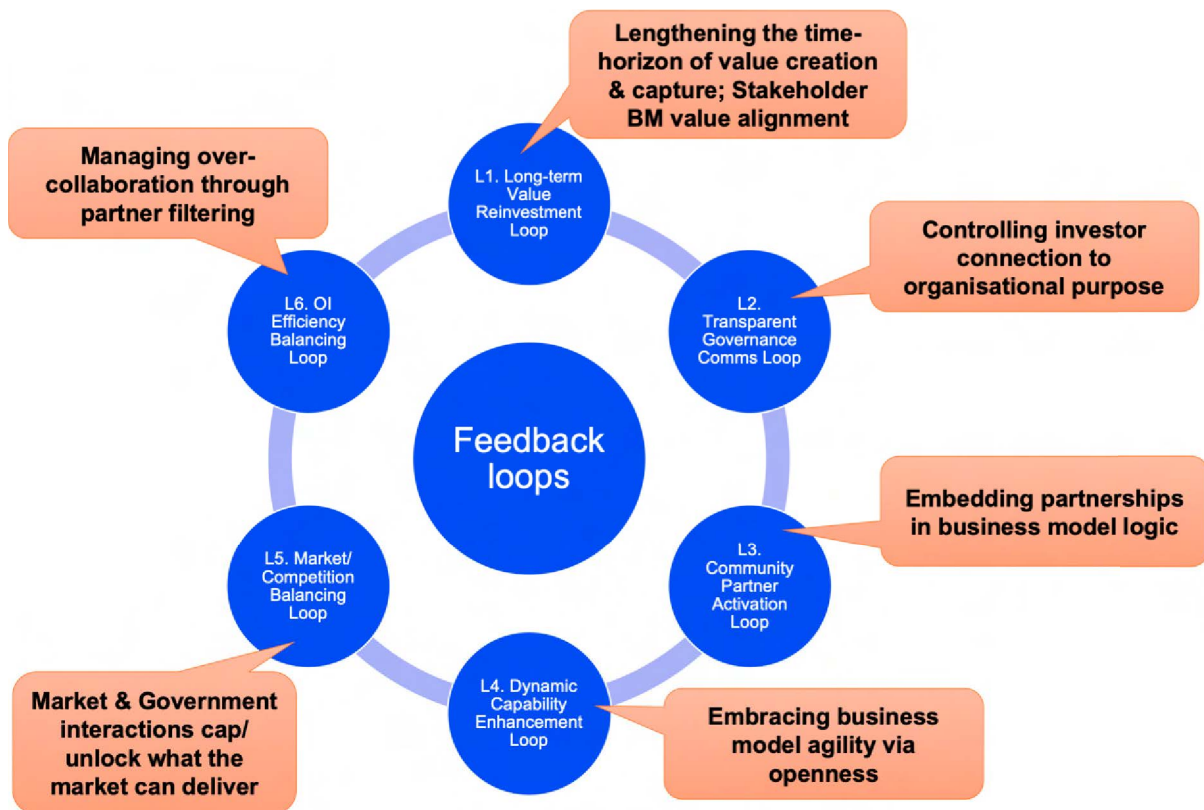
Four main virtuous loops that provide beneficial reinforcing feedback in generating societal value are identified, as well as two balancing loops that limit societal value creation or openness. The strength of each loop differs across the sample, and in some cases, loop types only apply to certain governance or finance structures. The six key loops shown in Figure 37 are:

1. **Long-term value reinvestment loops:** These loops control the extent to which profit is reinvested in societal value creation and either operate as a virtuous loop supporting long-term value reinvestment (L1a), or a balancing loop, supporting short-term value extraction (L1b). The key variables are the time horizon of governance decisions, and ‘value alignment’ in the business model design.

2. **Transparent governance communications loop (L2):** This virtuous loop operates in organisations with a larger number of investors and uses a societal value creation narrative in communications to keep investors focussed on long-term value creation and capture.
3. **Community partner activation loop (L3):** This virtuous loop operates in organisations that embed partnerships with NGOs, not-for-profits or charities in their business model and activate complementary societal value creation.
4. **Dynamic capability enhancement loop (L4):** This virtuous loop provides the engine for innovation that improves the agility of the organisation to adapt its business model to meet rapidly evolving market conditions.
5. **Market/competition balancing loop (L5):** In this balancing loop, government and market interactions set the benchmark for the extent and type of value creation achievable for businesses in a competitive environment.
6. **OI efficiency balancing loop (L6):** The transaction cost of collaboration places limits on the number of partnerships organisations develop, and an active process of partner filtering.

Each loop is explained further, below.

Figure 37: Six Feedback Loops Influencing Societal Value Creation



Source: Author analysis.

Long-term value reinvestment loop (L1)

This loop is the key foundational system dynamic, as its strength represents the extent to which the business model design embeds societal value creation and the extent to which ongoing governance decisions favour the reinvestment of profit into new value creation and furthering the business mission. The two dominant variables that support the operation of this loop relate to business model design (variable 21. Stakeholder value alignment in the BM) and finance and governance (variable 31. Length of time horizon for value creation and capture).

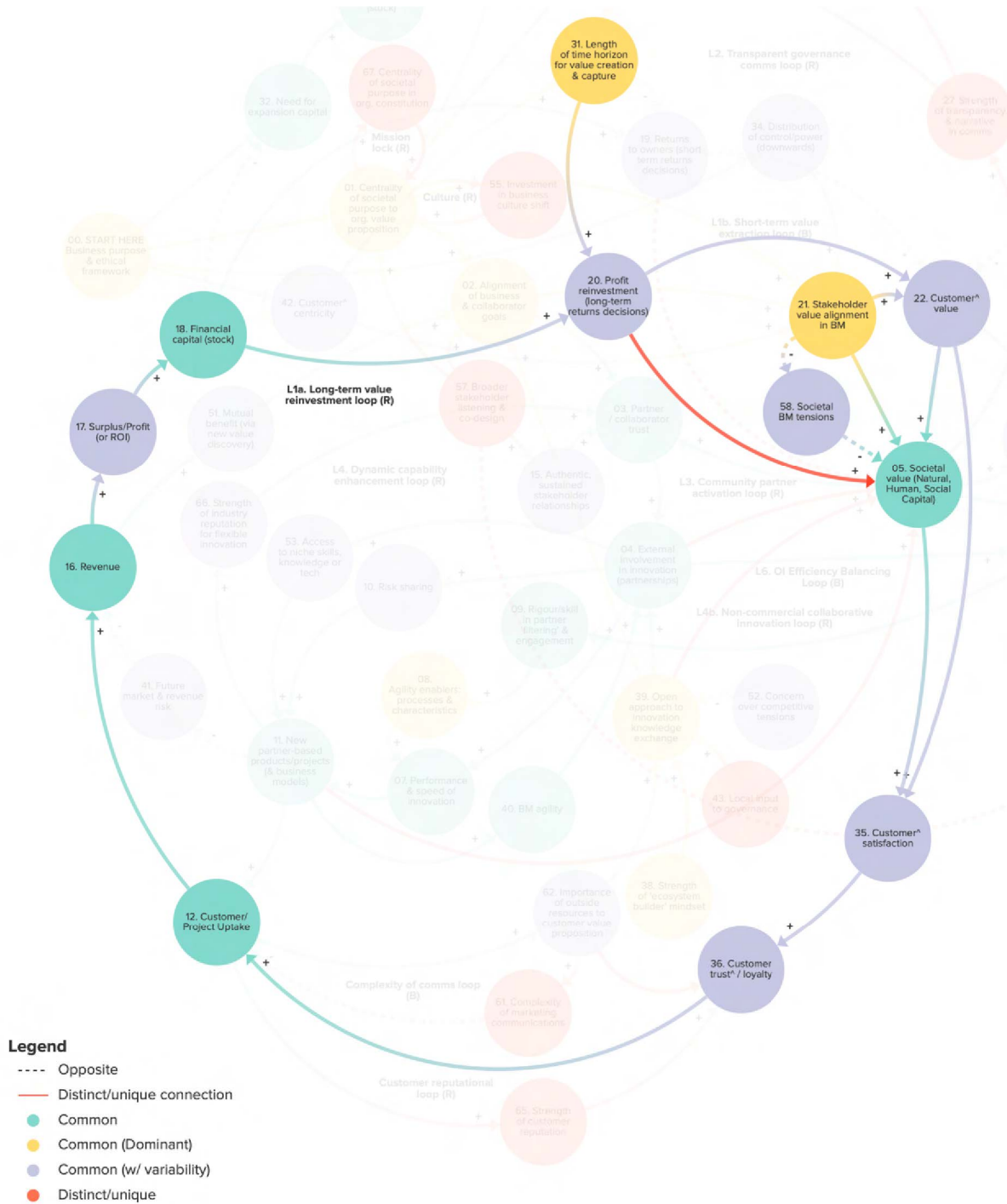
As shown in Figure 38 below, **stakeholder value alignment in the BM (variable 21, in yellow)** is a critical process for the virtuous value reinvestment loop to function properly. The virtuous loop operation implies that customer and societal value creation are well-aligned and there are no 'tensions' (variable 58) that deplete societal value when the customer or the organisation gains. Therefore, the expansion of the organisation's core products and services can represent a net gain in societal value.

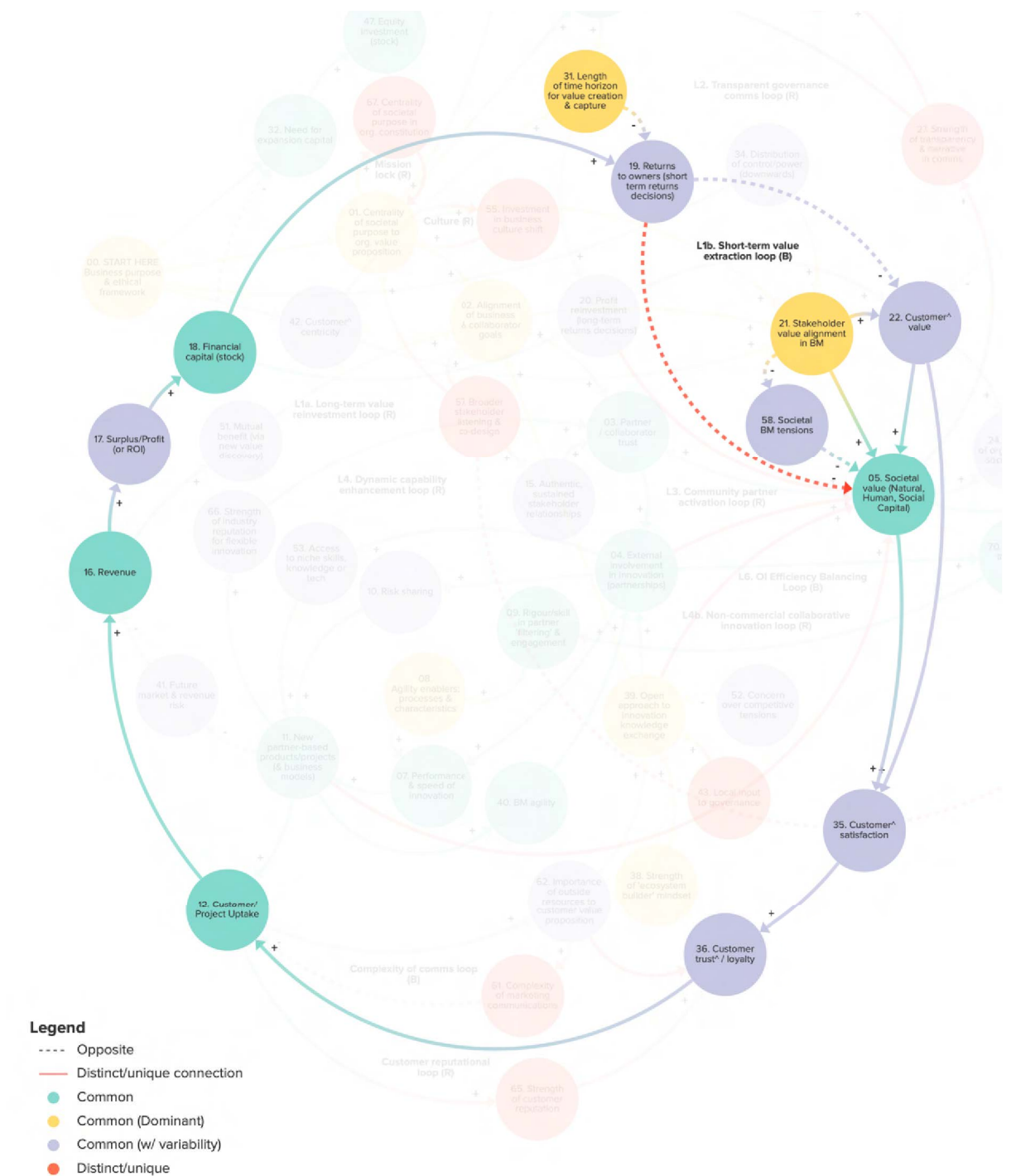
That said, business models are not monolithic and even well-aligned business models may often have minor tensions that need to be managed in an ongoing way. For an analysis of specific societal value exchanges and tensions in each case, see Section 5.3.1.

The concept of stakeholder value alignment implies the need to eliminate tensions not only with societal value creation objectives, but also between partner objectives. Even if two partners are aligned in their societal change creation objectives, conflicting revenue models or market strategies might make combining resources challenging. This reflects the idea of ‘inter-actor configurational fit’ (Storbacka et al., 2012), which suggests the focal organisation and its partners must have a strong fit between their business models and practices to successfully co-create value.

All of the case organisations displayed an *active* process of business model iteration through which deep consideration of potentially competing incentives of different stakeholder occurred. In a small number of cases, this was a distinct, internally recognised process, while in the majority it was an ad hoc process that was identified upon reflection.

Figure 38: Long-Term Value Reinvestment Loop (L1a top) and Short-Term Value Extraction Loop (L1b bottom)





Source: Author analysis of case study interviews and supporting data.

In most of the ‘new energy’ organisations within the sample that did not need to address historical business model legacy issues, tensions in the current business model were relatively limited: business models were either well-aligned with societal value creation, or benign in terms of having no clear societal tensions present. However, even in such organisations with fewer tensions, this outcome did not arise

by chance. Across the sample, active consideration of business model value alignment included careful structuring of revenue models, partner selection and risk mitigation, balancing partner value propositions, and investment sources. While a full list of contextual examples covering each business is provided in Appendix F, two are elaborated discussed here.

Organisation A provided a strong example of designing revenue models for stakeholder value alignment:

if you're pushing distributed energy and you're earning money on usage, there's a natural tension there...and customers know that. So how do you get around that and build some trust with customers in an industry that's renowned for a lack of trust? Well, you just don't earn money from usage. So, if we can help you lower your bills through a different network tariff, through efficiency or through distributed energy then we will, because our incentives are aligned. – Organisation A (Retailer)

Organisation A, as a new entrant in the retail market, had no legacy business model to protect. Thus, achieving value alignment through a novel revenue model structure could be embedded as a core aspect of its unique value proposition.

Organisation D (Enel), on the other hand, is a large organisation that explicitly transitioned to sustainability, in which both strong societal value alignment *and* societal tensions are present in its business model. The development of new renewable energy generation assets creates societal benefit through reduced greenhouse gas emissions. And when developed through a community-centric innovation process, new projects also create additional social value within participating communities. The organisation also operates fossil fuel assets which, through a combination of strategy and business model redesign, are being actively managed to eliminate this tension over time through a fossil fuel phase-out.⁵⁰ As a representative noted, this was achieved through a systematic process of realignment from the top down: “The vision was quite clear; [the CEO] soon understood that we need to change the business model”. However, the organisation realised that creating environmental value alone was insufficient, and complementary social value was

⁵⁰ In its most recent Strategic Plan, coal generation phaseout was accelerated to 2027, and gas distribution and retail phaseout to 2040. The associated direct ('Scope 1') emissions targets in 2030 – which include Enel's generation assets – align with the 1.5-degree warming pathway accredited by the Science-Based Targets Initiative (Enel Group, 2021).

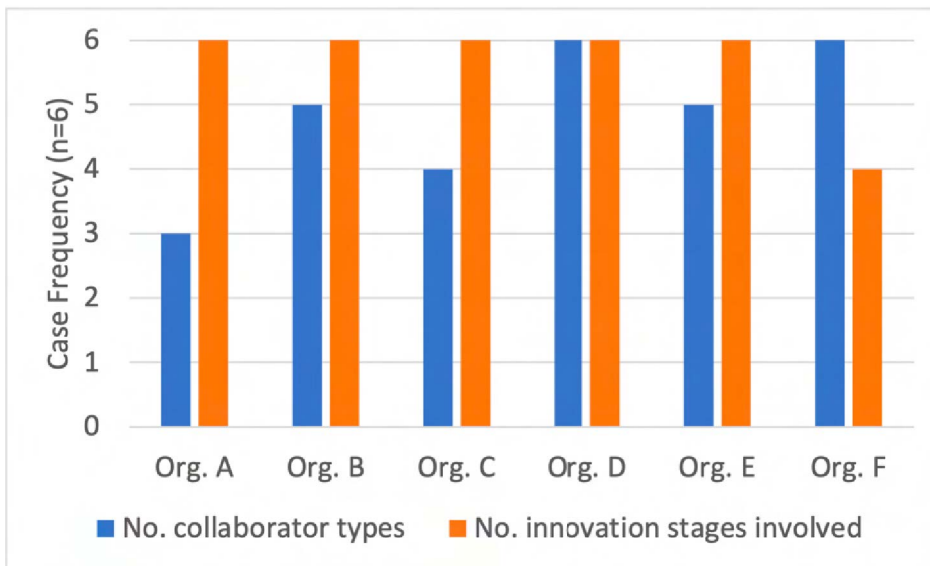
required to be successful and to reduce long-term risk: “what is making shared value? ...it’s a matter of putting your stakeholders at the core of your business model, and to really find a way and then rethink your value chain”. Active stakeholder involvement in this process was critical to delivering business model realignment around legacy fossil fuel assets:

the idea was taking into account 21-22 [fossil fuel] plants, and try to rethink...these assets. ...In most of the cases, you can switch to new industrial solutions, commercial solutions, or training centre[s] or whatever. But always with the idea of doing it with people in a codesign [process]...not alone. ...The primary idea [is] ... to rethink that asset. Shutting them down but...we don’t want to lose [even] one job...we want to maintain those people that are working in that conventional form of energy, rethinking...the model. Selling [the asset] is easy because you are moving the problem from you to someone else. – Organisation D (Enel; multinational energy company)

The co-design model of Organisation D (Enel) brought a wide range of external stakeholders into the innovation process to redefine the value chain. This explicitly went beyond commercial partners and involved workers and communities within which their facilities were embedded. This inclusive approach reportedly built a foundation of trust, but also helped the company more deeply understand how to generate value for those stakeholders, and their respective priorities. Thus, in this case, the *direct participation* of those affected by the societal tensions in the business model evolution aided the successful elimination of those tensions. This variable is represented as 57. ‘Broader stakeholder listening & co-design’ in the full CLD in Appendix A.

Similar to Organisation D (Enel), openness features in the processes employed in business model design and reinvention across all of these OBMs. As shown in Figure 39, all but one business involved external collaborators across all innovation stages (organisational formation, initial business model design, testing/adapting business model, product/service ideation, commercialisation, marketing/distribution), and all businesses involved at least three of the six collaborator types (other businesses, customers, civil society, professional/innovation networks, governments/regulators, other).

Figure 39: Number of External Collaborator Types and Innovation Stages Involved



Source: Self-identification survey, question no.56 (see Appendix D).

In the case of Organisation E, investment sources were critical to this process. As a software developer, it sees openness as core to its ability to act as a mediating transaction platform for a diversity of new energy companies, which has flowed onto its decisions regarding organisational investors:

[we have] never taken money from one of our customers. We don't intend to. ...[As a] cash-constrained software energy company, it would be logical for us to approach a retailer or network or even a bigger...energy software company to get money, but all the time we said, no...because...we don't want to be a potted plant in the walled garden, that's not us. ...That was a deliberate strategic choice. – Organisation E (software platform)

The metaphor of “a potted plant in the walled garden” refers to avoiding becoming part of a broader proprietary solution. That is, they recognised that to solve the core industry problem at the heart of their societal value proposition, an open approach was necessary to allow the interconnectivity of a wide range of new smart energy technologies to be seen and controlled.

Returning to the CLD in Figure 38 above, **stakeholder value alignment in the BM (variable 21)** underpins the concurrent generation of customer and societal value.

This drives customer satisfaction and trust (variables 35 and 36), which retains or generates new customers, driving revenue and profit growth (variables 12, 16 and 17).⁵¹ The key dynamic completing the loop, then, is reinvesting profit in further customer or societal value creation. This occurs by expanding activities contributing to the customer or societal value share, or by investing in new innovations that create new sources of value. This is controlled by the key variable **length of time horizon for value creation and capture (variable 31)**. This refers to how short- or long-term a view the governors take in making strategic decisions that affect value creation and capture. A long-term view actively considers sustained value creation for the breadth of stakeholders. A long-term view requires a nuanced appreciation of the impact of strategic governance and business model decisions on the organisation's sustained customer acquisition and retention, social licence to operate, and its broader systems change goals. If a long time horizon for governance decisions is taken, this supports greater reinvestment in customer and societal value creation, completing the virtuous loop. A short time horizon for value creation and capture is associated with more limited consideration of the *type*, or *longevity*, of value creation. Short-term governance decisions imply an increased focus on value extraction for owners and investors, at the expense of customer or societal value creation. This 'reverses the polarity' of the loop, creating a balancing effect that *limits* societal value creation.⁵² This is titled the 'short-term value extraction loop' (L1b).

Both reinforcing and balancing loops operate concurrently, but the relative strength of each loop is ultimately controlled by variable 31 (length of time horizon). As a representative of Organisation E noted, in for-profit business structures, the value placed on generating returns for owners/investors is never zero: "[Even in a mission-driven business] the original investors and founders are, at some point, motivated by seeing some level of return. Whether it's actual profit in the daily business, or ultimately, potentially a sale value of that business". Thus, while long-term decisions are where societal value is realised, it is important that the time horizon variable

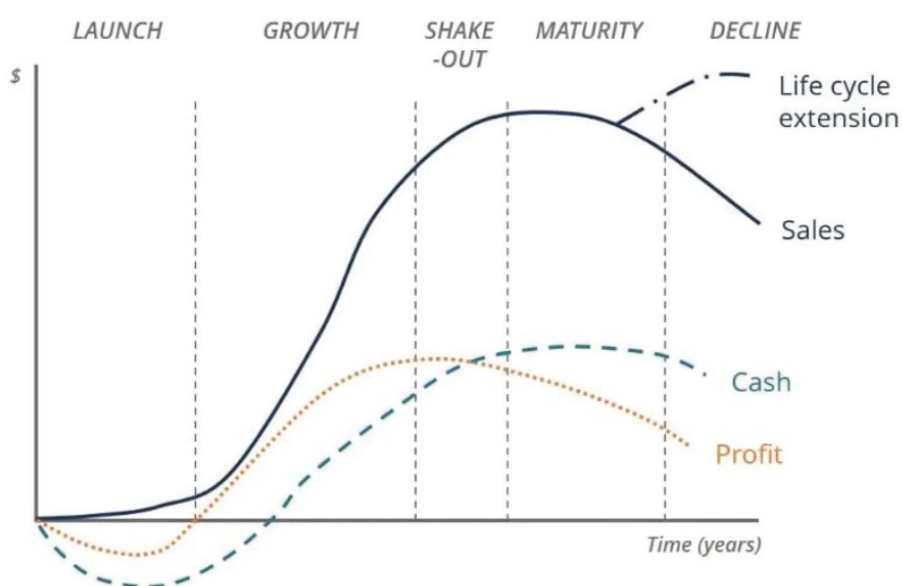
⁵¹ A feedback loop relating to customer reputation also exists here, but is only included in the full CLD (Appendix A, Figure A1) as it is not specific to OBMs.

⁵² If all connections in a loop are positive (or if an even number of connections are negative and thus cancel each other out), the overall polarity of the loop will be positive. This situation represents a reinforcing loop. If one, or an odd number, of connection/s are negative, the overall polarity of the loop will be negative, which represents a balancing loop.

should not be viewed simplistically as ‘short-term is negative’ and ‘long-term is positive’. In seeking to arrest challenges to its legacy utility business model from new competition, the strategic realignment to longer-term social and environmental value focus of Organisation D (Enel) was driven by executives asking the question, “What [do] we have to do to stay in the market in the long run?”. This is ultimately a commercial question with a long-term view. It is, therefore, more appropriate to consider which loop dominates in day-to-day governance trade-offs over time. As a representative of Organisation A remarked: “I think what you end up doing is you sacrifice some short-term wins for...having a better reputation in the market, more loyal customers and better long-term value. You’ve just got to hold tight in the short-term”.

Note, however, that across the cases – in which some organisations are newer entrants – three have yet to reliably turn a profit, year-on-year. The relative strength of the reinforcing or balancing loop of value reinvestment is clearly linked to the organisational life-cycle stage, typically illustrated as a curve in business textbooks (Figure 40) showing profit from the ‘launch’ through to ‘maturity’ stages. Organisations A, B and E reside in the early growth stage, despite the organisational age varying from less than 5 years to 10–15 years.

Figure 40: Profit and Cash Reserves Shown Across Organisational Life Cycle Stages



Source: Corporate Finance Institute (2022)

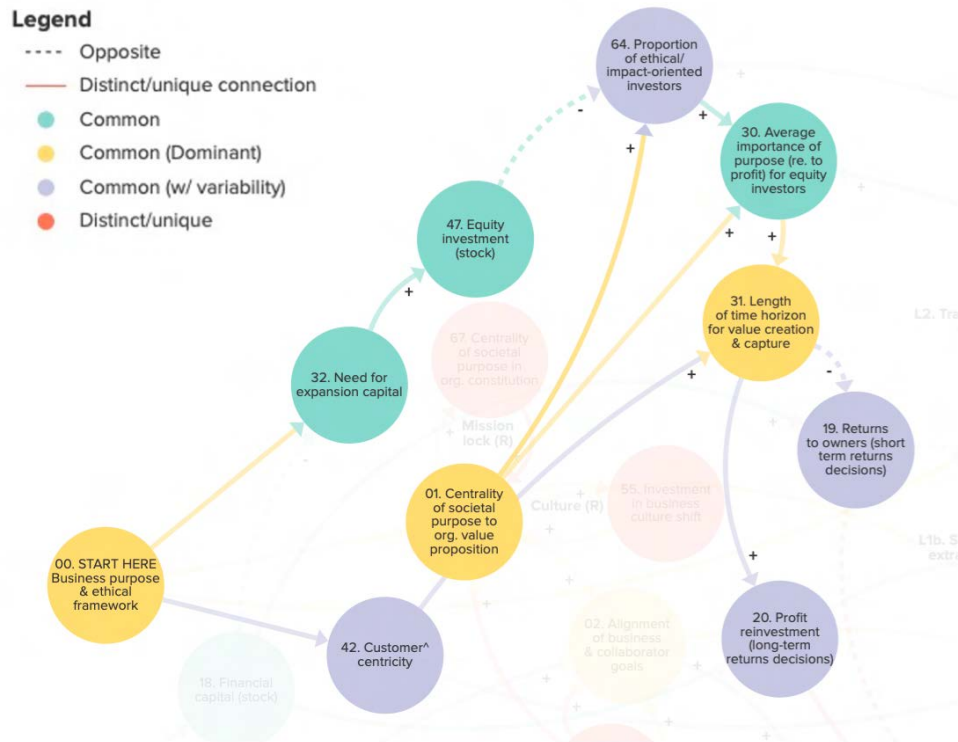
As a representative of Organisation A noted:

I think it will be quite a long time before we would get [to distributing any investor dividends] because we'd rather retain money [company profits] in the business to grow it, rather than just hand it back in small increments. It would be better off used to grow the business.

That is, earlier-stage organisations in the steeper phases of the growth curve are unlikely to take money out of the business, and thus only enact reinforcing loop 1a. However, founders or investors may be looking for a larger payoff upon 'exit' via the sale of their stakes in the business. Thus, loop 1b may be enacted *sporadically*, rather than *routinely*. Note that Amazon, one of the world's most powerful companies at the time of writing, rarely pays dividends, and reinvests surplus in expanding its market dominance (Ciura, 2022). This challenges the presumption that prioritising investor interests will necessarily result in the short-term extraction of value from the business. As Amazon would rarely be considered a leader in sustainability or societal value creation, this highlights the importance of stakeholder value alignment in the BM (variable 21). A deeper evaluation of the relative implications of routine versus sporadic value extraction on customer and societal value creation outcomes would require a larger, longitudinal dataset.

Given the importance of the 'length of time horizon for value creation & capture' (variable 31), the two upstream variables identified are elaborated on in this section: 'average importance of purpose (relative to profit) for equity investors' (variable 30), and 'customer centricity' (variable 42). Each variable and its upstream influences are shown in Figure 41 below.

Figure 41: Contributing Variables to the Maintenance of a Long-Term Governance Horizon

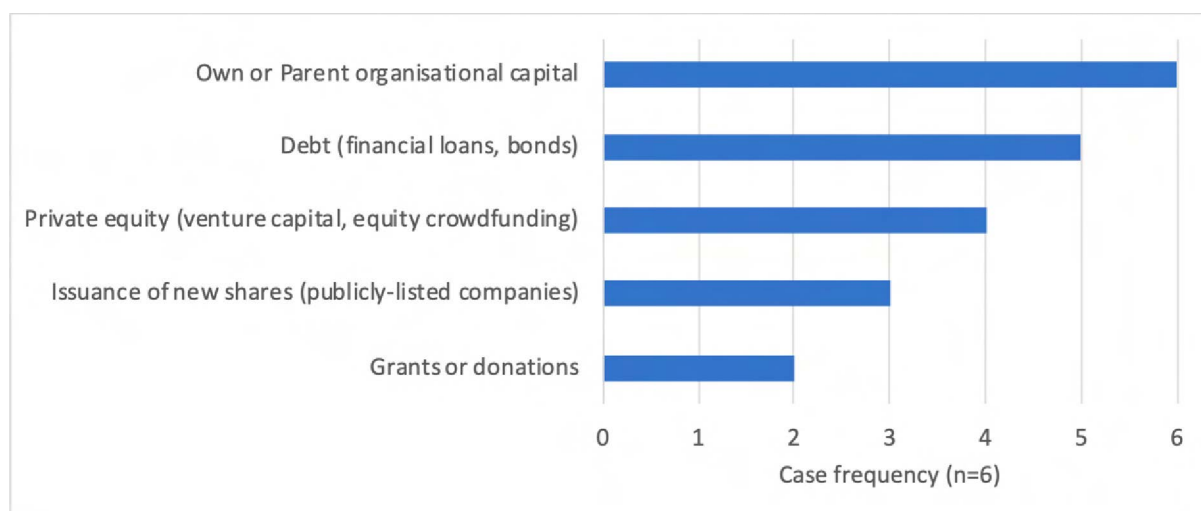


Source: Author analysis of case study interviews and supporting data.

Average importance of purpose (relative to profit) for equity investors' (variable 30)

This variable is strongly linked to the source of finance, in terms of the type of investors and their associated motivations. As a backdrop to this analysis, it is useful to present the range of sources of finance used to fund organisational expansion to date across the cases (Figure 42). All organisations used their own or parent organisation capital, almost all used debt, and all had taken private finance, either in the form of private equity or the issuance of new shares.

Figure 42: Sources of Finance Used to Fund Organisational Expansion



Source: Self-identification survey question no.26 (see Appendix D).

As a representative of Organisation E surmises, changes in investor type, share, and status represent the most material shifts in a company’s early-stage development, because “they put implications on the strategy or expectations around a balance between meeting near-term profitability versus long-term investment in R&D”. Across the sample, investor types ranged from large institutional investors (professional agents like pension/superannuation funds, that invest on behalf of other people), venture capital funds (institutional investors taking higher risk/return investments), non-professional individual investors (also called ‘retail investors’), angel investors (often high net worth individuals who invest in high-risk startups), and social impact investors (that explicitly hold social and financial motives). These investor types are neither exhaustive nor mutually exclusive. Many investors in the focal organisations would sit within the social impact investor category, but vary in scale and professionalism. In Figure 41, investor type and surrounding contributing factors are simplified within the variable ‘**proportion of ethical/impact-oriented investors**’ (variable 64). Contributing factors include investment return expectations, rates of competing investments and size of investor capital reserves. Each of these is discussed below.

Investment return expectations: Four of six businesses had large funds as major institutional investors. The origins and purpose of those funds, their priorities and their competing investments were observed to dictate not only the rate of investor

return, but also the time period of returns, suggesting the strategic choice of investors is a controlling factor that, once decided, is primarily then outside the control of the focal organisation. As a representative of Organisation C noted, “a desire for more significant dividends...always comes from that [specific institutional investor] group...because they’re also having to comply with certain regulations and getting pressure on [the] performance of their funds...It doesn’t come at all from the small shareholders and it doesn’t come from the philanthropic kind of impact investor group”.

The involvement of venture capital also played a strong role in more than one case:

Taking venture capital investment which we’ve done you can’t really just settle into being a sort of cosy mode of being a successful small business because the investor expectations that are built into venture capital...demand higher returns and...it’s kind of almost fail or succeed big, they’re not particularly interested in just muddling along. – Organisation B

Rates of competing investments: As with the balancing loop associated with competitive markets for the focal business’ end product (see loop L5 discussed later in this section), there is also a competitive market for investors. This is perhaps most obvious in organisations with a large number of individual investors (such as Organisations C and F), for whom their investments were clearly considering bank interest rates, mortgage lending rates, and other comparable investments.

Size of investor capital reserves: In primarily founder-owned and controlled businesses, the amount of capital in reserve has a strong bearing on the flexibility to make long-term decisions regarding value capture. As a representative of Organisation B described:

we observed other companies that were regarded as useful reference points and contemporaries make mistakes that we didn’t want to make. And that was hard because the temptation to take some money early on and be able to pay yourselves and things like that were there, but I think again, reflects that we weren’t quite driven by the same need to make a deal. Because of older founders with some other resources.

As the type and motivation of investors are most significantly determined during

capital raising stages, for day-to-day operational control these contributing factors can be considered to be largely *exogenous* to the focal organisation. The main point of ongoing organisational influence on investment is included within loop L2, discussed later in this section.

Organisation C (renewable energy co-operative) provides a partial exception to the lack of direct control over investor type and associated preferences. It was able to maximise the potential for societal value reinvestment by recognising and accounting for the different types of investors. Organisation C gave member-investors the option to take their dividends, select a dividend reinvestment plan (in which your dividend buys more shares, essentially raising new investment capital from the current investor base), or donate their dividends to the community fund (a dedicated mechanism for investing in local societal value initiatives). In doing so, it created more ways in which investors could favour social impact, even if this was not a majority position across the entire investor base.

Note that the financing variables discussed here all relate to equity investment. A feature that is notable by its absence is that almost all businesses reported using debt at some point in their expansion (refer back to Figure 42), yet this was never raised as an influence in the discussion of dynamics. This is somewhat intuitive, as it does not have an ‘impact’ on profit, given debt repayment is mostly viewed as a pre-profit business expense. Repaying a loan with interest is also a well-defined and non-negotiable commitment, whereas determining an appropriate (and uncapped) level of investor return must continually be revisited by governors.

Two other upstream factors that ultimately have a bearing on the relative importance of purpose to investors are the ‘centrality of societal purpose in the organisational value proposition’ and the ‘scale of equity investment’. Each of these variables is elaborated upon below.

If the **centrality of societal purpose to the organisational value proposition (variable 01)** is high, then the organisation’s market positioning, brand perception, customer interest, and thereby market success, are closely tied to this purpose. It is, therefore, riskier for investors to make governance decisions that diverge from this purpose. The centrality of societal purpose also influences the type of investors that are drawn to the capital raising opportunity.

Organisation F, as a social impact investment platform formed as a for-profit public company, provides a pertinent example. While not legally enshrined in its constitution, its founding value proposition clearly had social *and* environmental dimensions. It has attracted investors with a strong connection to this holistic societal purpose: “most of our institutional investors invested in us because of the social impact mission that we’ve got. And, for them, that was the primary driver for investment”. This is distinct from other competing renewable energy investment companies with solely environmental value propositions.

While not represented in the CLD, societal purpose alignment (variable 01) appeared to be supported by democratic governance structures. Within the case organisations, strongly democratic structures were only present in Organisation C, as a co-operative, which employs ‘one member, one vote’ decision-making at its annual general meetings. This co-operative principle limits the power of larger investors over smaller investors in determining organisational direction. The democratic governance structure appears to have supported the organisation’s long-term investment view, for example:

For three AGMs early on...we took to members: ‘Would you prefer a dividend or for us to pay down debt?’ Everyone voted to pay down debt. We paid down...our loan ten years ahead of time. Although we were struggling financially, we still did smart financial choices that the members voted for. – Organisation C (co-operative)

A weaker, but still valid, influence on governance participation was the active targeting of small investors by Organisation F. It allows and actively promotes very small shareholdings, in alignment with its mission to help everyday citizens connect with renewable energy production. Decision-making is still ‘one vote, one share’, consistent with its standard public limited company structure, but its small investor niche gives it a broader base of engaged shareholders to whom it is accountable. Both organisations have, over long periods and through challenging energy policy and financial market conditions, maintained very tight connections to their societal missions and long-term value creation horizons.

Finally, increasing the stock of **equity investment (variable 47)** is represented as having a *negative* effect on the proportion of ethical/impact-oriented investors

(variable 64). The rationale here is that the availability of strongly purpose-driven capital – at least historically – has been limited, and the greater the organisational requirement for expansion capital, the larger the size of the organisation’s equity investment and the weaker the balance of organisational purpose relative to profit within the investor base. Note that if the source of expansion capital was debt, rather than equity, one would not expect the weakening of organisational purpose to occur in the same way⁵³ (see discussion of debt finance earlier in this section). However, in many of the case study organisations, debt was not routinely used as a source of expansion capital due to the risk profile of investments in a rapidly changing energy market. As a representative of Organisation B notes, despite operating for more than 10 years:

we remain very ‘startup-like’ in that...you can’t borrow money in traditional terms. You can’t go to the bank and borrow money. It’s a higher-risk proposition in the startup world. So that’s why you have to bring in venture capital.

This is not to say, at the *individual investor* level, that larger investors necessarily have a stronger focus on profit maximisation, particularly in the philanthropic investor class, which tends to be both relatively large and strongly purpose-driven. Rather, it is shown here as being more broadly representative of a trend that points to the direct tension between concurrently achieving scale and purpose. That is, creating a greater level of societal value *at the expense* of investor returns limits the size of the available capital market. This is based on the assumption or perception that delivering value-sharing to other stakeholders implies a reduction in investment return. Expanding the organisational scale of operation thus involves utilising capital from sources for whom societal purpose is a lower priority. Potential solutions to this issue are ‘shared value’ approaches, where a collaborative innovation approach seeks to unlock a greater level of societal value without a reduction in investor value, or increasing the scale of, or access to, the purpose-driven capital market. Organisation D (Enel) is pursuing both strategies (Enel Group, 2020). While shared value approaches attract a high degree of cynicism (Beschorner & Hajduk, 2017; e.g., Crane et al., 2014),

⁵³ Variable 69 is omitted from the CLD representation but highlights that ‘69. Level of investment risk’ has a positive connection to ‘47. Equity investment’ as a higher level of risk leads to a greater likelihood of equity investment selection.

Organisation D has demonstrated significant success in concurrently delivering societal value and increasing investor returns. This does, however, place a high burden on discovering new sources of value. This case is further discussed in Section 5.4.2.

Customer centricity (variable 42)

In addition to the previous variables that discussed more singularly societal purpose-focused businesses retaining a long-term horizon, **customer centricity (variable 42)** also played a similar role. Customer centricity refers to the intensity of organisational focus on the customer interest and customer experience, and is commonly associated with strong customer involvement in innovation {(Hughes et al., 2021)}. Customer centricity has been measured using indices incorporating customer-oriented values and beliefs of executive management, customer-oriented organisational structure, and focus on customer satisfaction and needs discovery (Frankenberger et al., 2013). Generally, customer centricity was more prominent in the organisations with stronger growth ambitions, reflecting a growing management interest in the concept (Damázio et al., 2020) as a strong financial success indicator (Hughes et al., 2021).⁵⁴ Within the case organisations, those with the strongest customer focus have arisen out of market conditions of low trust driven by poor customer treatment by large incumbents. As explained by a representative of Organisation A: “[Large energy retailers see] customers as an annuity rather than people that they should fight to provide a service for...[so] my feeling for a while is [that] something has to be able to disrupt this”. And thus, where advocating or representing customer interests is part of the organisation’s *raison d’être* or core value proposition, this was observed to flow through to strategic governance decisions that favoured customer interests over short-term investor interests. In the case of Organisation A:

There have been times when we could have easily passed through more cost in a price change to customers...[and] we would have got close to profitability if we’d taken those decisions. But we chose not to...because it’s the right thing to do.

⁵⁴ Concepts such as customer closeness and customer focus have also been identified by customer ‘co-creation’ researchers as important ingredients in product success (as summarised by Frankenberger et al., 2013).

Transparent governance communications loop (L2)

In OBM organisations with large enough investor bases for whom substantial engagement materials are required, communications play a key function in maintaining the **importance of purpose relative to profit (variable 30)** in investor decision-making, by strengthening the connection of investors with the organisational purpose. This variable ultimately influences the 'length of time horizon for value creation and capture' (variable 31) of investors. When long-term governance decisions are made that support strong concurrent customer (variable 22) and societal value creation (variable 05), this provides rich material to develop a **strong, transparent narrative (variable 27)** about demonstrated organisational impact. These communications perform two important functions: first, they improve the connection of existing investors with the societal purpose; and second, they improve the **ability to target (new) ethical investors (variable 28)** for whom the impact story resonates. That is, shifting the investor type towards those more inclined to take a long-term governance view. This reinforces the ability to make long-term decisions, which supports further societal value creation that can enrich the narrative, completing a virtuous loop. While not explicitly shown in the diagram, as the strength and size of the impact investment movement increase with global momentum toward climate action, this loop becomes easier to activate. This factor was particularly prominent for Organisation D (Enel), given its higher-profile global presence.

The **transparent governance communications loop (L2)** is marked in Figure 43 below as distinct/unique as it was only observed in organisations with larger investor bases. Privately owned companies with only a handful of relatively large investors do not require such communications and, for the same reasons, tend not to have high levels of governance transparency. This is not to say that similar reporting of impact narratives does not occur in confidential Board briefings, but this was not observable in the research process. The strongest examples where this loop operates are Organisations C (co-operative), F (public company) and D (publicly listed multinational). A representative of Organisation F provided examples of where the communications narrative helps investors extend their connection with the organisational purpose: "Building a wind farm on an ex-coal mine – is just an

example of how things are changing, right?...This is the sort of thing that our shareholders absolutely love”, and of how communications seek to support a community of practice:

we send [our newsletter] to everybody. It’s not just for our shareholders. It’s about creating that community of people with common values...and this is also why we’ve allowed people to invest...from as little as five pounds. {So} they might feel they’re being part of a movement. – Organisation F

This is surrounded by transparent governance, as a broader principle, which appears connected to a notion of duty to investors:

our Director’s and Chairman’s report are quite revealing of our business really. I think it’s quite useful for our competitors, but we just think we owe that to our shareholders...If you look at our annual report, by law we wouldn’t need to say...we would need to say 20% of what we say, probably. – Organisation F

Figure 43: Transparent Governance Communications Loop (L2)



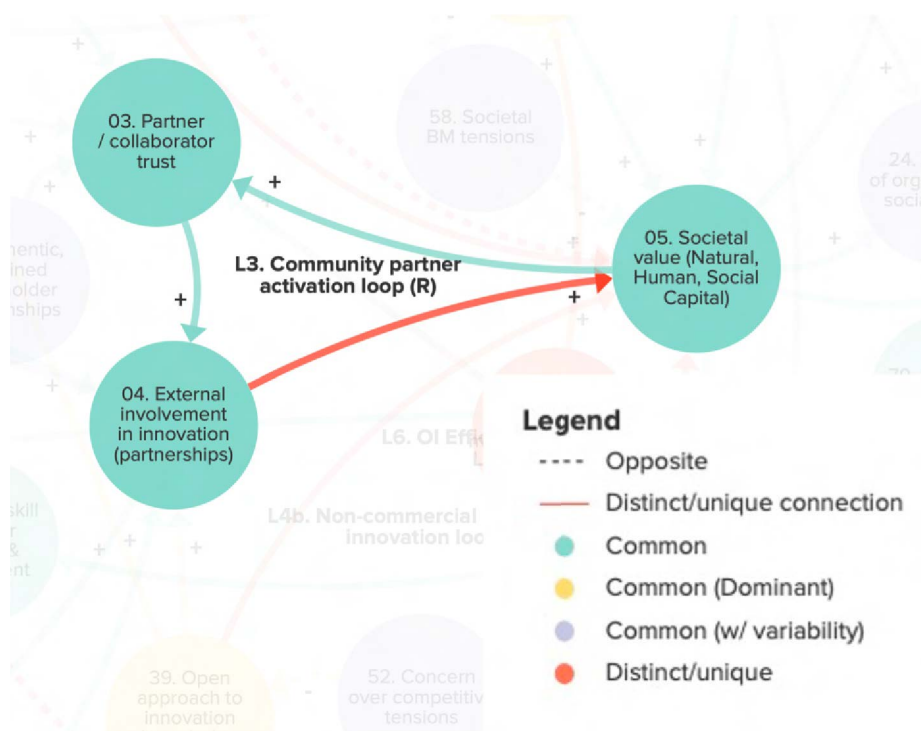
Source: Author analysis of case study interviews and supporting data.

Community partner activation loop (L3)

Developing from a foundation of **partner/collaborator trust (variable 03)** and an open approach to innovation knowledge exchange (variable 39) (the roots of both are explored more deeply in Section 5.2.4), comes the development of **external involvement in innovation** (referred to here for simplicity as ‘partnerships’; variable 04). As all of the case organisations exhibit OBMs, partnerships are a key feature of BM innovation. These partnerships can be with new entrant or incumbent commercial parties, government bodies or regulators, or social purpose organisations

that may identify as NGOs, not-for-profits, charities, or hybrid forms of social enterprise.⁵⁵ When partner selection involves social purpose organisations, it can support the partner’s complementary ongoing activities by supplying a revenue stream (generally in return for leveraging a unique resource) or intangible value exchanges. The demonstrated delivery of societal value builds trust in the partner network (variable 03), which develops credibility and leads to new partnerships, completing the virtuous cycle, shown as the **community partner activation loop (L3)** in Figure 44 below. This loop is adequately described in Section 5.2.2, as one of the four mechanisms for societal value creation. As not all of the organisations studied employed this mechanism, the connection from variable 04 to variable 05 is marked as distinct/unique.

Figure 44: Community Partner Activation Loop (L3)



Source: Author analysis of case study interviews and supporting data.

Dynamic capability enhancement loop (L4)

Crucial to the operation of the societal value creation system is the competitive advantage delivered by collaboration, in the form of enhanced flexibility to rapidly change organisational strategy in response to emerging market needs. Partnerships

⁵⁵ Refer back to Figure 30 for data on external collaborator types.

(variable 04), which are critical in these OBMs, enable the organisations to get new products, services or features into the market quickly, at relatively low risk in terms of their own resources committed. There are three dimensions to this benefit:

1. Cost efficiency and speed of innovation (variable 07)

As partnerships can be made much more rapidly and with fewer resources than developing new capabilities in-house, an open approach allows innovation to occur faster and more cost-effectively. Particularly in smaller organisations, the 'leanness' of their own operation was referenced as key to their ability to execute new projects or opportunities. As a representative of Organisation A explains:

It's less capital intensive that way, which means we don't need to try and raise as much money. Because if you think about some of the work we've done this with some of our partners, they've done a lot of the heavy lifting. We've [also] done a lot of work. But...the combination of the two has been much more efficient for both parties than if we alone sat here and just tried to solve all these problems.

2. Risk sharing (variable 10)

While stronger in more social purpose-oriented organisations, collaborative partnerships generally involved an element of risk sharing. For example: "there was a need to be more flexible and partly share risk with others as well, because it might leak into this investment very quickly" (Organisation F). Particularly where margins were tight, a larger array of partners was often required to share risk to enable a new project or product innovation to launch, or one partner was better positioned to carry a given risk than others. Note that risk sharing (in order to get an innovation to market) is distinct from the risk management benefit that OBMs provide in terms of market strategy. In the latter, the open logic of the business model reduces the likelihood of the focal business's over-reliance on technologies or business model logics that end up failing to achieve market success. This benefit is discussed in Section 5.2.4.

3. Access to niche skills, knowledge or technology (variable 53)

For small and large case study organisations, the capability being accessed within a partnership overcomes key resourcing or technology constraints. As a representative of Organisation B noted:

If somebody's already got an app that does something perfectly well, we can say 'integrate with us', and we don't try and develop it. And, equally, the biggest constraint on the growth of our business is limited software and firmware engineering resources...so, wherever somebody else can do that work, it can be available through our platform, and we can clip the ticket somewhere.

These three key benefits lead to an increase in **new partner-based products, features, or projects (variable 11)** – often embedded within new business models – which then has two positive feedback loops. First, and most straightforward, is reputational, whereby the release of a new partner-based product increases profile and feeds the organisation's reputation within the industry as a potential partner for flexible innovation. Reputation then leads to **new partnerships (variable 04)**. The second part of the feedback loop is that after a new partner-based innovation is released, it increases the confidence and competence of the focal organisation to reshape its business model to incorporate new partners with complementary value propositions. This enhances **BM agility (variable 40)** or flexibility, which aids the further integration of new partnerships. A representative of Organisation F alluded to increasing confidence in experimenting with new partner-based business models:

We [started] looking more at how can we be more collaborative and not just acquire and build...these things sort of come as there's a project and on that project we need to do something different and like, "Oh, we never do this. Why would we?" But then, you kind of think about what is the end objective? Actually, we could do a joint venture with a landowner. Why not?

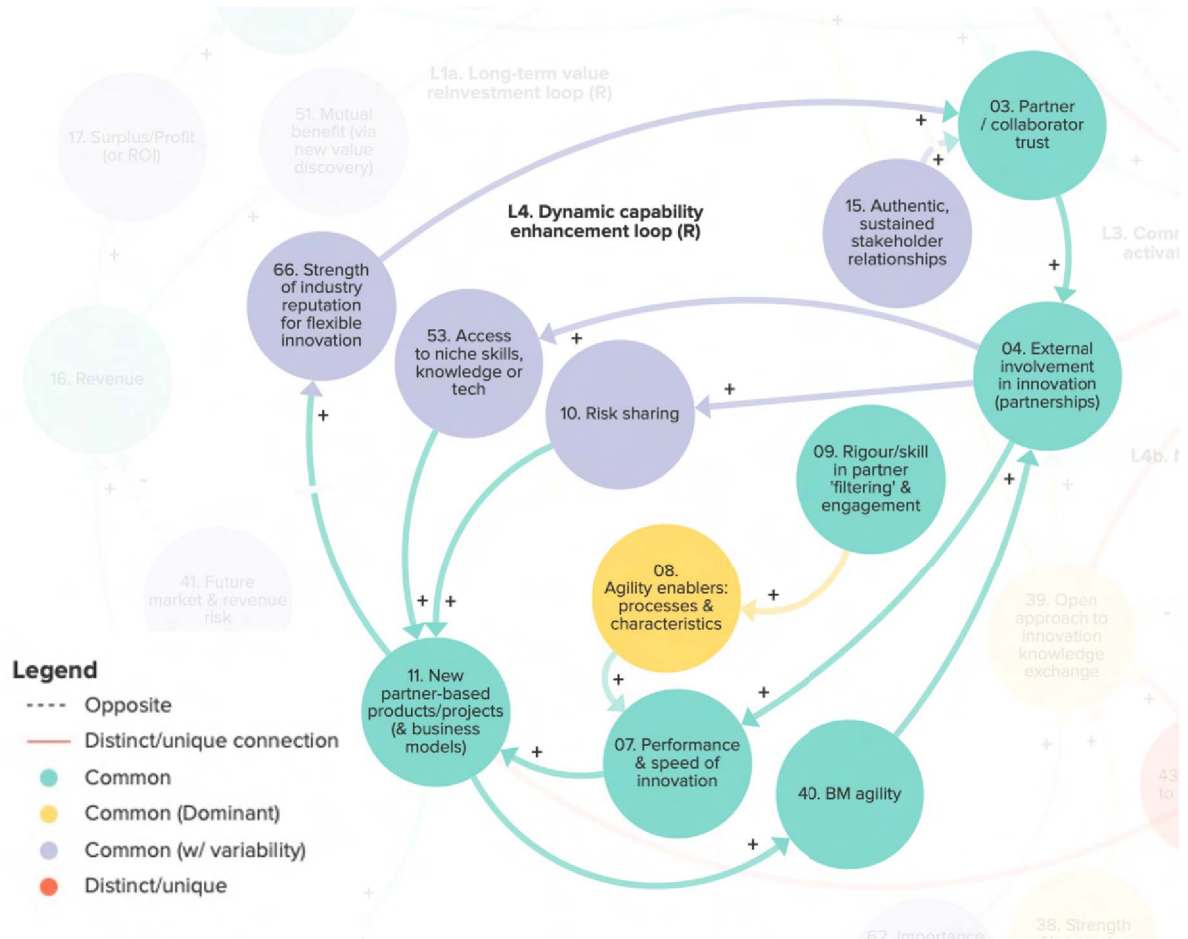
A representative of Organisation B speaks to the advantages offered by business model flexibility driven by an open approach:

If we were selling a vertically integrated package that included the interface or choice of interfaces or something and that was all 'locked inside' our product, we wouldn't have the level of flexibility that we have to do a range of more bespoke services.

This loop has been termed the **dynamic capability enhancement loop (L4)** in Figure 45. Dynamic capability, introduced in Chapter 2, refers to "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece et al., 1997, p. 516). The organisation's development

of collaborative innovation, particularly in the context of BM change, is a core competency it develops to ultimately deliver long-term competitive advantage through flexibility.⁵⁶

Figure 45: Simple View of Dynamic Capability Enhancement Loop (L4)

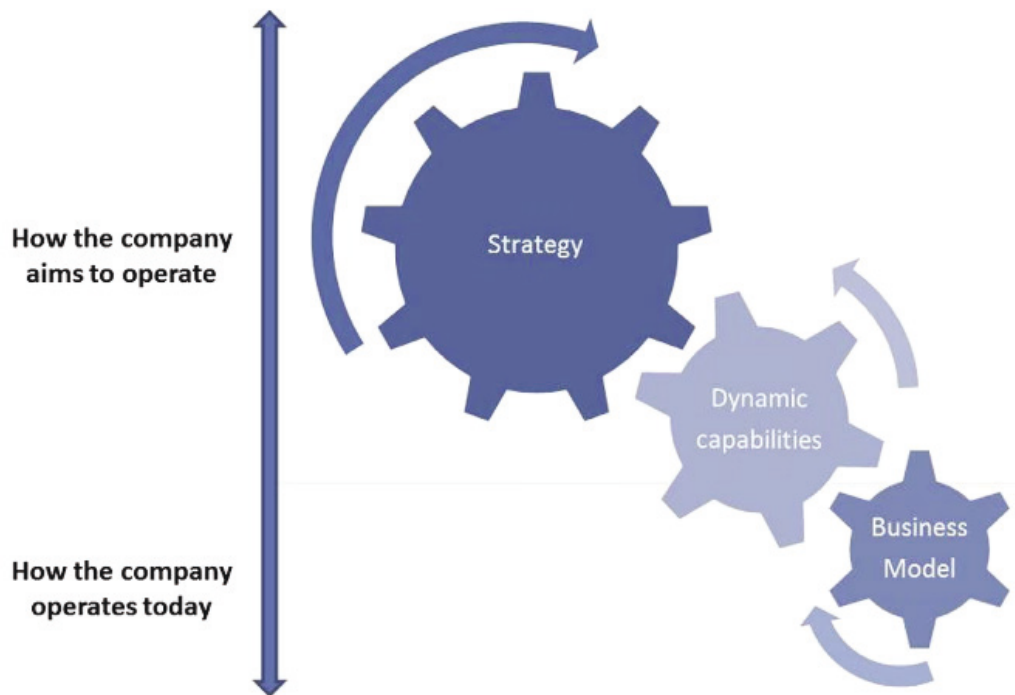


Source: Author analysis of case study interviews and supporting data.

Conceptually, dynamic capabilities help an organisation bridge its strategic vision of how it aims to operate, and its current business model, as illustrated by DaSilva and Trkman (2014) shown Figure 46 below. It is therefore considered an appropriate component of the dynamics of societal value creation, given the goal to describe the process of change from an existing BM, towards operation consistent with an organisation’s vision of systemic change.

⁵⁶ Just as open innovation capability has been argued to be a dynamic capability (Chesbrough et al., 2018).

Figure 46: Conceptual Relationship Between the BM, Dynamic Capabilities and Strategy



Source: DaSilva and Trkman (2014). Republished with permission of Elsevier via RightsLink.

A dominant variable in the successful operation of this loop is ‘agility enablers’ (variable 08) which incorporates a set of processes and characteristics that emerged as being supportive of the collaborative innovation process. Each enabler is not always present or fully consistent across the sample due to differences in organisational contexts, but nonetheless includes:

- **In-market testing:** One of the most important processes was the rapid testing of iterations of product and feature developments, informed by a close connection to the end-user, customer and/or community beneficiaries. This is a well-documented principle of agile software development methodologies, which has in recent years been linked to sustainability applications (Melo, 2019). As a representative of energy retailer Organisation A noted: “I’ve sat in enough focus groups over the years and people will tell you whatever you want them to say...that may or may not end up being true... How customers react to the real world is the best measure”. If the innovation creates new value for supply chain or other stakeholders, the *direct involvement* of those

stakeholders was important in both clearly understanding their needs, and in iterating how well the product achieves this.

- **Rapid decision-making:** It is important that partners can move at the same speed with a given innovation, which creates an impediment to the diversity of types of organisations that can successfully partner. A representative of Organisation A described how the slow pace of decision-making in some volunteer-based community organisations has been a critical constraint in realising successful partnerships:

Community energy groups, local organisations, were set in the strategy to be a bigger feature than they have ended up being. Our trouble is that...because they are volunteers, they tend to seek unanimous decisions [which] don't really happen. So, they took a huge amount of time up, and didn't go as far as we would have liked.

Further discussion of the different 'time clocks' of commercial versus community-based organisational decision-making can be found in Section 5.4.1. Recognising this issue, Organisation C took on the role of 'first mover' for highly collaborative projects, setting the pace of new initiatives. This approach still allowed flexibility for other partner organisations to sign on within a set timeframe, to the extent that this was possible within each partner's decision-making timelines.

- **Delivery capability:** Naturally, a partner's ability to deliver on a given role is critical to partnership success. For a focal organisation establishing a partnership, there is a clear role for due diligence and risk assessment in partner selection. **Skill and rigour in partner selection (variable 09)** shifted quickly with experience: earlier in an organisation's collaborative innovation journey, there was a tendency to adopt a 'partner with everyone' approach, before the objectives, organisational roles and value propositions, and criteria for what makes a successful partnership became adequately refined. This fairly quickly led to more focussed partnerships with higher success rates. A representative of Organisation E reflects on their place in the later stages of this transition:

[Each partnership] fundamentally has a very material impact for our resource allocation and our business focus and that's a very daily problem...As a small company, we need to be really diligent about the time application now that we're moving from ideation and proof of concept into scaling...[we now] have to be much...more targeted in the processing of the partnerships.

Other important factors include role clarity between partners and BM flexibility – not only for the focal organisation, but also for the partners.

While variable by organisation, **authentic, sustained relationships (variable 15)** – as distinct from transactional or opportunistic relationships – commonly featured in the successful operation of the collaborative innovation process. A representative of Organisation D (Enel) speaks to the shift from the traditional strategy of transactional community relationships based on compensation, to sustained relationships based on trust:

Another paradigm that we need to break was the old approach of the multinational companies that used to 'compensate' their being part of a territory. We hate that word. We don't want to compensate anything because we are not doing bad. If you do well, you need to work together with the stakeholders – all of them – also the communities, to add more value...So we totally moved this relationship: we told them 'guys, we are going to stay here 30 years, 40 years'. So we established a relationship, tried to understand what's your needs, and what's our needs, and tried to put together these for our co-design of solutions...It's really a transparent relationship.

To support the identification of stakeholder co-benefits, Enel developed a 'materiality analysis' framework that is shown and discussed in Section 5.4.2. It clearly and transparently allows the organisation and its partners or stakeholders to prioritise potential solutions that they see as desirable, and search for common ground to create shared value.

A key distinction of authentic, sustained relationships is the timeframe over which value is expected to be yielded, as a representative of Organisation B described:

My [professional relationship] strategy is always sort of 'zen' strategy: rather than expecting an immediate result from any particular action....strategy to me is...it's got to be long term. It's got to be authentic, and it's got to be sustained. And you have to

actually be quite relaxed about when it will pay off.

The missing link with regard to the dynamic capability enhancement loop is how it then connects to societal value creation. This occurs via two pathways, as shown in Figure 47.

The first pathway (from variable 11 to 05), is only active in organisations with community benefit fund mechanisms (see Mechanism 3 in Section 5.2.2), where a dedicated financial allocation is made for community benefit that is not linked to new product sales. This is a direct connection and occurs most strongly in the ‘non-commercial side’ of the business model of Organisation C, described in more detail in Section 5.3.1. This connection is marked as distinct/unique (red) as it is uncommon within the sample and the market more broadly. Examples include grant funds for community-based energy efficiency activities, or capital-funded solar installations on community facilities, implemented by not-for-profit community groups.

The second pathway (from variable 11 to 16, via 12 or 41), active in all of the sample organisations, is where the development of a new product or service innovation drives new revenue growth. Most directly, this occurs through the new offering adding new or expanded customers (variable 12), increasing sales revenues. This revenue growth then powers the primary value reinvestment or extraction loops (L1a or L1b) described earlier. Thus, the collaborative business model innovation process in these OBM organisations can be considered the engine of new value creation that drives loops L1a and L1b. Importantly, recall that societal value creation does not happen by default from the collaborative innovation process. For this to occur, three dominant variables influencing loop L1a need to be active: the centrality of societal purpose to the organisational value proposition (**variable 01**), a well-aligned business model (**variable 21**) and a long-term governance view (**variable 31**).

While stronger in some organisational contexts than others, the increased diversity of product or service offerings also reduces the focal organisation’s **exposure to market or revenue risk (variable 41)**. This also has the longer-term effect of supporting revenue growth (or avoiding revenue reduction). This connection from variable 41 to 16 is thus marked with a delay. For example, the OBM of Organisation B is central to hedging bets on the success of their selected partners in a highly dynamic and

uncertain energy market:

We can't really pick winners. There's lots of players out there, they'll come and go...[we can't predict] whether their app's better than somebody else's, or their business model's better and they actually are the ones that succeed in the marketplace...By having lots of partners we're kind of reducing the risk that we bet the house on one that doesn't ultimately pan out.

Figure 47: Connection of Dynamic Capability Enhancement Loop to Societal Value Creation



Source: Author analysis of case study interviews and supporting data.

Market/competition balancing loop (L5)

While the other loops have primarily documented mechanisms that support societal value creation across the sample, a 'balancing' loop also exists that caps the amount of societal value creation. Generally speaking, the creation of new societal value adds to the relative product cost (variable 23), at least in the short term. This can be quite direct, such as renewable energy projects with business models that support financial benefit-sharing with neighbours and other stakeholders through community benefit funds or similar agreements (e.g., Organisations C, D and F), which is a dedicated profit or revenue split that must be incorporated into the ultimate product cost structure. A representative of Organisation F explains:

We are actively bidding on a subsidy-free project. A lot of times, I'm being called by the sellers or developers that this is a merchant project and they don't believe any community payment should be paid because it's not a commercially strong project anymore...[and] when I'm looking at the financial model, I can really see that if power prices go [down beyond a certain point], we cannot even pay for the basic things.

Thus, the act of raising the standard of community financial benefit relative to competing products in the market weakens the competitiveness of the offering by reducing the financial value offered to the customer (variable 22). This can also be indirect, such as in Organisation B, where adding more features to an energy data product could realise new emissions reduction or load-matching opportunities, but raising the upfront cost reduces the potential market that can be reached. Effectively, this acts to cap the amount of societal value creation possible within a given business model in a competitive marketplace; at least to the extent that this value is unable to be monetised by the firm or its value network. There are, however, a number of ameliorating factors. The role of government policy and grants (variable 26) emerged strongly in most cases, usually through subsidising new innovation functions in the business model or project structure, or in how regulation can change the 'benchmark' of complementary societal value delivery in the marketplace. In the case of supporting emerging energy market business model innovations, these cannot yet stand alone commercially:

[Virtual Power Plant (VPP) trials are]...really good; we're big supporters and we've been a part of those things. But...everyone says "well where's the commercial business case", and it's still, "it's coming"...it's just that the capital cost of the battery is X, and the uptake is down here and it needs a slug of grants and some technology to be actually smart for it to work. – Organisation E

This example represents the influence of both external market factors (variable 44), such as the economics of the technology, as well as the supporting role of government innovation grants (variable 26). However, regulation also has a strong role to play and can redefine the benchmark of value creation that the industry must deliver. For example, recent South Australian legislation now requires, as a condition of sale, that solar equipment suppliers have *and* can contractually enact, the capability to remotely

disconnect customers using their technology upon request of the market operator (SA Government, 2020). This requirement to provide a service to support energy system stability has shifted the competitive position of several of the case study organisations (A, B and E) in terms of driving market demand for their products, or shifting how their products reach the market. Alternatively, government positions on community benefit delivery in renewable energy project planning legislation can immediately raise the level of complementary value creation, such as in a UK case:

the government has announced consultation on Contracts for Difference...[it sets up] very clear criteria on community engagement in future projects, and investment opportunity for communities is articulated in there...I think it's just a really good thing for the communities. Everybody wants to see the UK getting to a net-zero target and you need everybody to be on board on this ... and it's just good to set out clearly that the intentions that communities have, cannot just be ignored. –
Organisation F

Thus, it is important to remember that *how much* value the market creates – and *for whom* it is created – can be reshaped by regulation. In the UK example above, the issue of community benefit just becomes a public policy trade-off. On one hand, you have the relative cost of new renewables, and on the other, the level of public support that the community benefit sharing generates.

When focal organisations were asked to reflect upon key periods in which their business models evolved, half (C, F and E) explicitly defined this according to the external signals set by government policy. This commonly involved government policy settings subsidising promising innovations, or changing the scale of potential revenues, thereby increasing or reducing the opportunity for new activities to take place. In other words, the policy environment defines the financial bounds within which business model innovation must occur. The less prominence that societal value is ascribed in this process, the more the market arranges purely around financial (cost) metrics, and the less headroom is available to deliver social or environmental value and vice versa. For example, a representative of Organisation F observed that the scale of community benefit funds seen in some renewable energy projects can be more linked to the *period* in which the project was developed – where higher feed-in tariffs were being paid – rather than the developer's commitment to community

outcomes:

I must say a lot of the community payment schemes have been established by other developers when projects were getting very high feed-in tariffs, or high ROCs [Renewable Obligation Certificates]. There was just more value to...share with others. You might find turbines in Scotland that pay a massive community benefit, but it might be because they are just seeing which projects and they...promised that they would pay in the planning process. – Organisation F

Table 4 below documents the prominent ‘phases’ of BM evolution, with those in which a strong government policy/support role was present marked with an asterisk. This illustrates that in all cases, this played a role in one or more – and sometimes *all* – of the BM phases.

Table 4: Drivers of Business Model Phases

Org.	Business model phases	Changes primarily defined by
A	Base offering/community partnerships, VPPs*, embedded networks, new build, among others)	New partnerships creating new product/service offerings
B	Device R&D, solar bundling, B2B diversification,* data services (early)*	Partnerships opening new customer channels
C	Develop/build,* lean survival,* income diversification*	Political gameplay influencing market volatility and financial headroom in BM
D	Proof of clean energy business line*, full integration of purpose reinvention, open innovation partnerships	Market pressures leading to reconfiguring purpose and value chain
E	Peak response hardware,* VPPs,* exchange platform*	Evolution of critical market problems and commercial feasibility prospects
F	Establishment, early pioneering, ROCs,* post global financial crisis, feed-in tariffs,* subsidy-free* partnerships	Financial headroom in the BM

** Indicates a phase that is primarily defined, or strongly influenced, by government policy settings.*

While societal value creation generally increases the relative product cost, another key variable at play within the market/competition balancing loop reduces relative

product cost, dampening the effect of this balancing loop. The greater the customer or societal value creation (variable 22 or 05), the greater the strength of organisational social licence (variable 24). A stronger organisational social licence acts to reduce relative product cost (variable 23), either directly, such as through reducing community opposition that can introduce delays or higher operating costs, or indirectly through reducing the organisation's exposure to (potentially existential) customer protection or public interest regulatory risk.

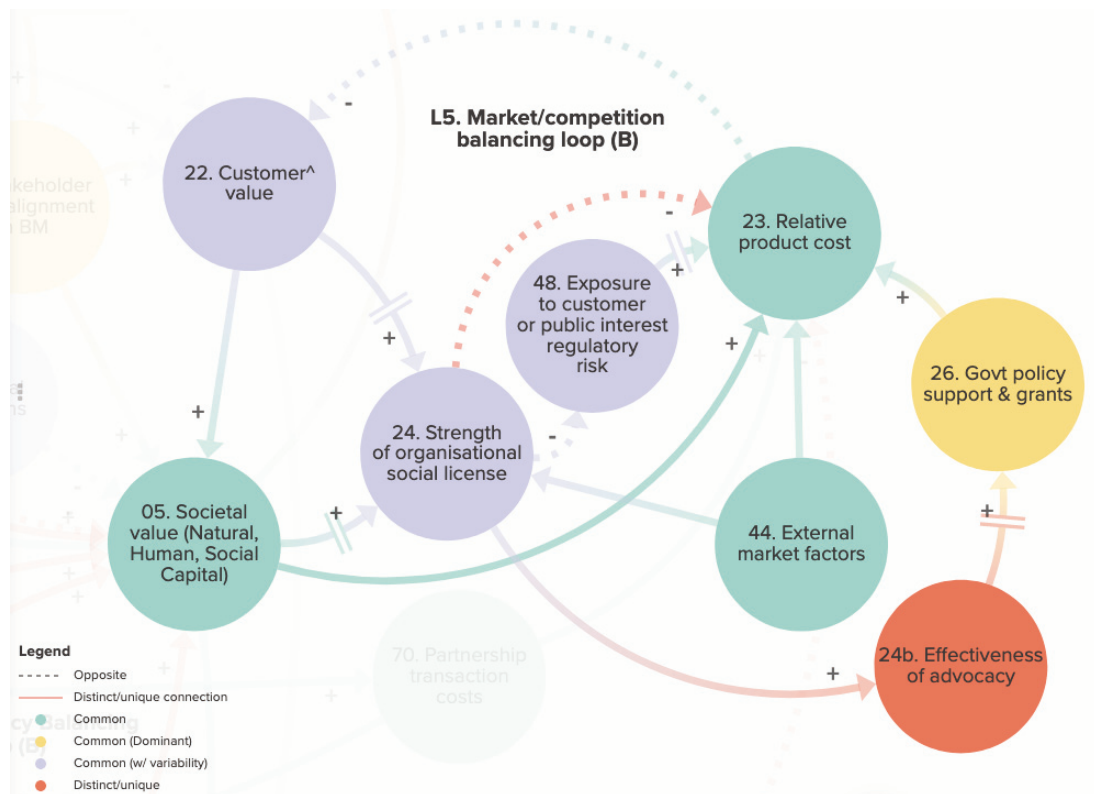
A representative of Organisation D also posited that, through its shared value framework, it can create greater societal value without raising relative costs. Part of the reason for this is how holistically the organisation draws the 'boundaries' of its cost-benefit analysis: they weigh up increases in project costs relating to developing community infrastructure against reduced cost and risk of community opposition. This is the mechanism described in the above paragraph, shown in Figure 48, as the connections from variable 05 to 24 to 23. However, there is another element here: when approached through a stakeholder co-design-based process, a representative of Organisation D suggested that it is relatively simple to identify project designs that create value for the community *and* achieve the focal organisation's financial goals. Therefore, the link from variables 05 to 23 is variable in strength if the stakeholders in question are integrally involved.

A comprehensive list of direct and indirect cost pressures relating to societal value and social licence across the sample is provided in Appendix F.

While rare within the sample (and hence marked red in Figure 48), a strong organisational social licence can have a positive effect on the effectiveness of advocacy for supportive policy conditions (variable 24b). While this is critically dependent upon who is in government, an effect was identified for Organisation C at the state level in Australia:

There is a link between the strength of organisational social licence [variable 24] directly to government renewable energy policy interventions [variable 26], because we are actively lobbying and creating lists for the government. And they're the ones that they're working from...in the state government. – Organisation C (CLD feedback interview)

Figure 48: Market/Competition Balancing Loop (L5)



Source: Author analysis of case study interviews and supporting data.

At the national level in Australia, however, the reverse effect was observed: a lack of receptiveness from an unsupportive Australian Government at the time of research had prompted complete disengagement by organisations seeking systemic change to the energy system: “None of [the advocacy] is helping...it’s a waste of time. We’ve just got to get on and go and do this thing with the people who want to do that” (Organisation E). This particular observation has no doubt shifted with a more recent change in the Australian Government. Nonetheless, the comments hint at a destructive negative feedback loop (not represented in Figure 48) that can come into play where a systemic bias towards the interests of one stakeholder type over another is present. In this case, the Australian Government had systemically favoured large incumbent fossil fuel interests over those seeking decarbonisation. As the emerging new energy industry withdraws from lobbying over time, the only voices the government then hears are those whose interests they have historically supported. This creates an ‘echo chamber’ effect that promotes the lock-in of incumbent business models and interests.

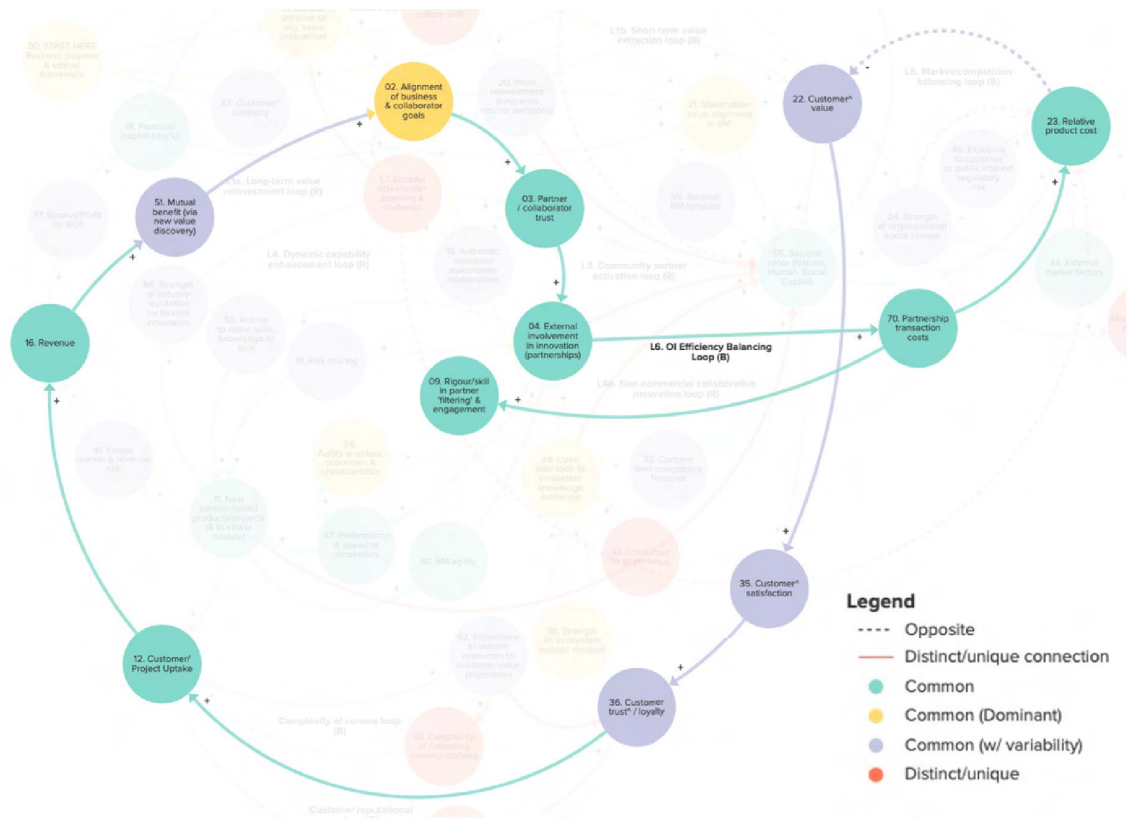
OI efficiency balancing loop (L6)

As highlighted in the literature review (Section 2.2.1), more collaboration is not always better. All partnerships carry transaction costs associated with establishing and managing relationships and integrating resources and workflows. Adding too many or poorly matched partnerships increases costs without creating sufficient new value to offset this cost. As shown in Figure 49, a second balancing loop is identified that leads from new partnerships (variable 04) to transaction costs (variable 70) to raise the relative product cost (variable 21), which then reduces customer value creation and ultimately product uptake (variables 22, 35, 36 and 12).

The response to managing an open business model strategy, while recognising transaction costs, is represented in increased rigour and/or skill in partner filtering and engagement (variable 09). All of the OBM organisations had well-developed partnership vetting processes, described earlier in this section when discussing the dynamic capability enhancement loop (L4).

The term 'OI efficiency' is taken from the work of Greco et al. (2017, p. see Section 2.2.1) representing the established thinking on optimum levels of collaboration.

Figure 49: OI Efficiency Balancing Loop (L6)



Source: Author analysis of case study interviews and supporting data.

5.2.4 Dominant Variables

Some variables are more important than others in controlling the dynamics of societal value creation in OBMs. A number of these dominant variables have been discussed in Section 5.2.3, in the context of feedback loops that they influence. Other dominant variables that exist *outside* of the feedback loops (but still influence them less directly) are presented in this section.

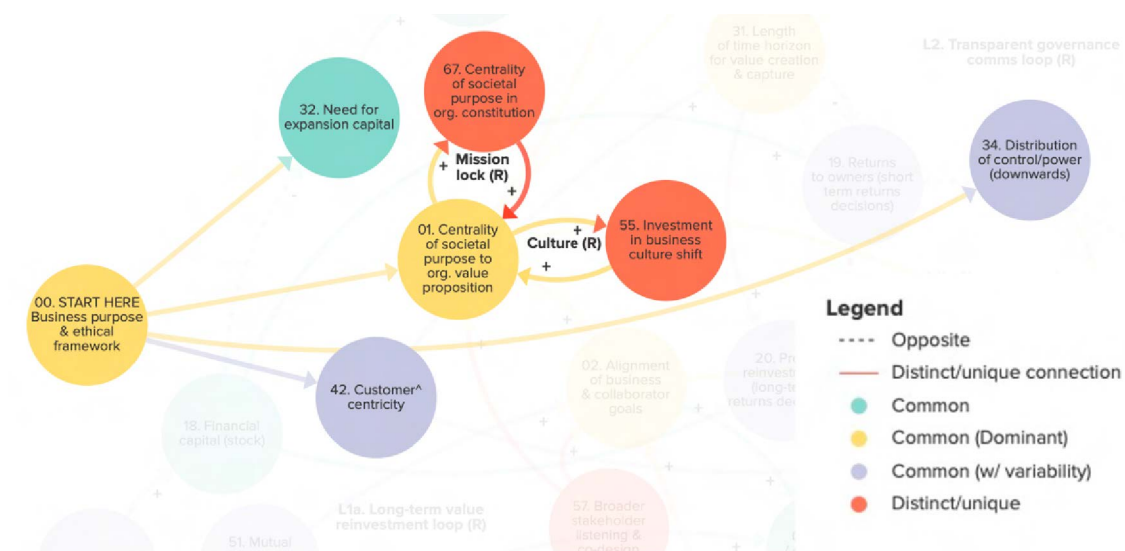
Business Purpose and Ethical Framework (variable 00)

Much has been written about the influence of a business’s foundational purpose on its actions and, as such, it is unsurprising that this appears as a dominant variable in societal value creation. In most corporate entities in which the sole *legal purpose* is to generate profit for the owners, there is generally a founding *raison d’être* that defines why the business came into existence, or defines its current market focus. While this purpose is less ‘fixed’ than in explicit profit-for-purpose legal structures like co-

operatives, or not-for-profit structures, the organisational purpose (or mission) provides ongoing cultural or managerial guidance as to the types of activities, products or services it delivers.

Figure 50 below shows variables flowing on from the organisational purpose. A critical variable regarding business purpose is its alignment with a core societal need or problem. Where this is the case, societal purpose becomes central to the organisation’s value proposition (variable 01). In the case study sample, all businesses had a socially-aligned purpose: in five cases, this was defined upon organisational founding and remained largely unchanged, while in a sixth case (Organisation D, Enel) the purpose was ‘reinvented’ to refresh organisational direction and make it more clearly purpose-driven. In all cases, the purpose was strongly influential in setting organisational culture, defining how value creation in the business model was structured, and keeping governors focussed on longer-term value creation. Where purpose reinvention occurred, as in the case of Organisation D (Enel), dedicated initiatives towards cultural change (variable 55) were required. (Specific differences between ‘born sustainable’ and ‘transitioned’ businesses are discussed in more depth in Section 5.4.2.)

Figure 50: Foundational Influences of Business Purpose and Ethical Framework (variable 00)



Source: Author analysis of case study interviews and supporting data.

Business purpose is closely linked to an ethical value system that underpins the

organisational operation: in the five ‘founded sustainable’ organisations, no major shifts were reported in the ethics or purpose over time (with organisations ranging from less than 5 years to more than 25 years of age). This was true despite the societal purpose not being enshrined in the constitution.⁵⁷ For example, a representative of Organisation E reflects on its mission over time:

...the mission and vision of the company has stayed the same. I think the way that we’ve gone about addressing the problems has changed. – Organisation E (not mission-locked)

Organisation B, while experiencing some movement, reported returning to its origins:

[Our founding purpose] was very much about empowering consumers with data and it’s kind of interesting that that’s exactly where we’ve come back to in 2019/20. – Organisation B (not mission-locked)

While the absence of mission drift was true at the time of research, some of the less mature commercially oriented startups or scale-ups may be too early in their evolution to provide longer-term insight on whether ownership or financing changes have a substantive influence on the organisational purpose or ethical value system. Certainly, there are well-documented examples of mission drift in non-mission-locked legal structures (e.g., Ebrahim et al., 2014; Ometto et al., 2015).

Nonetheless, the ‘centrality of societal purpose in organisational constitution’ (variable 67) is also shown in Figure 50 above, as a ‘distinct/unique’⁵⁸ reinforcing variable, as it was highly influential in the case of Organisation C in maintaining its focus on community benefit through difficult financial circumstances. As a representative noted, “The premise of what the co-op is, is to deliver as much benefit to members and the community. That’s part of our principles and our rules, our primary activities. We really work to that mandate”.

⁵⁷ Although note that other factors, such as orientation towards profit in governance decisions, have changed during capital raises – see Section 5.2.3.

⁵⁸ Societal purpose does not generally appear in the articles of association of for-profit private or publicly listed companies. The Benefit Corporation legal structure in the USA is an exception, in which a private for-profit company structure can also incorporate consideration of stakeholder interests relating to a dual societal purpose (USDN, 2019).

Variable 67 is shown *downstream* of the founding purpose, as the choice of institutional vehicle tends to follow organisational function. For example, Organisation F, while closely aligning with co-operative organisational principles, came into being to demonstrate the commerciality of renewable energy investments to small investors, and thus adopted a commercial company structure. In other cases, institutional choices were based on the familiarity of the founder/s with certain models.

Organisation B, for example, noted that “the key...founder...was a businessman. So he was always going to set up a company [structure], not anything else”. The limited consideration of legally mission-locked social enterprise or not-for-profit enterprise models in these strongly societally oriented organisations may be reflective of the lack of market experience with these structures – at least in Australia.

Reflecting on whether the process of collaborative innovation shifts the way that organisations define their purpose or ethical approach, this sample suggests that ‘born sustainable’ organisations that already have a foundational societal purpose are *not* heavily influenced by their openness over time. However, the ‘transitioned’ organisational case of Organisation D (Enel) provides a noteworthy deviation. Failure to consider the community-level impacts of its operations led to substantial delays and costs, which forced a revisitation of organisational purpose and how it engages with key stakeholders. Ultimately, this led to the emergence of a new openness to broader stakeholder perspectives across its innovation processes, which delivered business model change over time, in service of a refreshed social purpose.

As a representative of Organisation D (Enel) comments:

[openness] implies to redefine and rethink the way you are staying in the energy sector...we started to understand it could be a really great journey in the sense, because, if you work in an ecosystem, we then approached the involved people: other companies, the authorities, more of the civil society associations...[to ask what] could be the better way to multiply or amplify your collective impact? – Organisation D (Enel; transitioned to sustainability)

Two other factors that are common, but variable in their influence across the sample, relate to the direct service of other stakeholder groups in the organisational purpose and value system. Particularly for organisations in the strong growth phase, there was a clear focus on customer centricity (variable 42), discussed earlier in Section

5.2.3. Across all businesses – but strongest in more community-oriented organisations (C and F, in particular) – there was a stronger focus on the **empowerment of smaller actors (variable 34)** in the energy system. This empowerment ethos connects to a broader industry narrative regarding the dominance of corporate or institutional interests over individuals or communities. In most cases, this relates to a prevailing lack of public trust in large corporate retailers or monopoly energy sector utilities. In some cases, respondents’ personal points of view could also be interpreted more broadly as critiques of capitalist norms.

An empowerment narrative may, at least in part, relate to the business sector studied. It makes sense in that, to an increasing degree, all of the case organisations now deal in ‘distributed energy resources’. These resources inherently involve more active participation from smaller players in the system.

Alignment of business & collaborator goals (variable 02)

The **alignment of focal business and collaborator goals (variable 02)** is an important precursor of **partner/collaborator trust⁵⁹ (variable 03)** and derives from two main sources. Both sources are important in different measures, depending on the degree of focus on public versus private value creation. The first source is the centrality of societal purpose to the organisational value proposition (variable 01). The more the perceived value of an organisation (to its customers and other stakeholders) is elevated beyond serving a customer need, to delivering a public purpose, the more likely that partner goals can align, and the needs of multiple stakeholders will be considered (**variable 21**). This source of trust aligns with a goodwill-based conceptualisation of inter-organisational trust, linked to sociological theory (Zhong et al., 2017).

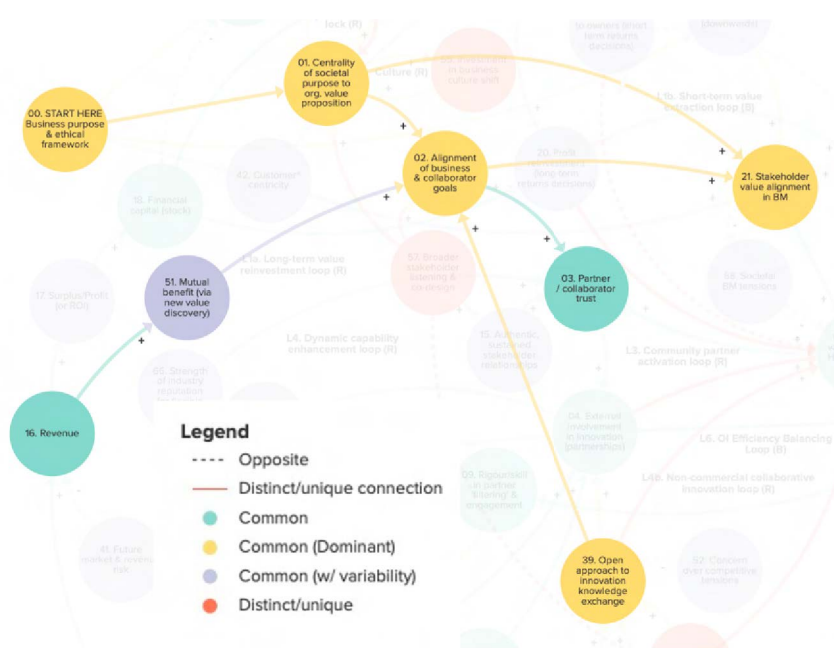
The societal value proposition of potential partners was most closely scrutinised in organisations with a combined social and environmental focus. Organisation C provides an example of how changes in partners’ asset ownership led to a conflict of organisational purpose and the downfall of the partnership:

⁵⁹ Consistent with this finding, partner trust was found to lead to increased openness in the ‘selling side’ of OBMs (Sandulli & Chesbrough, 2009). This refers to OBMs in which an organisation shares some of its resources with another partner, embedding it within their business model.

[our retail partner] ... bought [a fossil fuel generator] and they started really not wanting us to be vocal about...the renewable energy target reviews that were happening. We learned from that experience because we were basically fighting with them...we [now] have a [cancellation] clause in our contracts...[to maintain our] independence; our members like that.

All case organisations undertook due diligence with respect to reputation and capabilities when choosing partners. Organisation C, however, took extra precautions to ensure a local community benefit focus. Even as a for-profit co-operative itself, Organisation C primarily partnered with not-for-profit organisations. Any partnership with a for-profit enterprise carried a prerequisite of the establishment of a dedicated mechanism for local community benefit. This position was taken to ensure that their local stakeholders perceived them to be acting in the genuine interests of the community.

Figure 51: System Dynamics Connections of Alignment of Business & Collaborator Interests (variable 02)



Source: Author analysis of case study interviews and supporting data.

The second source of goal alignment was less value-based and more pragmatic: the achievement of **mutual benefit via new value discovery (variable 51)**. This goal alignment is founded on ‘competence-based trust’, which is achieved through partnership due diligence and reinforced through partner dependence. The issue of

dependence reflects the rationale of resource dependence theory, which suggests that an organisation's resource deficiency drives engagement with other organisations in order to fill a need (Pfeffer & Salancik, 1978; Zhong et al., 2017), embedding a partner's business model within another's.

Mutual benefit as a source of alignment and trust was particularly pertinent in organisations with a solely environmental focus. In these cases, societal purpose alignment was often assumed rather than explicitly discussed, because of the nature of the sector in which the partners operate. That is, it was assumed that any organisation productively working towards a new energy system is value-aligned. As expressed by a representative of Organisation B:

most partnerships...if they're likely to succeed, need to start from a basis of...clear, mutual benefits...It's actually clarity that the sum of the two parts – because of the effort...to collaborate, to trust – includes...clarity that the partner doesn't have an option to just throw you under the bus. That you're *genuinely* doing something that creates additional pie, by working together so that you can share it. And both end up better off than not collaborating.

This comment reflects the need for 'complementarity' of partner resources and knowledge (Soda & Furlotti, 2017).⁶⁰ Yet, understanding the complementarity of resources or value propositions of potential partners is challenging in a rapidly moving energy market with constantly evolving technologies and business models. The distinction between partners and competitors is blurry and ever-changing, as illustrated by an Organisation E representative's comment regarding a partner organisation: "it's fair to say, I think, we're more competitive [with them] today than we were [just] six months ago". An open approach to innovation, thus, naturally carries a level of competitive risk. Yet there is a benefit from openness in supporting trust, value and goal alignment, as Organisation E notes: "as you're partnering...you're trying to establish long-term value and so the more open you can be, the more confidence and alignment you can build with a partner". This example illustrates the rationale for the inclusion of an **open approach to innovation knowledge exchange (variable 39)** leading to partner alignment (variable 02) in

⁶⁰ Complementarity appears as an important feature in corporate-NGO partnerships literature (Byiers et al., 2015).

Figure 51 above.

Open Approach to Innovation Knowledge Exchange (variable 39)

By definition, all of these OBMs take an open approach to innovation knowledge exchange. Figure 31 (Section 5.1) provides a summary of the types of open innovation activities that this has involved.

Tracing the source of, and rationale for, openness in business strategy reveals some interesting similarities and differences across the sample. One of the strongest emerging variables is the organisation's perception of its own place within the broader landscape of organisations working in the energy sector transition. Common to all cases is a strong focus on the high-level systems change goal, and the perception of the organisation as one of many actors in a web of parties seeking to shift the system towards a new state. I have termed this an "ecosystem-builder mindset", shown as variable 38 in Figure 52 below. The ecosystem-builder mindset can be juxtaposed with their perception of the majority of the marketplace that takes a more egocentric approach to 'owning' or dominating the transition through superior technology or expertise. This antithetical, egocentric positioning could be described as an 'empire builder mindset'. These open, ecosystem-builder organisations hold the position that because their primary objective is systems change, their organisational goals are best served through collaborating with other disruptive actors to build collective impact.

As a representative of Organisation A explained:

[the big energy retailers] all claim they're going to 'win'...They all...genuinely believe they're going to own the space, which is fascinating. So good luck to them, but I don't have that view...there are lots of people out there doing smart things that we could work well together with and we can move the market along faster as a result of working with them, rather than sitting here and just trying to invent it all ourselves.

In reflecting on the dominance of closed approaches to energy sector innovation, a representative of Organisation E remarked:

I think a lot of the innovation in the sector in the last decade has been driven by

people who've come from the sector and therefore you see ['closed'] walled gardens and want to make walled gardens prettier...or want to build a bigger wall. ...A lot of it was supported by the incumbents because they wanted to hear that...because they could understand it. Because it...sounded like the answer to the problem they felt they had.

A more comprehensive list of examples of how the ecosystem-builder mindset emerged in the context of the various collaborative and competitive exchanges is shown in Appendix F. Two themes emerged from interviewees' reflections on the drivers of openness. One is a recognition of the speed of industry change and the need to innovate rapidly for your product to remain relevant and to reach customers.⁶¹ The second is the role of collective or shared impact towards a systems change goal, which opens the space for collaboration and tempers concern over competitive tensions that surround openly sharing IP or knowledge through the partnership process. This is not to say that competition entirely gives way to collaboration: competitive tensions are ever-present. However, they appear to be less prevalent than the market norm. As a representative of Organisation E notes, "we try to avoid competition and drive partnership", while a representative of Organisation C remarked, "sometimes other people think of us as competitors and we just find it really weird because there's so much work to be done and we're always open to collaborate". This is why the commercial risk of disclosure to potential competitors appears in Figure 52 below as '**concern over competitive tensions**' (**variable 52**) in an open partnership approach.

Naturally, openness in knowledge exchange between collaborators is a prerequisite for **partnerships (variable 04)**, but the sharing of knowledge externally, via knowledge and data commons, is also one of the mechanisms for **societal value creation (variable 05)**.⁶² In addition to the ecosystem-builder mindset (variable 38), two other variables strengthen openness. Firstly, a flow-on effect (feedback loop) attracting customers via the development of partner-based products/projects/innovations (variable 12) is that embedding a partnership within the business model effectively increases the **importance of outside resources to the customer value**

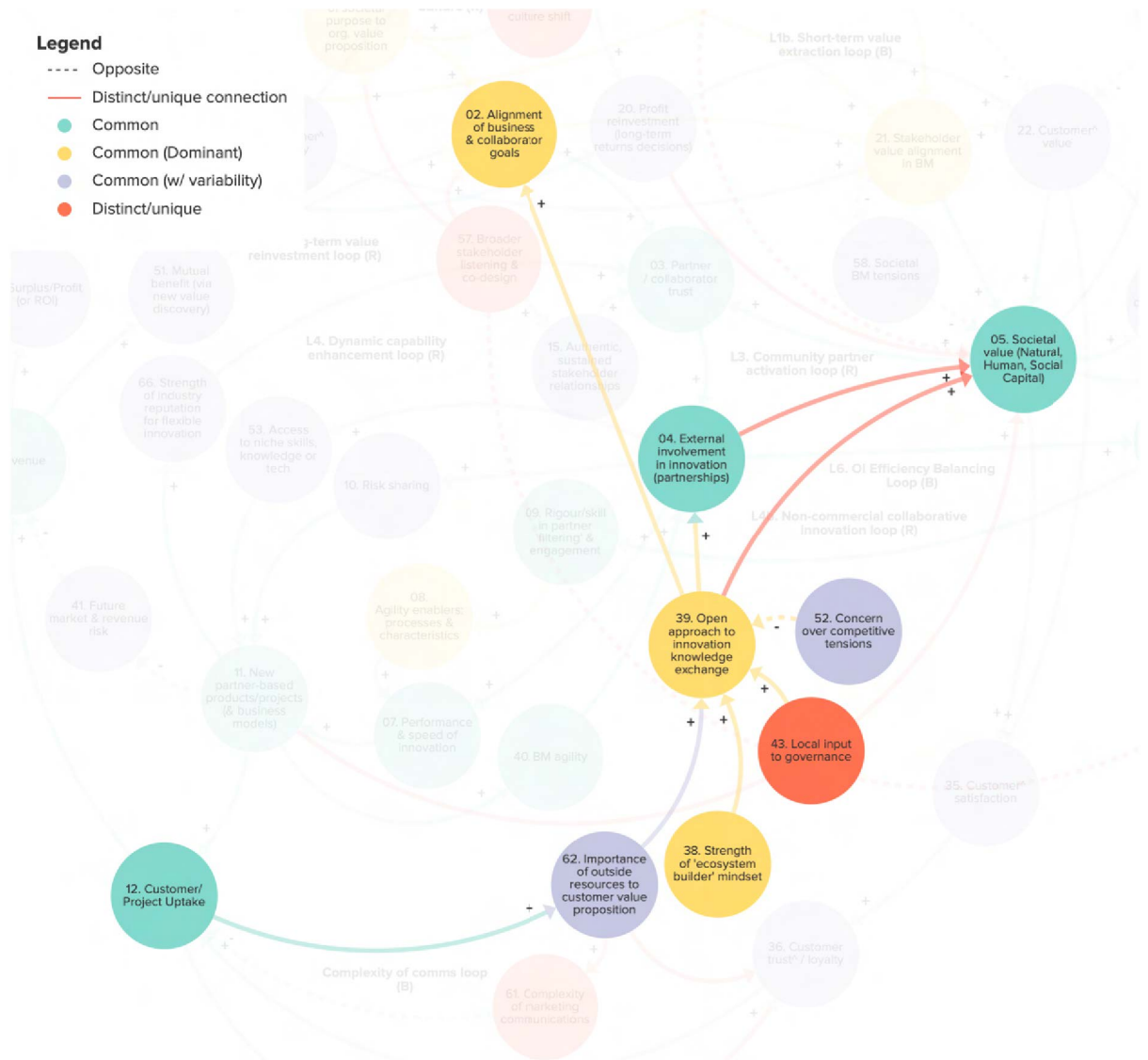
⁶¹ This was covered in the analysis of the dynamic capability enhancement loop (L4) in Section 5.2.3.

⁶² See Mechanism 3, discussed in Section 5.2.2.

proposition (variable 62), which in turn promotes continued openness. Conversely, a downside of having multiple partners involved, is the increased complexity of marketing communications,⁶³ as it is simpler for customers to understand a vertically integrated solution delivered by one company. Secondly, while very uncommon across the cases, Organisation C also utilised **local community input to the governance (variable 43)** in some of its projects, which increased the level of openness between a diverse array of partners, promoted buy-in, and aided risk and resource sharing. Other organisations generally avoided allowing actual ongoing decision-making rights to broader stakeholders.

⁶³ While not shown in Figure 52, this appears in variable 61 in the full CLD model provided in Appendix A.

Figure 52: System Dynamics Connections of Openness in Innovation Knowledge Exchange (variable 39)



Source: Author analysis of case study interviews and supporting data.

5.2.5 Summary

This section sought to answer the question, “What dynamics support societal value creation in OBM?”

It described a system with four feedback loops that positively reinforce the generation of societal value. These relate to how:

- governance controls long-term value reinvestment, which is critically reliant on the ‘termism’ over which owners view the return on investment and the alignment of financial incentives in the BM
- communications are used to construct a societal value creation narrative to keep governing investors focussed on long-term value creation
- diverse societal-mission-driven partner organisations are embedded within core activities for ‘complementary’ societal value creation
- collaborative innovation drives competitive advantage in fast-moving market conditions.

Interacting with market dynamics, a market/competition balancing loop is described, whereby external interactions cap the extent and type of societal value creation achievable for business in a competitive environment. Factors that control these caps on societal value creation are commonly within the control of government as a market shaper.

The system dynamics described involves four thematic clusters of variables. The highest leverage point with which to influence societal value creation is the ‘ownership and governance’ cluster, which defines the organisational purpose, ethics and financial incentives. The collaborative business model innovation process central to the functioning of OBMs can be considered the engine of new value creation that drives the virtuous loops described above. But societal value creation does not happen by default from the collaborative innovation process. For this to occur, three dominant variables need to be active: the centrality of societal purpose to the organisational value proposition (variable 01), a long-term governance view (variable 31), and a well-aligned business model (variable 21).

The latter variable forms part of the ‘value creation’ cluster that defines how value is created and for whom, which ultimately connects to the ‘value capture’ cluster, completing the financial flow of the two sides of the business model.

The relationships described in the CLD document an abstracted process connecting collaborative BM design and organisational governance. It informs *why* and *how* collaboration in OBM organisations brings a range of different voices to bear in the

business model design process. But it does not describe the *what*: the contextual detail of how OBM business model designs embed societal value in their structure or content. This is the focus of the next section of results in 5.3.

5.3 Business Model Design for Stakeholder Value Alignment

This section presents the results addressing research sub-question 2: “What is the relationship between the design of the OBM and the dynamics of societal value creation?”

Much of the literature analysing sustainable value creation has focussed on business model design elements of ‘structure’ and ‘content’, or the function of external relationships and exchanges supporting sustainable innovation. Analysis of BM structure and content commonly captures the detail of a business model *at a particular moment in time*. This section explores not only whether there are patterns in business model structure and content particular to OBMs with regard to how they create societal value, but also how these patterns relate to the dynamics that shape societal value creation over time.

The analysis is presented in three sub-sections:

- 5.3.1: Patterns observable from the comparative analysis of visual BM design representations.
- 5.3.2: Analysis of BM design elements of content, structure and governance.
- 5.3.3: Analysis of the strategic role of openness in dynamic BM evolution.

5.3.1 Visual Business Model Analysis

As outlined in Section 4.4.3, informed by adaptive theory, a prototyping approach was taken to explore three different business model visualisations to look for commonalities and differences within the case organisation data regarding the relationship between OBM design and the dynamics of societal value creation. This is because the intersection of OBMs and societal value creation is a distinct research

gap, and that very few BM design analyses focus on change over time. The results of this exploratory prototyping process are summarised in Table 5, alongside CLDs, which were analysed in Section 5.2. The three approaches are expanded on below.

Each approach had distinct advantages and disadvantages and involved trade-offs between what could be represented and what nuances were lost with simplification. Simple representations can draw attention to substantive structural differences but lack analytical power. This is particularly true when attempting to understand the diversity of different BM iterations at play within the focal organisation. Complex representations tell us a great deal about the specific value exchanges but make deriving higher-level insights across the sample more challenging.

Table 5: Results of Prototyping Visual Analytical Approaches to Examine OBM Design and Societal Value Creation

Approach (reference)	Advantages	Disadvantages
Causal Loop Diagram (CLDs) (H. Kim & Andersen, 2012)	Good representation of dynamic influences controlling the ongoing relationship between societal value creation and openness.	Details of business model design cannot easily be represented. Lacks analytical power regarding the degree of BM sustainability.
Boundary-spanning value maps (Brehmer et al., 2018)	Holistic representation from a focal organisation perspective. Incorporates different concurrent BM variants in one image. Clarifies where in BM societal value creation occurs (parties, exchanges).	Hides the distinctions between different concurrent BM variants and underlying changes over time. Shows BM snapshot-in-time only, limiting understanding of evolutionary dynamics.
Simplified open value chain (Frankenberger	Simple comparison of the role of partnerships within the	Standardising value chain stages across business types

Approach (reference)	Advantages	Disadvantages
et al., 2013)	value chain.	is imprecise and lacks analytical power. Requires several diverse BM variants to be represented separately. Shows a snapshot-in-time only, unless BM variants represent evolution.
Wardley Value Chain Maps (Wardley, 2013)	Enables analysis of value chain evolution and BM dynamics and strategy over time.	Complex to undertake for multiple concurrent value chains. Requires additions to represent societal value creation.

Source: Author analysis of adaptive approach to visual BM analysis.

Boundary-spanning value maps

The boundary-spanning value maps defined by Brehmer et al. (2018) show all value exchanges between different parties on one image. This is advantageous in understanding the breadth of the business model in its entirety and for pinpointing precisely where within the structure of exchanges, sustainable value creation occurs. The case study organisations were found, however, to have between two and eight subtly or radically different products and associated business model variants operating at any one time. Each embeds different partners, value propositions, offerings or customer channels.⁶⁴ This means that not all of the exchanges shown in a Brehmer map occur in the value chain of a single product or service being brought to market. The Brehmer approach is consistent with the evolution of the business model as an *organisational-level view* rather than a *product-level view* of value creation

⁶⁴ This is discussed further under 'business model structure' in Section 5.3.2 and in 'OBM strategy' in Section 5.3.3.

(represented earlier in Figure 1). It also means, however, that there is no way for the reader to resolve which value exchanges are grouped or related, or whether there are underlying business model shifts occurring over time. This is a particular challenge when analysing larger businesses with complex or emerging portfolios of products and business models. In fact, this research suggests that OBMs are, themselves, vehicles to iterate and test the introduction of new business models in the marketplace. So the inherent multiplicity of business model variants is perhaps the rule, rather than the exception.

The original methodological design of this study only involved a boundary-spanning value map analysis of BM design. However, the struggle to adequately understand the underlying dynamism of the BM design – and thereby its relationship to the CLD analysis – was a key driver for the adaptive theory approach seeking complementary analytical tools (analysed later in this section) regarding business model design.

Specific insights from these boundary-spanning value maps are now explained through two cases:

- Organisation B: Energy data products and services
- Organisation C: Community renewable energy co-operative

Organisation B: Energy data products and services

Figure 53 shows a Brehmer value exchange map for energy data products and services company Organisation B. The image is shown in its full complexity, as opposed to a simplified version, to demonstrate its contextual richness. This image shows that the focal organisation (in the centre) is either one or two steps removed from the end customer interface (right-hand side), which is where it began as a company, working on customer energy data technology interfaces. This makes it a ‘business-to-business’ (B2B) organisation, in industry parlance. Societal value creation is represented by the green (environmental) and red (social) dotted lines respectively and is further annotated in the red and green clouds, for clarity. This value creation occurs when the customer interacts with products – or with others in the community – facilitating the use of new technologies or behaviours with social or environmental benefits. The organisation has progressively moved further up the value chain as a facilitator of a diverse range of energy data applications, via an open

partnership approach. The management of societal value creation is thus not directly controlled by the focal organisation. Instead, it is embedded in the relationships with professional product and service or community partners that share both a systems change creation goal, an open business strategy, and complementary resources that create an attractive customer value proposition. Thus, the fact that partner organisations are more environmentally or socially sustainable than their peers (represented by a green or red dotted border respectively) tends to be an important determinant of whether societal value creation occurs in the exchange with the customer.

Collaborative innovation relationships and new BM experiments are often conducted with government-supported project-based collaborations, involving research and product development. These collaborations are shown down the bottom left encircled in red and green, as project consortia generally included partners bringing environmental, customer, and social justice perspectives into the business model iteration process.

Although not explicitly noted by Brehmer et al. (2018), such maps allow the flexibility to represent the relationship exchange with different providers of organisational capital (equity investors with a governance role shown on the left of this image), which we have seen from CLD have an important influence on BM design choices. In all of the case organisations, the capital provider had some degree of social or environmental value creation goal – formally or informally – underpinning their investment motivations, and were thus always represented within a green or red border. This reflects the importance of the state of the ethical or impact investment market for the realisation of societal value in these OBMs.

These maps also allow the representation of value accrual to *indirect* beneficiaries. An example from this case is the distributed energy resources industry (lower left), which benefits via data and functionality enabling better renewable energy integration. Neither of the visualisations analysed later in this section afford the flexibility to represent these items.

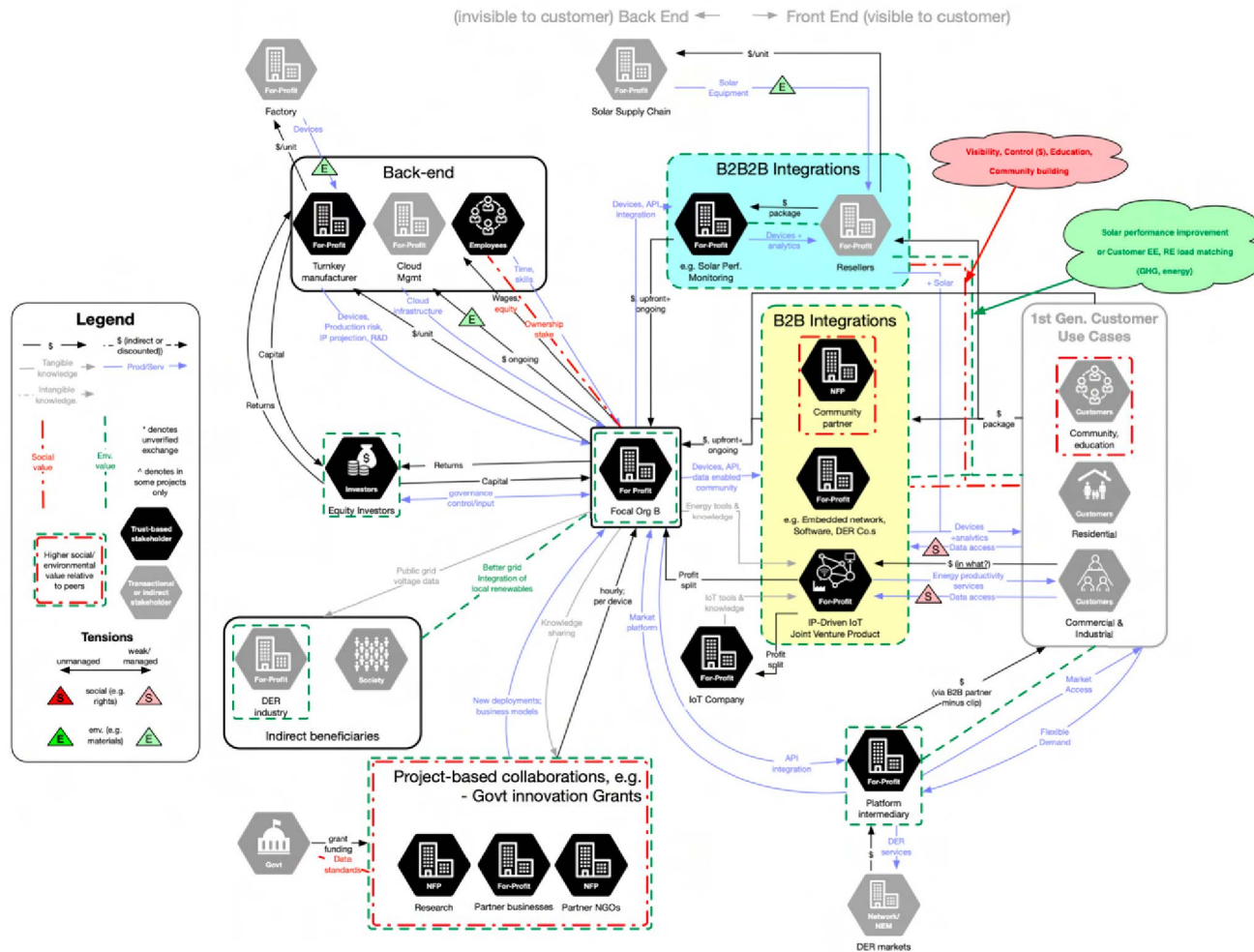
Figure 53 also demonstrates that not all value exchanges carry environmental or social value, and a series of standard utility or business services in the ‘back end’ of the business model (particularly towards the top left of the image) tends to provide

the foundation for societal value creation at the 'front end' of the business model (towards the right of the image). This was evident across the sample and is discussed under Wardley maps below, which more clearly highlight this aspect.

Social and environmental sustainability does not just require the creation of new societal value; it equally demands the elimination of tensions in the business model where societal value is destroyed or depleted (Bocken et al., 2013, 2014, p. 24; van Bommel, 2018). These tensions are absent from Brehmer's (2018) boundary-spanning maps, which exacerbates potential issues of relativity bias. That is, showing how an organisation creates positive value, but not equivalently highlighting negative aspects could be misleading. Therefore, an additional feature was added to the maps, where social or environmental tensions were present in a particular value exchange. These red and green triangles were coded as either 'weak/managed', or 'unmanaged'. Environmental tensions most commonly occur where significant material or energy flows are part of the transaction. For Organisation B, environmental tensions exist in three primary exchanges:

1. Electricity-intensive cloud-computing-based data processing, which rests with a cloud utility service provider and potentially carries greenhouse gas emissions risk.
2. Non-renewable and rare earth materials embedded in Organisation B's manufactured product. This tension, albeit small, rests with factories upstream of a trusted turnkey manufacturer partner, one step removed from direct control of the focal organisation.
3. Non-renewable and rare earth materials embedded in distributed energy resources (DER) technologies, such as solar PV, that are installed alongside Organisation B's manufactured product. This tension resides with the solar supply chain, two steps removed and entirely outside the focal organisation's control.

Figure 53: Organisation B Brehmer Map (energy data products and services)



In Organisation B, each of these tensions is noted as weak/managed. Tension 1 is managed by the cloud service provider through its 100% renewable energy procurement. Tension 2 is relatively minor in terms of material inputs and at this stage is only planned to be managed through evolving the focal business towards a service-based model less reliant on the underlying hardware and a view towards resource circularity initiatives. The latter strategy seeks to address the issue but is not yet enacted. The former strategy could *either* eliminate the tension by ongoing device ownership resting with the management of the focal organisation, or remove it from the direct control of the focal organisation towards other device designers and manufacturers. Tension 3 is a broader industry issue that, while less problematic than the fossil fuel incumbents it supplants, is most likely to be tackled collaboratively by those directly in that parallel supply chain. If there were direct partner relationships (one step removed from the customer) in this part of the business model, it would be possible to manage this tension through procurement policies. But in the case of indirect relationships further along the value chain (two steps removed from the customer), it is likely too distant from the focal organisation for them to be of significant influence.

Social tensions only exist in one Organisation B exchange: the handling of customer energy data. This is actively and well managed through a set of ethical standards that relate to the organisational character, and is increasingly codified in a series of customer-centric Terms and Conditions.⁶⁵ Nonetheless, as the organisation shifts its business model towards diversifying how it innovates with data analytics to create new forms of value, the transparency and defensibility of such data policies will be increasingly tested and could become material in the future.

Thus, adding tensions to the picture clearly enables us to pinpoint transactions that need to be carefully managed or transformed in the future.

Organisation C: Community renewable energy co-operative

Figure 54 shows a boundary-spanning value map for a community renewable energy co-operative, Organisation C. This image shows that the focal organisation also

⁶⁵ This was also aided by public innovation funds being explicitly tied to ethical data standards, so there is an active government role in guiding the development of minimum standards.

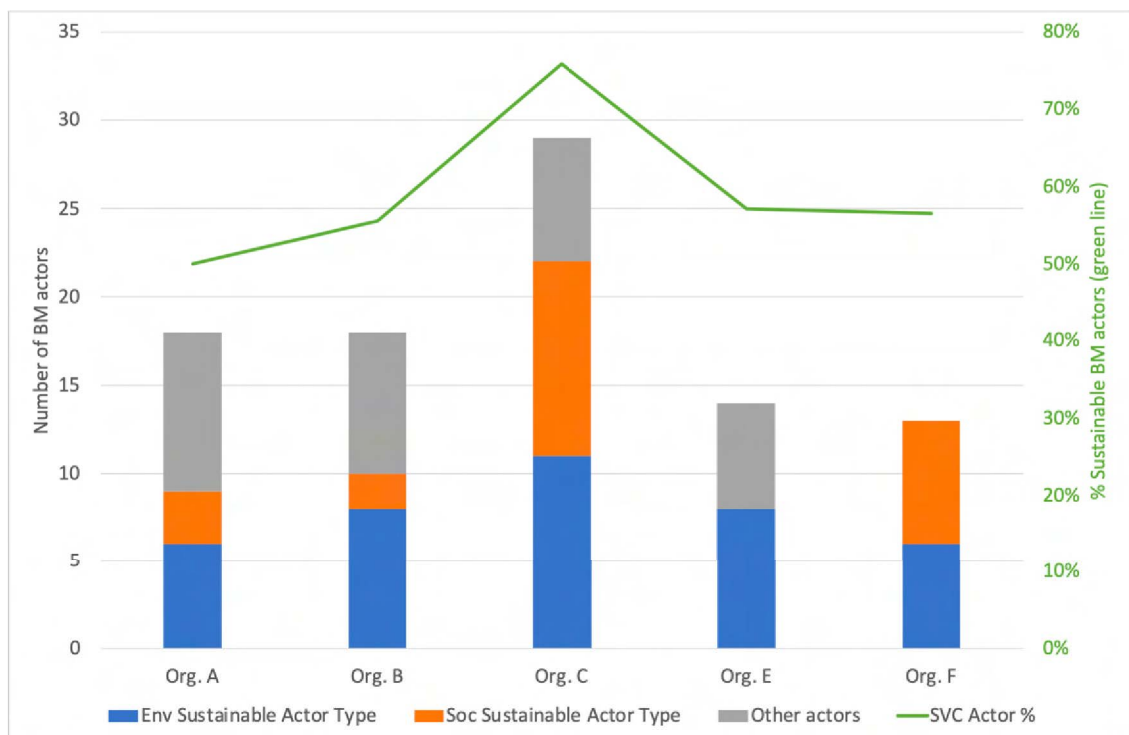
utilises a series of B2B partnerships and is, thus, generally one step removed from the customer (on the far right). The content of the value exchange often trades on Organisation C's well-established brand and supporter base, supported by its strong social licence. Social and environmental value creation is more evenly distributed around back- and front-end value exchanges in this business model than in Organisation B. But, like the previous example, the main societal value creation still occurs when the customer interacts with the products, installing or purchasing a new environmental technology. The organisation's constitutional commitment to local value creation informs its choice of structure for dedicated community benefit value-sharing in the business model. Those activities at the top of the image are considered more 'commercial', in that they generate revenues. The explicit community benefit activities at the bottom of the image are considered 'non-commercial', in that they are funded by a ring-fenced component of the revenue streams and are not required to directly generate revenues themselves. (As a comparison, in Organisation B, all activities were considered commercial.) Interestingly, a large amount of collaborative partnership activity clusters around the non-commercial activities in the bottom right corner, as well as open-source knowledge sharing via communities of practice (bottom left corner) to aid replication in other community contexts.

The localised nature of value creation evident in this business model is discussed in more depth alongside a similar organisation in Section 5.4.1.

As is immediately evident from Figure 54, the sheer number and complexity of the relationships in this business model are noteworthy. Even as the smallest organisation in the sample in terms of staff numbers, Organisation C had the highest total number of business model actors, and the greatest percentage of actors classified as socially or environmentally sustainable. Figure 55 below compares the number of BM actors and percentage of sustainable BM actors (shown in the green line, noted in shorthand as ‘SVC actors’, measured on the right axis) for the small and medium organisations. On a per full-time equivalent (FTE) basis, Organisation C’s partnerships are an order of magnitude higher than the next organisation in the sample. Historically, this was in part driven by periods of financial scarcity in a politically influenced, volatile market environment. In-kind partnerships were established to ensure organisational survival and ongoing social impact, despite low revenues.

Equivalent maps for the other case study businesses analysed are shown in Appendix B.

Figure 55: Number of Business Model Actors by Focal Organisation



Note: The largest organisation, Organisation D (Enel), is not included as mapping its business model in equivalent depth was not possible within the scope of the research. Source: Author analysis based on

interviews and survey responses.

As can be seen from these two case examples, there is a high level of flexibility inherent to the boundary-spanning value map structure. It allows complete discretion with regard to where partnerships are placed, apart from organising exchanges towards the ‘front-end’ (visible to the customer) or ‘back-end’ (invisible to the customer). As a result, the approach affords a lot of contextual depth, but does not readily lend itself to comparisons *between organisations* – particularly with the incumbents that these organisations are challenging.⁶⁶ This relativity can be important to understand how OBM innovation towards societal value creation differs from existing market norms. Following the iterative adaptive theory approach, additional frameworks were then sought to capture this market relativity. The remaining two approaches are now explored in turn.

Simplified open value chain diagrams

The high level of complexity seen in the boundary-spanning value maps drove the exploration of more simplified representations that focussed on the roles and positions of OBM activities.

A simplified value chain⁶⁷ representation was used by Frankenberger et al. (2013) to represent the respective partner roles at a high level, as shown in Figure 56. The value chain (for these ‘integrated customer solution providers’) is broken down into product production, solution sales, service provision and post-deployment support. Grey shapes show the roles undertaken by the focal organisation, white by partners, and mixed grey/white are shared.

⁶⁶ While it is possible to prepare dedicated equivalent diagrams for comparative incumbents (as noted by Brehmer et al., 2018), there is very limited structure for comparison.

⁶⁷ Other conceptualisations of the business model structure beyond the ‘value chain’ are discussed in Section 4.4.3, including value networks and value shops.

Figure 56: Simplified Open Value Chain Style Diagram

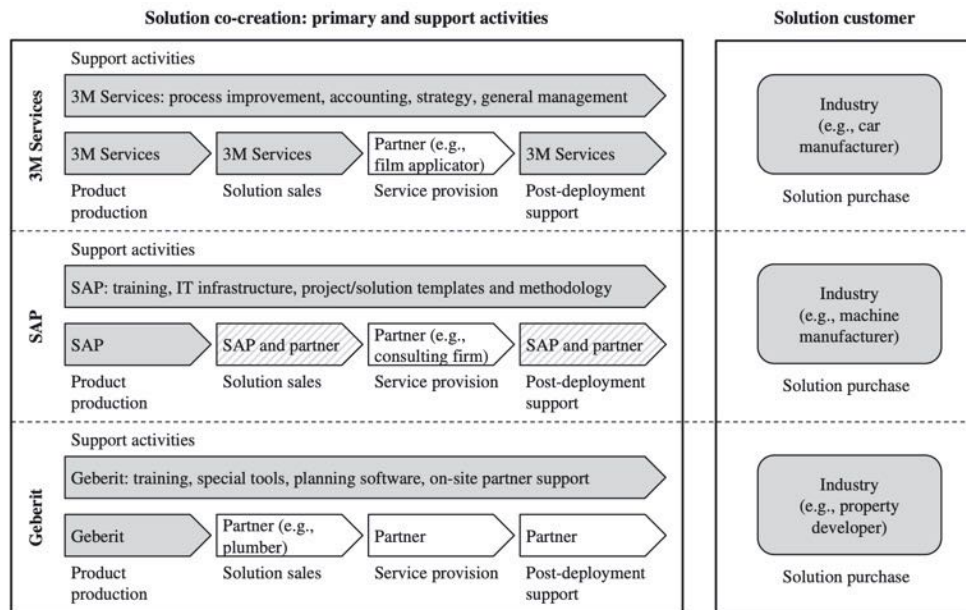


Fig. 2. The cases illustrated along a solution provider value chain. Grey activities in solution co-creation indicate activities performed by the focal firm; white activities are performed by its partners.

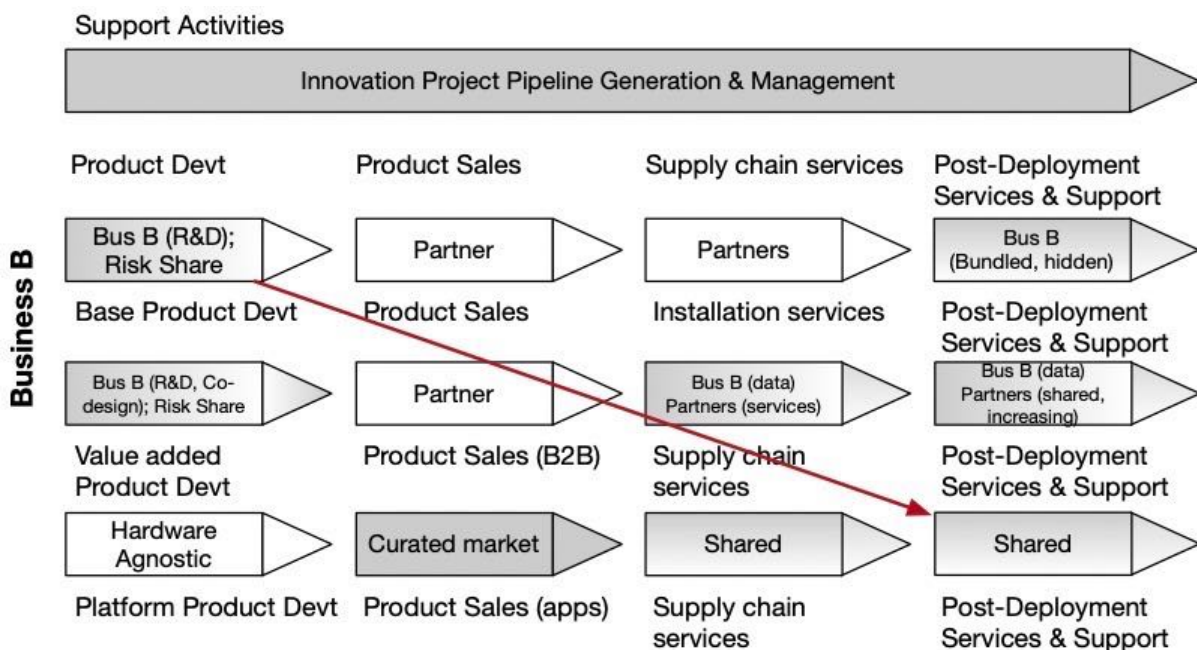
Source: Frankenberger et al. (2013).

Note that this representation was designed for illustrative case comparison purposes rather than as an analytical tool and should not be considered a critique given its contextual repurposing in this exploration. This simple but instructive representation proved challenging to complete at a high level for a given OBM organisation for two reasons:

- Firstly, the small number of value chain stages do not necessarily have consistent relevance across organisations in varied sectors/sub-sectors and with varied business model structures, content and context. For example, the 'post-deployment support' stage matches the more traditional 'make-sell' business model structure of Organisation B. It makes less sense, however, for Organisation C, as a community renewable energy company whose product is more virtual or contractual and is broken down into energy purchases and renewable energy certificates. To more accurately represent each business model, customised value chain stages would be better suited, but this would reduce the comparative value of the diagram, which is the very reason for using this analytical tool.

- Secondly, when multiple, concurrent business model variants exist, they commonly differ in partner roles and responsibilities, and thus several sub-versions of the diagram were required to adequately represent the diversity of partner roles across the business models. This added complexity and made the comparison between organisations more challenging, but successfully highlighted trends in business model change. Figure 57 below uses this representation to describe the three business model variants currently active within Organisation B. This image reveals that there is an evolution in the structure of the business model taking place over time: a traditional make-sell model is evolving towards a data and service-based business model that is active in the middle of the value chain, and may ultimately be subsumed into a digital platform-based business model. These evolutionary elements are not surfaced in the Brehmer value maps shown earlier (c.f. Figure 53 for Organisation B).

Figure 57: Simplified Open Value Chain Representation for Organisation B



Note: Grey = Focal org activity; White = Partner activity. Mixed = Shared activity. Red shows the evolution of business model variants. Source: Author representation based on the approach of Frankenberger et al. (2013).

Wardley value chain maps

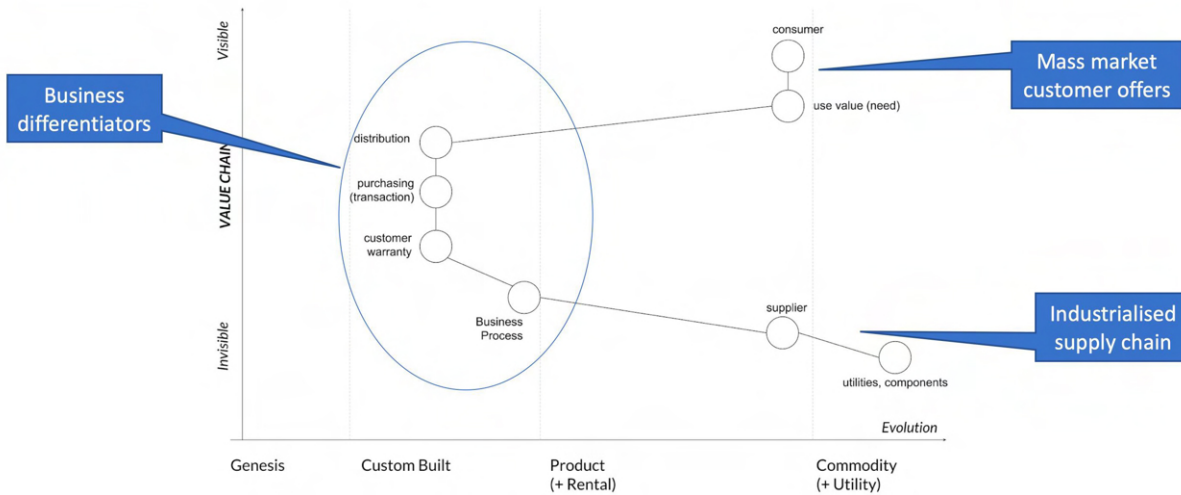
The simplified open value chain approach elaborated across the range of concurrent business models revealed a useful evolution in the business model that was not apparent from the boundary-spanning value maps. However, the simplified representation lacked sufficient detail to adequately capture differences in business model actors and value creation activities that are critical to the creation of societal value. These are elements that the contextual sustainability detail of boundary-spanning value maps achieve well.

Therefore, a more detailed value chain mapping approach was applied using the Wardley (2013) approach. These maps are designed to allow users to envisage future industry developments and plan their strategic responses. In doing so, Wardley maps add an element of 'product market strategy' to the OBM depiction. Product market strategy aids in ascertaining novelty or differentiation relative to business rivals, as distinct from the BM, which focuses on the firm's value exchanges with external parties (Zott & Amit, 2019).

Wardley maps organise the value chain structure beginning with a customer need and then map the sequence of capabilities that are required to service that need. Thus, the elements at the top of the value chain are 'visible' to the customer such as the interface with product sales or service teams or digital interfaces. As you go further along the value chain, other elements of the business model that are 'invisible' to the customer are described, such as business processes, data centres or suppliers. The key differentiator of Wardley maps, however, is the x-axis that plots each component of the value chain against its level of industrialisation. This recognises that, over time, value chains tend to industrialise to improve efficiency or reduce costs and thus move from bespoke, customised products, towards off-the-shelf products, and ultimately to commodities with limited differentiation between offerings (Wardley, 2013). Figure 58 demonstrates that a Wardley map for a typical industrial value chain is C-shaped, as it connects a low-cost, industrialised supply chain (bottom right) with mass-market customer offerings with limited differentiation for customer types or circumstances (top right), using a set of more customised knowledge, technologies or resources (centre left). This is perhaps typical of a

traditional energy retailer based on large, remote fossil-fuel-based generators.

Figure 58: Wardley Map for Typical Industrialised Value Chain Showing Characteristic C-Shape



Source: Author annotations on Ruggeri (2020). Reproduced under CC BY SA Licence.

This section utilises a Wardley map with some adapted features to highlight features of interest in relation to both openness and societal value creation. Figure 59 shows an adapted Wardley map for Organisation A (new energy retailer). This organisation has eight concurrent business model variants, and the associated image shows four of variants of its base product offering on one map.

Shapes are used to provide contextual information regarding openness. The customer value proposition or need is shown as a star. Capabilities that are met in-house by the focal organisation (Organisation A) are shown as circles. Functions delivered by partners are shown as triangles. Outsourced capabilities via contracts are shown as squares. These contractors are considered distinct from partners because no deep relationship exists and the transaction could readily be changed to an alternative supplier with limited disruption.

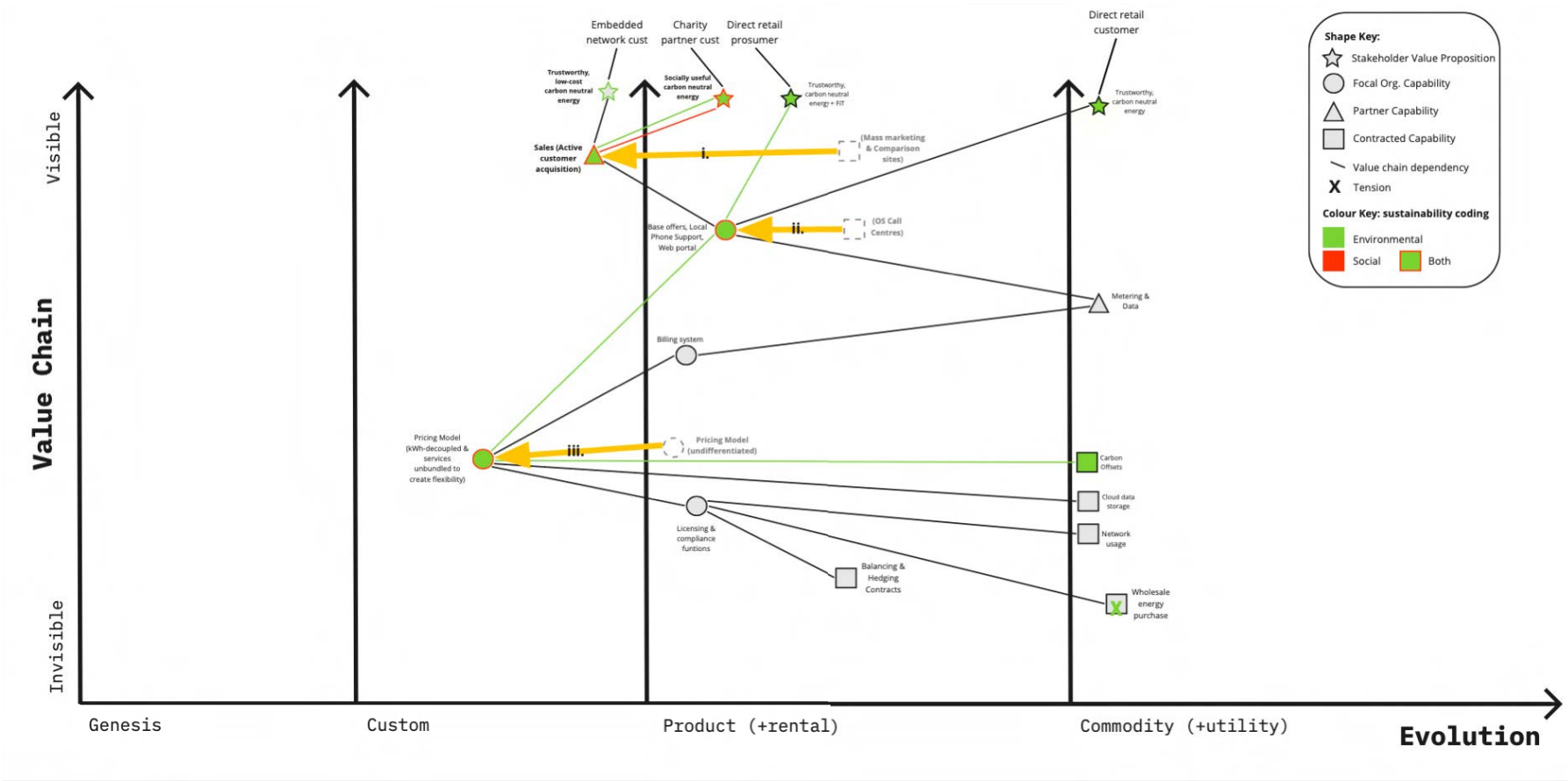
Colours are used to provide contextual information regarding societal value creation. Dependencies (the lines) or capabilities (the shapes) that are important for societal value creation are marked as red (social) and/or green (environmental), as per the boundary-spanning value maps. The key remaining environmental tension of this business model is marked as a green “X” within the contracted function of purchasing

wholesale electricity from the spot market.

The numbered arrows in yellow have been overlaid for presentation purposes, to highlight three important shifts in the evolutionary position of key functions from its incumbent energy retailer competitors. Firstly (arrow **i.** in Figure 59), Organisation A abandons the model of using large marketing campaigns and price comparison sites to recruit customers, as it sees these sites as promoting a ‘race to the bottom’ on price. It considers the acquisition of customers in this way to be both bad for customer loyalty – as such customers are more likely to leave within a year, resulting in higher customer ‘churn’ costs – and for societal value creation, as it leaves no margin to improve social and environmental standards. Instead, Organisation A employs recruitment via environmental or social partners with whom new environmentally focussed product offerings are co-designed. This B2B structure activates a range of pre-existing trusted channels for socially or environmentally aware customers and supports the ongoing operation of local social and environmental organisations. This shift inherently makes Organisation A less visible to the customer. Secondly (arrow **ii.**), Organisation A’s in-house functions (circles) move more to the middle of the value chain. Industry-standard commoditised overseas call centres are replaced with local phone support, which creates social value by keeping employment local while addressing a well-recognised customer point of dissatisfaction. Thirdly (arrow **iii.**), the services offered and associated pricing model are customised to account for the new bespoke partnerships and associated technology in the partner-based open value chain. To facilitate this change and attract environmental and social partners, the pricing model and is redesigned to eliminate incentives for the retailer to make money from selling customers more units of energy, and to incorporate carbon offsets.

Each time a new partner is added and a different value chain is included on the map, the patterns are similar (see Appendix C for maps of some additional Organisation A BM variants.) Societal value creation is primarily at the visible end of the value chain but often requires one or two changes, lower down, to the value chain structure.

Figure 59: Example Wardley Map for Organisation A (Energy Retailer) Base Product Offerings with Sustainability Coding



Source: Author representation, blending approaches of Wardley (2015) and Brehmer et al. (2018). Template credit: Underlying (blank) Wardley map provided under Creative Commons CC BY-SA 4.0 License, courtesy of Simon Wardley and Ben Mosior, accessed via [Miro.com](https://www.miro.com).

Take, as an example, adding a technology partner that provides customers with access to dynamic wholesale electricity market prices so customers can use electricity when it is less expensive, commonly when renewable energy is abundant. This new variant creates environmental value as it reduces electricity demand at peak times, which helps to better meet grid needs and ultimately allows the integration of more variable renewable energy into the system. This partnership, along with its own set of highly engaged customers, shifts 'wholesale energy purchases' from an invisible transaction at the bottom of the value chain to a commoditised selling feature in the visible part of the value chain, facilitated by a customised mobile application. That is, the new partnership required reorganising a capability further along the value chain, to provide societal value in the customer transaction.

Or, if adding a Virtual Power Plant (VPP) technology partner, customers can participate in flexible timing of solar and battery usage. This requires additional parallel solar/battery supply chains, and a set of new organisational relationships to capture value from this flexibility from both the energy market and the local electricity grid. These changes are not visible to the customer but are needed to complete the value proposition. See Appendix C for an associated diagram (Figure C3).

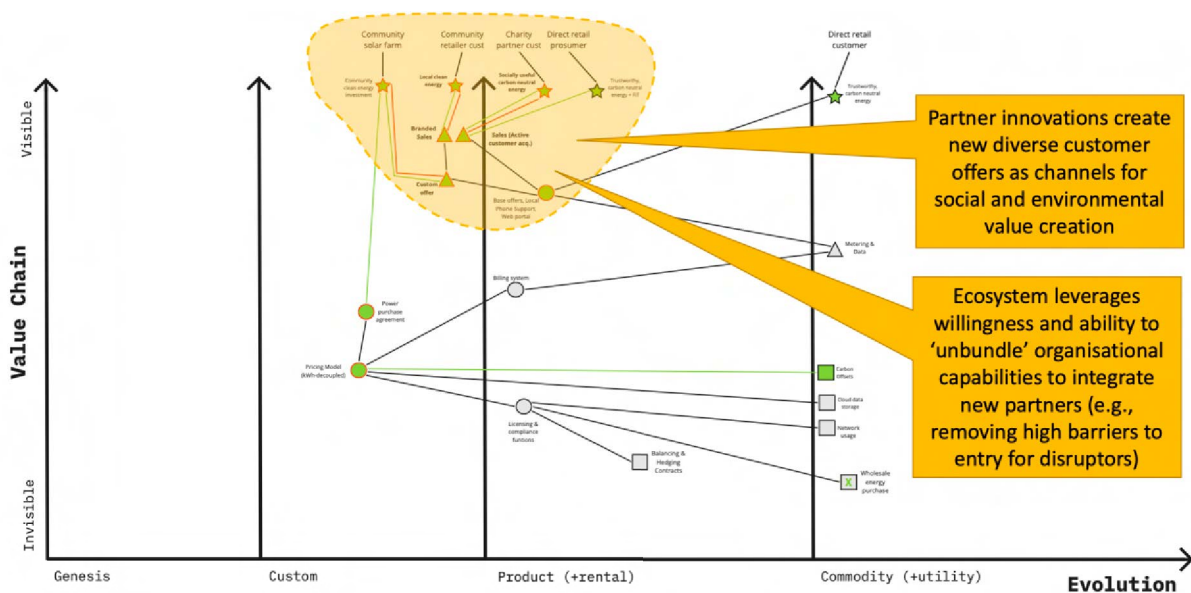
Both wholesale pricing and VPP products start to shift Organisation A's pricing model (found further down the invisible end of the value chain), by reducing reliance on 'balancing and hedging contracts' to externally manage the financial risks of exposure to market price volatility.

Thus, this framework clearly prompts the user to consider strategic changes to the OBM by the focal organisation, as well as the positioning of each function relative to other similar organisations. However, this research is most interested in the extent to which these OBM and value chain designs reflect common patterns of societal value creation. Examining the diversity of the business model variants of Organisation A and comparing across the case study organisations, these energy sector OBMs were found to:

1. Create new, diverse, 'specialised' customer offers as mechanisms for social and environmental value creation, which cluster at the top of the value chain, as

highlighted in Figure 60 below. This is achieved through the collaborative innovation processes described in the dynamic capability enhancement loop (LA, in Section 5.2.3). In order to successfully attract social and environmental innovators, some differentiation from incumbents further down the value chain is also required. This is often through eliminating a social or environmental tension associated with rivals' BMs. In the Organisation A example in Figure 60 below, this constitutes a novel pricing model, openness to power purchase agreements for medium-scale generators, and full carbon emissions offsets. Each of these features is marked in green and/or red.

Figure 60: Partner Innovations Delivering Societal Value Creation Cluster at the Top of the Value Chain (Organisation A example)



Source and template credit: As per Figure 59.

2. Leverage the focal organisation's willingness and ability to 'unbundle' its capabilities to empower organisations with shared social or environmental values and/or systems change goals and complementary offerings. In the case of Organisation A, for example, unbundling capabilities that were hitherto locked within vertically integrated incumbent retailer value chains has allowed other new producers to 'plug into' Organisation A's established value chain. This removes the very high regulatory and financial barriers to market

entry for these disruptors, which have, to date, concentrated power in large corporate incumbents. This feature relates to several dominant variables in the CLD analysis discussed in Section 5.2.4: the empowerment driver (variable 34), alignment of business & collaborator goals (variable 02), and the ecosystem-builder mindset (variable 38).

3. Connect multiple partners at one (or sometimes more) specific, efficient points of integration in the value chain. Across the cases, the integration points included:
 - Data APIs supported by open standards (Organisations B and E)
 - Standardised 'white-labelled'⁶⁸ customer offers (Organisation A)
 - Community benefit scheme tendering or partnering mechanisms (Organisations C and F)
 - Established customer relationships/channels (Organisation C)
 - Startup labs and other crowd-sourcing open innovation infrastructure (Organisation D)

The net effect of these changes in many of these energy sector OBMs, is a shift of the traditional C-shaped industrial value chain towards a more Z-shaped value chain, as illustrated in Figure 61 below. This highlights some recognisable hallmarks of a broader 'platformisation' trend prompted by digitalisation and decentralisation (as described by Ruggeri, 2020)). The two main changes to the value chain structure are:

- Bringing innovative new producers to the top of the value chain.
- Providing more diverse, customer-centric products (denoted by the yellow arrow marked ii) in the bottom image of Figure 61)⁶⁹

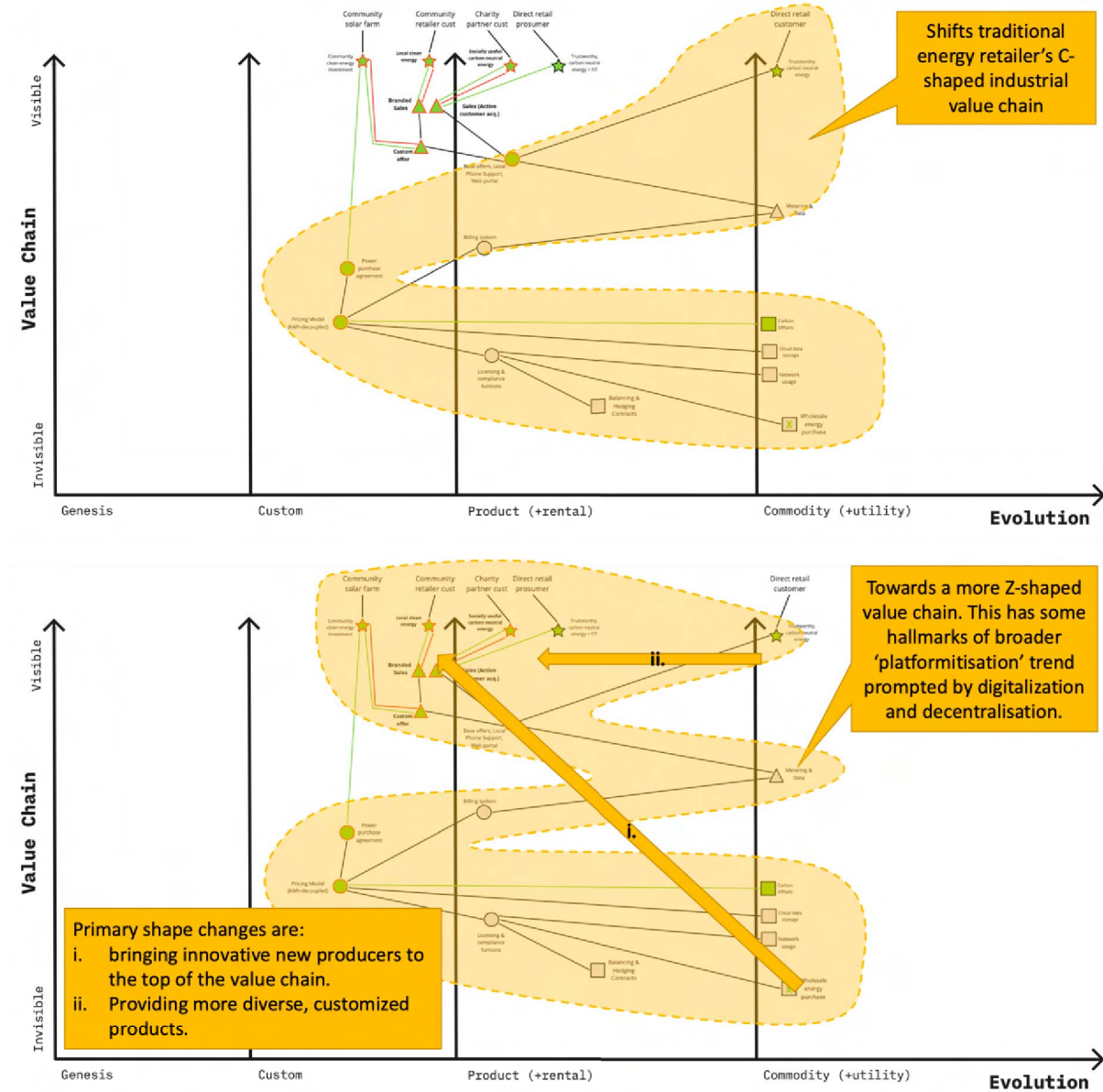
These changes are denoted in the yellow arrows (marked **i.** and **ii.** respectively) in the bottom image of Figure 61. These two changes are common in energy businesses facilitating distributed, customer-owned or controlled DER solutions such as solar

⁶⁸ White-labelling refers to products made by an organisation that are allowed to be branded by a third-party purchaser or partner, appearing as though it has been produced by the purchaser.

⁶⁹ A case study on this phenomenon can be found in Ruggeri (2020).

PV and smart energy management.

Figure 61: Organisation A Demonstrates a Shift in the Value Chain From C-Shaped (above) to Z-Shaped (below)



Source and template credit: As per Figure 59.

The recognition of platform patterns is consistent with Saebi and Foss's OBM typology, which suggests that a network-based innovation strategy (as distinct from a market-, crowd- or collaboration-based strategy) is manifested in an 'open platform business model' in which the BM "acts as an open innovation platform, which connects the focal company with individuals, communities and other organizations

for the purpose of joint co-development of innovations” (Saebi & Foss, 2015, p. 209).

Platform analysis

The concept of a ‘platform’ organisation warrants further exploration. Gartner (2021, para. 1) defines a platform as “a product that serves or enables other products or services”, and elaborates that:

Platforms (in the context of digital business) exist at many levels. They range from high-level platforms that enable a platform business model to low-level platforms that provide a collection of business and/or technology capabilities that other products or services consume to deliver their own business capabilities.

While only one case organisation (Organisation E) currently identifies itself as a ‘platform’, platform patterns are recognisable to varying degrees across the sample. Cicero (2018) identifies twelve patterns that commonly appear in platform-based organisations. Table 6 below shows the prevalence of platform patterns in the OBM case organisations using a traffic light colour-coding system. Green indicates a given pattern being clearly or strongly present within the organisation. Yellow indicates that a given pattern is weakly or partially observable, while red indicates the absence of the pattern.

Table 6: Prevalence of Platform Patterns in the OBM Case Organisations

	Org. A	Org. B	Org. C	Org. D	Org. E	Org. F
E1: Reduce barriers to market	Strong	Weak	Weak	Strong	Strong	Strong
E2: Enable market network with SaaS	Absent	Absent	Absent	Absent	Strong	Absent
E3: Enable personalisation with independent providers	Strong	Strong	Weak	Weak	Strong	Weak
E4: Create a new profession	Strong	Absent	Absent	Absent	Absent	Weak
E5: Think Boundaryless	Weak	Weak	Weak	Weak	Weak	Weak
E6: Stop focussing on consumers	Strong	Strong	Strong	Strong	Strong	Weak
E7: Climb the value chain	Absent	Strong	Absent	Absent	Strong	Absent
E8: Let the best emerge	Absent	Absent	Absent	Absent	Strong	Absent
E9: Aggregating shared infrastructure	Weak	Weak	Absent	Weak	Strong	Absent
E10: Unbundling assets	Strong	Strong	Weak	Weak	Strong	Weak
E11: Generate network effects by connecting niches	Absent	Weak	Absent	Absent	Strong	Absent
E12: Transform competitors into providers	Weak	Weak	Absent	Strong	Strong	Weak

Source: Author analysis.

The most prevalent platform patterns (in order) are:

- **E6. Stop focussing on customers:** Five of six organisations showed this pattern strongly, and one less strongly. This pattern recognises that while

creating good experiences for customers is vital, shifting focus to work with other *producers* can enable the organisation to serve a range of different customer types through diversification. This is closely tied to the finding that the sample businesses primarily employ a B2B open partnership structure and integrate with other open innovators towards the top of the value chain.

- **E1. Reduce barriers to market:** To some degree, all sample organisations deliberately use their own resources and strategic position to reduce the barriers to market for other organisations to contribute to a common systems change goal. Four of six organisations showed this pattern strongly, and two less strongly.
- **E3. Enable personalisation with independent providers:** Linked to E2 – and seen in the shifting of producers and customers towards the top left of the Wardley map (Figure 61 described earlier) – open partnership structures diversify and personalise low carbon energy customer offerings. In one sense, *any* organisation working with DER technologies provides new and more personalised energy offers. However, the element of ‘independent providers’ also links to an organisational governance dimension, wherein this diversity also promotes plurality in ownership and control. This pattern is also closely linked to the empowerment driver (variable 34) and the ecosystem-builder mindset (variable 38) discussed in Section 5.2.4.
- **E10. Unbundling assets:** Three of six organisations clearly show strong willingness and ability to break down roles and responsibilities in new ways that differ from market norms. Examples include Organisation A unbundling retailer functions, Organisation B unbundling hardware and software stacks using open protocols, and Organisation E, which by providing a specific focus on a new technological communications/control capability, unbundles industry functions that were formerly controlled exclusively by grid companies.
- **E12. Transform competitors into providers:** A common pattern among the sample is a very dynamic and open perception of ‘competition’. Several organisations reported favouring partnership over competition and making space to diversify organisations in the value chain. Organisation C is the only

example that does not fit this pattern, as its ‘competitors’ are other renewable energy projects selling into the market, but many of its partner-based innovations sit on the community benefit side of the business model, which does not have competitors per se. Thus, the business context is sufficiently different that the terminology associated with this pattern is less applicable.

Other less prevalent patterns include those more directly associated with digital platforms, such as:

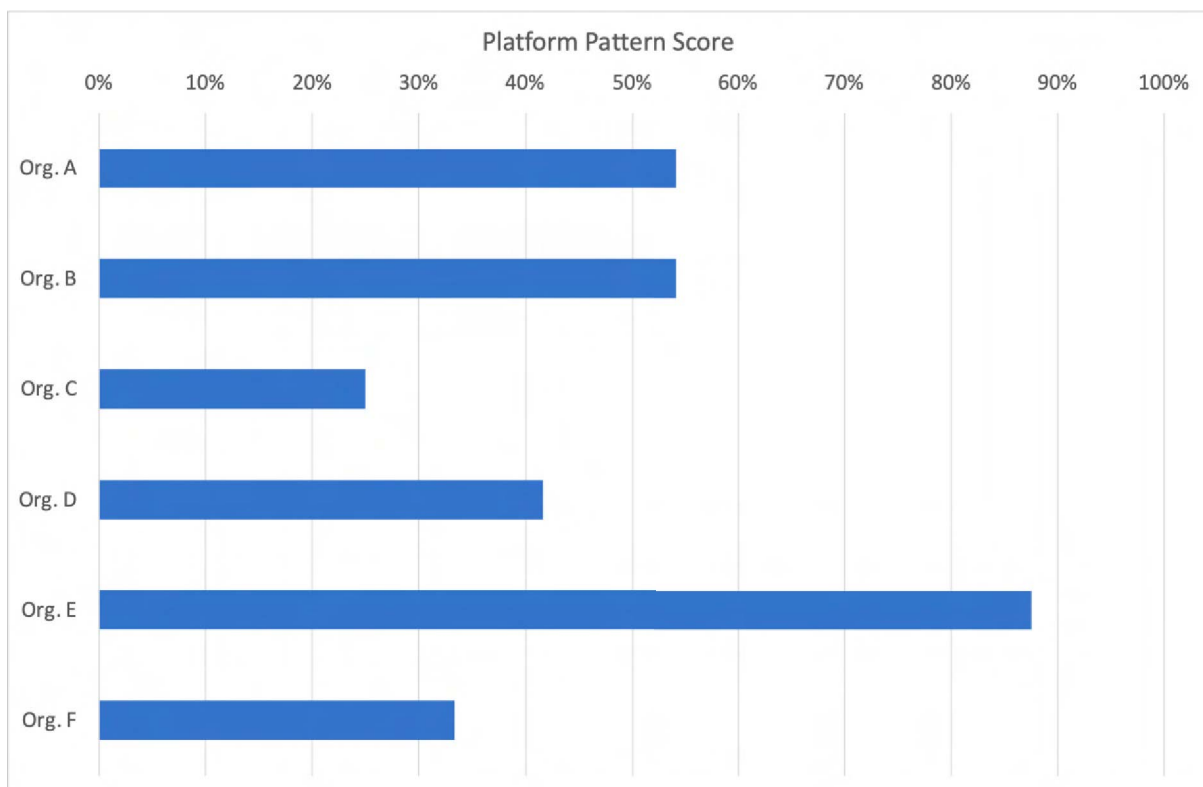
- E2. Enable market network with Software as a Service: only in Organisation E, although Organisation B is making tentative moves in this direction.
- E8. Let the best emerge: only in Organisation E, which performs independent verification of service delivery of its independent providers).
- E4. Create a new profession: only applicable to Organisations A and F, whose products help to professionalise what is otherwise a volunteer-based community energy sector).
- E7: Climb the value chain: only in Organisations B and E. The former had an initial focus on the customer interface with energy data devices but is working up the value chain to become an energy data company. The latter initially provided peak demand response hardware, before working up the value chain as a DER aggregator in the form of a VPP provider, to ultimately become a ‘platform of platforms’ for VPPs and other aggregators.

Interestingly, “E11. Generate network effects by connecting niches” – the pattern that generates scale from positive feedback loops known as “network effects” that aggregate product niches and enable the right producers to connect with the right customers – is relatively uncommon across the sample. In the context of scaling societal value-creating OBMs, this could be an interesting area for further research. Organisation E achieves this by connecting many different technology providers that together can create a new market of responsive DER energy services that becomes large enough to be valuable to the energy system. Organisation D may well also exhibit this pattern within parts of its extensive product portfolio, given it seeks to create an environment where scaling infrastructure is more readily available to

participants in its innovation ecosystem. But beyond this, opportunities may exist to amplify societal value creation through the achievement of scale by exploiting this pattern. For example, Organisation A's customers likely have no idea that it facilitates 10 other product types through other collaborative partners that might also be of interest to customers seeking disruptive energy products. This is because the products are commonly white-labelled, and each product uses unique, unconnected customer channels. A 'platform strategy' to act as a clearinghouse for disruptive new energy products could create a new mechanism of aggregating demand, as well as a suite of new producers that plug into Organisation A's customisable unbundled retailer services.

To obtain a comparative indication of how frequently platform patterns appeared in a given organisation, a score of two was assigned to a green circle, a score of one to a yellow circle, and a score of zero to a red circle. This enabled a "Platform pattern score" to be calculated as a percentage point score out of a potential total of 24 (12 patterns, with up to two points for each pattern), as shown in Figure 62 below.

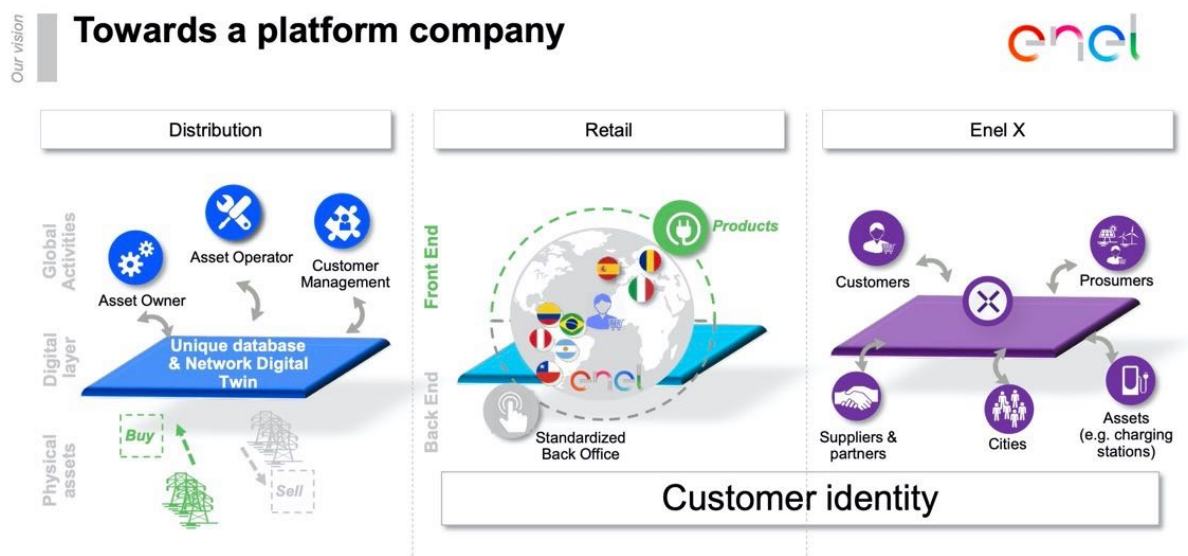
Figure 62: Platform Pattern Score by Sample Organisation



Source: Author analysis.

Organisation E – which clearly identifies as a digital platform – stands out with a score of 88%, while several other organisations exhibit scores of 40% or more, even though none would formally identify their current businesses as platforms. This indicates that OBMs, by allowing flexible and rapidly configurable connections between different organisational capabilities, contribute to platform dynamics that are disruptive to incumbent value chains. Organisation D (Enel) does, in fact, frame its business strategy as being towards a “platform company” across its distribution, retail and customer innovation areas of business, with the platformisation of its existing business models from 2020 onwards (Starace, 2019), as shown in Figure 63 below. Enel is seeking to position itself as a core infrastructure layer to which other parties can connect to the market. Openness and interoperability with other organisations are clearly key to this vision.

Figure 63: Platform Strategy of Organisation D (Enel)



Source: Starace (2019). Republished with permission of Enel.

This platform analysis has a couple of noteworthy implications.

Firstly, OBMs are not necessarily platforms, and platforms – while providing means to connect external stakeholders – are not necessarily driven by open strategy.

However, there is clearly a relationship and an overlap here, given they both rely on

interoperability between different actors.⁷⁰ But explicitly conceiving of OBMs as a potential *entry point* to platforms – and a series of platform patterns as potential levers to achieve scale – could be valuable in considering how to increase the reach of societal value creation in interconnected organisational networks of sustainable business models. This is where the ideas underpinning the truly transformative business model framework (Figure 5, Section 2.1.4) come into play, in considering the two dimensions of transformation. Just as risk is the product of the ‘probability of occurrence’ and the ‘severity of impact’, societal value creation is a product of the ‘quality and distribution of value creation in the business model’ and ‘uptake’: a business model with transformative societal value creation but no uptake has limited effect, as does a market-leading business model with only marginal gain in societal value creation.

And, secondly, one of the defining shifts in moving from ‘business modelling’ to ‘platform design’ is a more systemic consideration of the alignment of the functions of different parties towards achieving more effective collective outcomes (Platform Design Toolkit, 2021). This implies a shift in the unit of analysis and strategic thinking from *the organisation and its associated value chains*, to *the broader innovation ecosystem* (and its societally oriented systems change goal). This will be discussed further in the context of the emergence of business ecosystems in Section 6.1.3.

Critically, nothing in this analysis suggests that OBMs and platform ecosystems are inherently desirable because they create societal value solely by virtue of connecting external stakeholders: it is equally possible for a network of organisations with extractive business models to create societal harm. This point is demonstrated by the extractive dynamics of many digital platform innovation ecosystems, such as Facebook, Apple and Google (which would likely fit the OBM definition at least for key parts of their operations). In recent years, the social licence of these technology giants has been increasingly brought into question in high-profile antitrust and data use cases brought by US political officials (D. Smith, 2018).

The key finding here is that the dominant variables and feedback loops across financing, governance and collaborative innovation (Section 5.2) deliver OBM

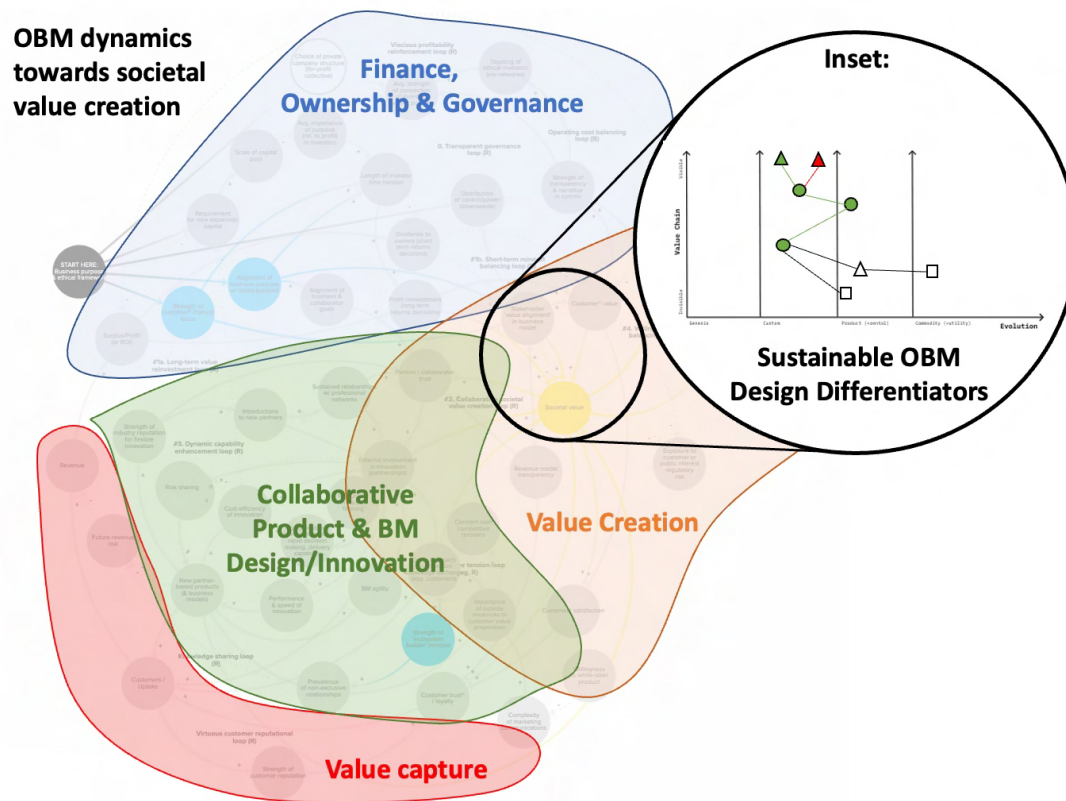
⁷⁰ Such a relationship is already recognised in OBM literature, which suggests that ‘network-based’ OI strategies lead to ‘open platform business models’ (Saebi & Foss, 2015).

business model design choices that underpin balanced value creation (Section 5.3). Both need to be active for OBMs to be a force for societal value creation.

Graphically this can be represented in Figure 64, in that all of the dynamics described in the CLD, and the sustainable OBM design differentiators (inset), are required to understand societal value creation in OBMs. The latter is a flow-on effect of the dynamics described in the former.

The ultimate representation of sustainable OBM dynamics in Figure 64 implies a shift from understanding sustainable business models primarily as a static *outcome*, toward understanding sustainable business model dynamics as an emergent *process*. Sustainable OBM dynamics could be defined as the *structures* and *processes* through which an organisation innovates with external parties to collectively improve the sustainability of the system within which its business model is embedded. This process of improvement implies relativity to either its rivals and/or its prior performance. Ultimately, the outcomes of this process (a snapshot assessment of OBM sustainability) need to be benchmarked against *absolute* measures of sustainability, aligning with fair allocations of the earth's ecosystem boundaries, and contributions to the provision of societal foundations (recalling the terminology and framing of Raworth, 2017). Even so, understanding the sustainability of OBMs as an emergent property of a complex system may help to direct organisations on getting the foundational structures and processes of their openness right. Much of this sensemaking work is likely to be *internal* first, to ensure that the core values underpinning the objectives of BM design and evolution are aligned with societal value creation.

Figure 64: Conceptual Relationship Between OBM System Dynamics for Societal Value Creation and Sustainable Business Model Design Features.



Source: Author analysis.

Summary

The adaptive theory approach to research design explored – and ultimately combined – a number of business model visualisations to harness their respective analytical strengths in understanding societal value creation in OBMs. Boundary-spanning value exchange maps allow the greatest flexibility to capture the complexity of SVC in OBMs, but require the addition of social and environmental tensions to reveal a full picture of value creation and destruction. They also limited the analysis to a snapshot in time, and thus provided limited insight on business model change that is critical to OBMs. Combining Wardley (2013) value chain maps with Brehmer (2018) sustainability classifications better revealed the dynamics of the broader system within which OBM relationships operate, how societal value creation deviates from the unsustainable value chain patterns of incumbents, and what strategic changes may be possible to aid in the achievement of scale. This is primarily due to being able

to see where societal value creation and societal tensions cluster in the value chain, and how these differ from the more extractive business models that they are seeking to replace.

The mapping process highlighted that three key OBM insights:

- 1) Partnerships commonly cluster at the top of the value chain, allowing a greater diversity of innovation in both customer and societal value creation.
- 2) OBM organisations are often willing to ‘unbundle’ their core capabilities to create a more flexible foundation for partnerships relative to their incumbent competitors.
- 3) A shift in value chain shape highlights a trend toward OBMs operating as “platforms” to facilitate systems change, which relates to the concepts of empowerment and ecosystem-builder mindset described in the CLD analysis.

A combined understanding of the dynamics described in the CLD and the ‘nested’ granular and contextual nuance of specific extractive and regenerative value exchanges is needed to understand the dynamics of societal value creation in OBMs.

5.3.2 Business Model Design: Content, Structure and Governance

Section 5.3 examined different business model representations to compare and contrast OBM designs. Based on the comprehensive documentation of the key exchanges, it is now possible to take a deeper analytical view of these BM designs.

As described in Section 4.4, a high-level comparative analysis between cases was undertaken, rather than a fully coded analysis of every value exchange. The detailed results of this analysis are included in Appendix B (Table B1), while the comparative insights on the elements of structure, content and governance are provided below. For reference, this analysis reflects the coding structure presented in Figure 29 in Section 4.4.3 of the research design.

Business model structure and value configuration

Case organisations showed a variety of BM structures in use, with ‘make-sell’

structures being the most prominent. These are business models in which “the focal organisation designs the value content [of the product or service] that is part of the offering, which may or may not be produced in-house” (Brehmer et al., 2018, p. 4518). While the focal organisation generally took primary responsibility for the design of the value content and was the facilitator of the core concept or technology at the centre of the BM, external partners were also crucial in designing the offering. Organisation A (energy retailer), for example, partnered with a battery manufacturer to co-design a VPP offering, which critically relied on the knowledge and resources of both parties. For a number of its other offerings, however, the core white-labelled energy retail product of the focal organisation constituted the vast majority of the value content. This reflects a general trend across the group, that a focal organisation’s *core product* was likely to involve the highest level of focal organisation control, relative to some of their more collaborative offerings.

The final customer value proposition of the core offering (and often the richness of the societal value creation underpinning its appeal) could, however, still not be completed without the partner. Nonetheless, the partner was less prominent in designing the value content. As such, where collaborative partners were less sophisticated market actors, such as community groups, the BM structure tended towards licensing. This is where the focal organisation “distributes licenses to other organisations that thereby obtain the right to develop, produce and/or sell certain value content” which may or may not be under the focal organisation’s brand (Brehmer et al., 2018, p. 4518). In the Organisation A case, only some BM activities are delegated (licensed), with each specific partnership left flexible, to allow the partner to develop their own capabilities as desired.

The open strategy of the focal organisation, also sometimes led it to be flexible to experiment with BM structure. Organisation B (energy data company), for example, in seeking to maximise the range of channels to new customers, utilised a licensing model, while the emerging directions tended towards a ‘symmetric multi-sided platform’, which is where “the focal organisation mediates an exchange of value content between at least two different customer/user groups, and thus connects market parties to allow exchange” (Brehmer et al., 2018, p. 4518).

'Reselling', where "the value content...is not developed in-house but sourced from somewhere else" (Brehmer et al., 2018, p. 4518) was less commonly observed. This may be because all these organisations entered the market to create and offer new, more sustainable alternatives that did not previously exist. Reselling is not a natural fit with this *raison d'être*. The only exception is Organisation C (community renewable energy co-operative), which in some cases uses its supporter database and associated strong brand and social licence as the key resource in partnerships with innovative new environmental product providers that support its social mission. Even in this case, however, it could be argued that Organisation C actually just forms a (less significant) link in another partner's make-sell model, given that Organisation C does not carry the role of processing the purchasing transaction.

These results broadly reflect existing findings that sustainable value creators use the same well-documented BM structures as other businesses (Brehmer et al., 2018, p. 4529; Rauter, Jonker, et al., 2017), make-sell models are most prevalent, and that energy sector organisations, in particular, often contain more than one BM structure (Brehmer et al., 2018, pp. 4519, Table 5).

If we consider the framing of 'value configuration' (Fjeldstad & Snow, 2018), interpretation of these OBMs was challenging, as they often did not clearly fit a single model of a value chain, value shop or value network.⁷¹ The innovation process underpinning the OBMs often resembles a value shop, in which partners – in close connection with a customer base – gather around an identified need to develop a bespoke offering. The focal organisation tends to be the coordinator of the value shop for their own product suite, although in some cases may also complete others' offerings. If the end product or service can be largely standardised with a fixed set of partners, it will settle into a new value chain structure. An example is Organisation A (energy retailer) which creates new bespoke products with partners and then deploys them through the partner's customer channels. Once designed, the product could be said to have a linear value chain.

If the BM can be replicated by substituting a partner for an equivalent organisation for each new project, then it more resembles a layered value network that "allows one

⁷¹ Refer to Section 4.4.3 for definitions.

service to use another service as its infrastructure” (Fjeldstad & Snow, 2018, p. 35). An example is Organisation F (renewable energy financing) which partnered with a community energy support organisation and local community group (the end customer) to develop a new financing product. While designed bespoke for that instance, it can then offer that product structure to its network of other communities or support organisations, but the same parties are not involved in every new iteration. The value network is also not always on the commercial side of the business model. For example, Organisation C (community renewable energy co-operative) involves a constellation of partners on the community benefit side of its business model. This was perhaps the most difficult to align with a given structure, and perhaps would be best described as an “open societal value network” (i.e., where the assumed goal is clearly societal and multi-stakeholder value creation, rather than mutual benefit from revenue generation).

In the context of these OBMs, ‘value configuration’ has an evolutionary element, akin to what is represented in the Wardley maps described in the previous section (5.3.1). In the genesis phase, value creation is more bespoke and is progressively standardised over time to industrialise the supply chain.

Perhaps the clearest finding emerging from the analysis of OBM structure is that OBMs rarely neatly fit a single classification, and that the open approach affords the flexibility to experiment with partner type and business model structure. This flexibility touches on the evolutionary nature of OBMs. In three out of the five sample cases mapped, multiple business model structures reflected an evolution of the BM. For example, Organisation B began with a clear, hardware-based, make-sell structure. It then branched into licensing as a product deployment channel to augment its core product and has since begun evolving towards platform-based structures through new partnerships. These new OBM structures may ultimately see earlier structures abandoned in time. Each structure equally supports its societally oriented mission but represents progressive experimentation to achieve greater scale and associated societal impact. This touches on two different approaches to OBM strategy, discussed in Section 5.3.3.

Business model content

BM content is one of the key differentiating aspects important to both market success and societal value creation across the sample. In all cases, a new market-differentiating value transfer was introduced, associated with the BM design, which enabled a new role for a novel BM actor. Diversifying BM actors was a common theme across the entire OBM sample. In four of the six cases (A, C, D and F) a prominent feature of these novel BM actors was a diversity of organisation types, particularly legal forms. These OBMs provide a formal role through which to embed NGOs, not-for-profit or other social enterprise parties in the value chain, alongside innovative new commercial entities with potentially disruptive products. In the remaining two cases (B and E) – both of which are clearly B2B organisations with a strong focus on customer (end-user) participation in energy services – the focus of BM actors tended to be restricted to the latter category. That is, new commercial entities with potentially disruptive products, whose focus is on engaging or aggregating customer participation. In these cases, direct participation in the BM was reserved for commercial agents acting on behalf of customers. This may well be due to the complex nature of the technology and concepts required to bring DER into the system. Thus, complex value chains or networks need to be constructed, while shielding the customer from the inherent complexity.

Business model governance

The legal form of the focal organisations in this sample was exclusively for-profit. While this partly reflects the relative prevalence of for-profit institutional structures operating at some scale and with a clearly established business model in the Australian and UK markets, it is also to some extent reflective of the peculiarities of self-selection. Several not-for-profits participated in the preliminary survey but were unable to allocate the time to a deeper case study. With strong societal value creation evident in many of the studies cases, successful societal value creation is clearly possible within a for-profit form. However, this study does not compare the sample with similar or equivalent not-for-profit structures and, thus, does not comment deeply on this aspect.

While all of the case organisations have a clear societal value proposition

underpinning their business, only one of the six organisations has a legal form of governance that enshrines this mission (Organisation C, co-operative). It could thus be considered that the mission in these other forms is at greater risk of mission drift or shift. However, none of the cases exhibited circumstances where the mission was strongly compromised by governance decisions, across organisations ranging from four to 25 years of age. This may well relate to the absence of two conditions. Firstly, no cases underwent a change of ownership, such as via a takeover, to which for-profit structures are vulnerable. Had such a circumstance occurred, the focal organisation would have become embedded within a larger organisation which may have different strategic positioning with regard to openness, potentially making it a less obvious OBM candidate. Secondly, the younger organisations are still fully or largely under the control of their founders or founding investors, and thus have not seen dramatic changes in leadership with which mission shift may more readily occur. A longitudinal research design would be needed to examine issues of societal value creation in OBMs under conditions of ownership or leadership change.

The strongest recurring governance theme is that every OBM case shifted the **locus of control** from powerful commercial or institutional players to smaller parties more connected to societal value creation, or to those affected by dominant tensions in legacy business models. Across the sample, shifts in the 'locus of control' were a common pattern and a prominent market differentiator. This can involve divulging control over what value is *created* and for whom. For example, Organisation A provided the underpinning infrastructure for new community-based energy retailers, allowing local actors to develop their own renewable energy enterprises and products. Or this pattern can shift control over how value is *captured*. In the same case, Organisation A shifts the locus of customer payment to eliminate profit from selling more energy, which increases flexibility for partner enterprises to design or promote a range of DER products. Referring back to the coding structure shown in Figure 29, these examples are shifting the locus of control over 'value creation' and 'value capture', respectively.

To some extent, this shift in control may reflect the sectoral context of the transition towards decentralised energy, which is inherently disruptive of incumbent power structures. Nonetheless, it is reasonable to expect that this characteristic may be

broadly reflective of OBMs with a SVC focus, as they tend to compete with incumbents via a more distributed and networked strategy to source skills and resources, and are supported by the broader trend towards digitalisation.

The beneficiaries of new forms of control included customers (4 of 6 cases), communities (3 of 6 cases), and disruptive commercial and not-for-profit partner organisations (6 of 6 cases). This links to the empowerment ethos that emerged from the analysis presented in Section 5.2.4. The distribution of power, agency and control in OBMs is discussed in more depth in Section 6.1.4.

A missing BM governance element that emerged as having a direct relationship with societal value creation outcomes – and that was absent from the prevailing coding analysis – is the source of capital. While the profit model of the focal and partner organisations goes some way to clarifying incentives in the business model, it is insufficient to explain ongoing dynamic influences. Across the studied cases, successful ongoing societal value creation rarely coexisted with impatient capital.⁷² A general pattern was that the closer and more connected the source of capital is to the organisation's societal mission, the more likely that societal value creation would continue to be prioritised. Smaller investors with a direct connection to the geographic region, to the products created, or to the customers being served were more likely to favour societal impact over short-term profit. Therefore, if a full business model dynamics assessment is not undertaken, but societal value creation outcomes are important, it is recommended to analyse and document the source of capital as part of business model governance considerations.

Summary

The alignment of incentives and benefits for different stakeholders within the business model design is critical to both the positive construction of societal value and the elimination of societal tensions. A range of BM structure, content and governance elements are employed to achieve this goal, which is broadly consistent with existing work on sustainable BMs. The source of capital, however, was considered necessary

⁷² The only potential exception to this is Organisation D (Enel) which saw strong increasing short-term returns to investors at the same time as societal value creation. However, shifting towards an impact investor base is also a key strategy, as discussed in Section 5.4.2.

to bolster prior coding analyses.

The two strongest patterns across OBM case organisations were shifting the locus of control over aspects of BM content to empower smaller and traditionally less influential actors in the system, and involving a diverse array of types and legal forms of BM actors, in service of a common systems change goal.

5.3.3 Open Business Model Strategy

Work on OBM strategy to date has largely focussed on the depth and breadth of the search for ideas (e.g., Saebi & Foss, 2015). This analysis, however, identifies a different dimension relating to the role of *strategy* in how openness is used, which dictates how OBMs evolve more generally. The dynamic processes documented in Section 5.2 capture the forces and conditions that shape societal value creation in OBMs. The BM design features documented in Sections 5.3.1 and 5.3.2 capture the types of structures, content and governance that these OBMs use to deliver societal value. This section on OBM strategy covers how BM variants are managed to further organisational goals over time.

As discussed in Section 5.3.1, all of the businesses examined had several subtly or radically different products and associated BMs operating at any one time. Some of these BM variants or iterations are ‘modular’:⁷³ that is, relatively limited in scope and confined to certain components of the BM. This may even be to the extent that from an abstracted view, the new variant could be characterised as essentially the same BM. Other BM variants are more ‘architectural’,⁷³ that is, extensive in their scope of change, and introduce new BM architectures (structures). Within the OBM cases, two strategic approaches to this multiplicity were observed:

1. **Evolutionary OBM:** new OBM variants are introduced as replacements for prior BMs, allowing the organisation to dramatically reconfigure its offering to meet industry needs. The introduction of new BMs thus represents a strategic evolution of the organisation. The clearest example is Organisation E, which has seen three distinct waves of BMs that moved from a linear

⁷³ Using the terminology summarised in Foss and Saebi (2017).

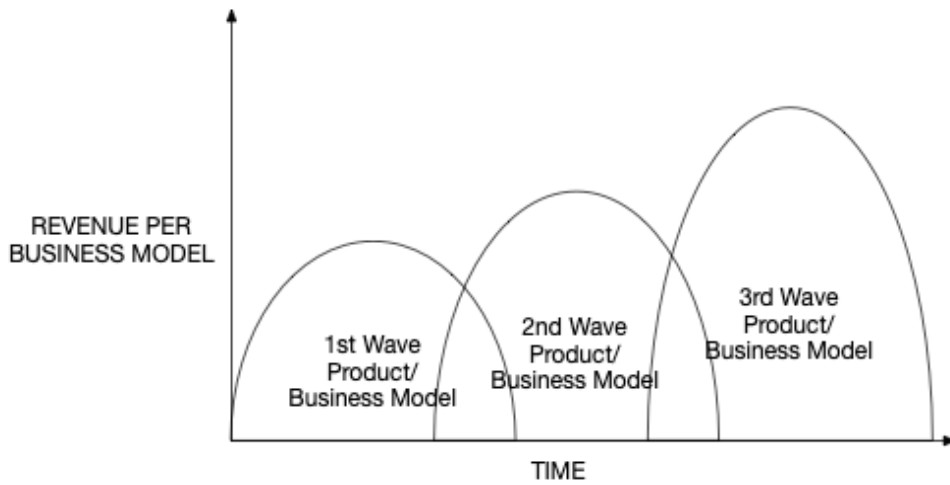
product design and manufacturing value chain, to software as a service, and ultimately to a transaction platform. This organisation considers itself a solution provider that seeks to solve the most pressing industry challenges. As the industry's understanding of the critical problems shifted, its areas of intervention shifted with it. And as each product wave was sufficiently different in terms of resourcing and organisational focus, a phase-out strategy was required. Older models are intentionally phased out when contracts expire, while new BM experiments take place. See Figure 65 below for a diagrammatic representation of an evolutionary OBM.

2. **Portfolio OBM:** new OBM variants are introduced as a complement to existing BMs explicitly to service a new customer base or social purpose, and build the diversity of customer types, channels and revenues. As represented in Figure 66, some of these BMs may successfully attract customers in a certain market segment before levelling out (BM1, BM2), some may seek a prospective customer segment then largely fail or stagnate (BM3), while others may show strong and consistent growth (BM4). The portfolio approach is representative of most of the sample, and is not unique to OBMs: most companies have more than one product, many of which operate on variants of the main BM. This is reflective of the general trend towards the development of BM portfolios seen in recent years (Osterwalder et al., 2020).

The distinction between evolutionary and portfolio approaches is not always clear: some businesses take a 'test and see' approach, allowing the results of new BM testing to direct strategy, which may then ultimately resemble an evolutionary or a portfolio OBM. Organisation B presents such a hybrid case that is experimenting with new, ideally more prospective business service-based revenue models, but which are tenable to operate in parallel with pre-existing product-centric make-sell BM. The strategic direction is to a large extent then dictated by the market success of each type.

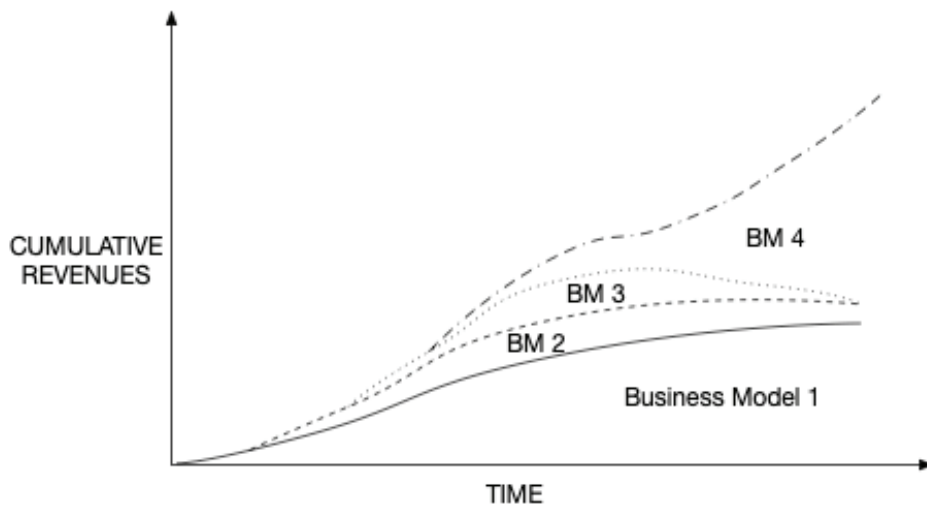
The choice of whether openness services a portfolio-based OBM or an evolutionary OBM is a question of strategy.

Figure 65: Evolution of Products and Associated Business Models



Source: Organisation E interview.

Figure 66: Portfolio of Products and Associated Business Models



Source: Author representation.

Terminologically, an evolutionary OBM strategy should not be confused with evolutionary business model innovation (BMI), which refers to more incremental innovation that is new to the firm, but not new to the industry, and is limited in scope to certain components of the business model (Foss & Saebi, 2017). The proposed framing of an evolutionary OBM strategy does not comment on the scope or novelty of innovation, but on how the BM change is incorporated into organisational

strategy.

5.4 Significance of Context

This section presents the results addressing research sub-question 3: “How does a business’ specific context shape the relationship between the open business model and societal value creation?” Put another way, how important are contextual settings – such as the nature of the business, its organisational history, its position in the value chain, or its geographical scope of operations – in shaping societal value creation?

Partial answers to this question have already surfaced in previous sections.

Consistent with previous research, sustainable *OBM designs* demonstrate huge heterogeneity, with each value transfer being rooted in the contextual specifics of the organisational relationship. Sustainable *OBM dynamics*, on the other hand, were largely able to be described through the CLD with limited consideration of specific contextual circumstances. However, some dynamics were only observed in organisations with certain characteristics, such as the transparent governance communication loop (L2) which operates where larger investor bases are present. Other distinct or unique variables were only evident in larger, more complex organisations, those with legacy business models containing societal tensions, or locally rooted organisations.

To conclude with respect to the question of the influence of organisational context, two comparative case examinations are explored. The first focuses on the dimension of the geographic scope of operation. This is undertaken through a more comprehensive case study of one organisation with a strong ethical framework and national operation, and then compares its value creation outcomes to another organisation operating with a broadly similar function that is locally rooted. The second focuses on organisational history and legacy BM influences. This is explored through a comparison of an organisation that has ‘transitioned’ to sustainability and balanced societal value creation, to the rest of the cases that are ‘born sustainable’.

5.4.1 Geographic Scope

Background

Organisation F is a renewable energy financing organisation operating in the UK energy sector, servicing a market niche between small-scale renewable energy solar and wind power, and larger-scale strongly commercial renewable energy facilities. While having less than 20 staff, it has been operating in the market for 25 years. It is a for-profit company with strong and transparent governance, with a mission to create buy-in to the energy transition by facilitating smaller investors to fund specific, tangible renewable energy projects that create strong value in the communities in which they operate. The organisation emerged from individuals with industry knowledge and experience seeing a market gap for small equity investor finance and an opportunity to strengthen the connection of citizen investors to the renewable energy movement. While there were relatively open lines of communication between the community-owned renewable energy sector owing to personal connections of the founders and investor base, for a decade Organisation F ran a relatively traditional project financing model with no prominent openness in its business model structure. This gradually changed, with increasingly complex market dynamics shaped shifting competitiveness of centralised versus distributed energy technologies. As such, a higher degree of innovation was required to fulfil its mission, through identifying and funding viable projects. An increasingly open approach to business model design has been taken in recent years in order to bring new projects to market, using new partnerships to bridge emerging skills, resourcing and relationship gaps. The organisation's tendency towards a greater diversity of technologies, skills and resources follows the general industry trend of increasing complexity of both the policy environment and the underlying structure of the energy system as it transitions from a large, centralised one-way system to a diverse, distributed two-way system. As a representative of Organisation F notes, this has increased the need for, and rate of, BM change:

In the past, there wasn't a quick need for [business model] change as it is now. This is because of the...[shifting policy environment]...changing the way projects are financed... I definitely think there is a need for accelerating [business model] change

now.

Partnerships as bridges to community value centrality

One of the defining features of Organisation F is its support of a scale-based niche of small-to-medium-sized renewables, commonly located within or close to communities. To service this niche it needs to closely understand the needs of community energy groups and community site hosts, who are generally not commercial in their orientation or mode of operation. This presents a substantial challenge, as the speed of business and community decision-making is very different. For most commercial organisations this would present an insurmountable barrier to working with community actors, and indeed this factor was observed as a key impediment to the stronger engagement of Organisation A (a new entrant energy retailer) with community energy groups.⁷⁴ However, Organisation F's foundational purpose and associated ethical framework have a focus on empowering smaller actors in the energy system. It sees its role as acting as an interpreter and translator of community needs in commercial discussions: "if we are in such a [larger commercial] project, bringing community in, we'll sit in those Board meetings and make sure that we're protecting the community interests...or [the interests of] community investors".

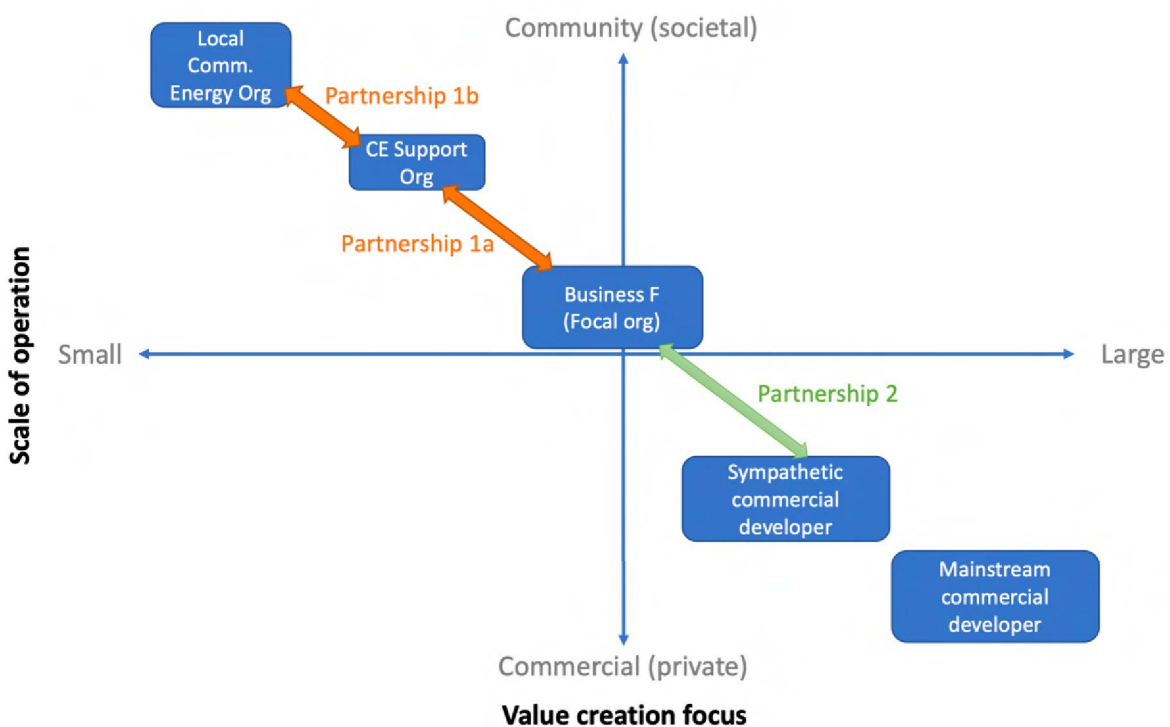
However, taking a closer look at two particular business model innovations enables us to further unpick the notion of Organisation F's partnerships acting as bridges between community and commercial institutions. In setting out to create a new financing model that enabled communities to take ownership of previously commercially owned renewables assets, the final project structure required it to connect multiple separate entities. Each entity operates at a different scale and has a different balance between public and private value creation. These differences are represented in the relative positioning of the partners on the matrix shown in Figure 67 below. Organisation F is a for-profit organisation that operates commercially and seeks private returns for its investors, but through its mission, investor type and associated market niche retains a firm focus on community/public value creation. Organisation F is thus shown about halfway up the vertical axis of the matrix. In

⁷⁴ See the 'rapid decision making' enabler in the discussion of the dynamic capability enhancement loop (L4) in Section 5.2.3 for further context.

seeking to provide finance to local community energy organisations (generally co-operatives), it required a partnership (Partnership 1a in Figure 67) with a community energy support organisation – a co-operative of co-operatives – to fully understand and translate the project needs of the community groups. These needs were only elucidated and developed after the support organisation had undertaken at-risk or pro bono work to help shape a project (Partnership 1b). The community energy support organisation tends to facilitate projects of smaller scale, and further toward community value creation in Figure 67, which also tends to be embedded in their not-for-profit or for-profit community co-operative legal structures. As the community energy support organisation partner notes:

We're less...able to move quickly...because...we've got to go through a process of decision-making that takes longer. We can bring some community stake in, but [the focal organisation] can move faster...[with]...a much better up-to-date sense of the commercial market at the moment. – Organisation F partner

Figure 67: Selected Organisation F Partnerships Mapped on Scale/Value Centricity Matrix



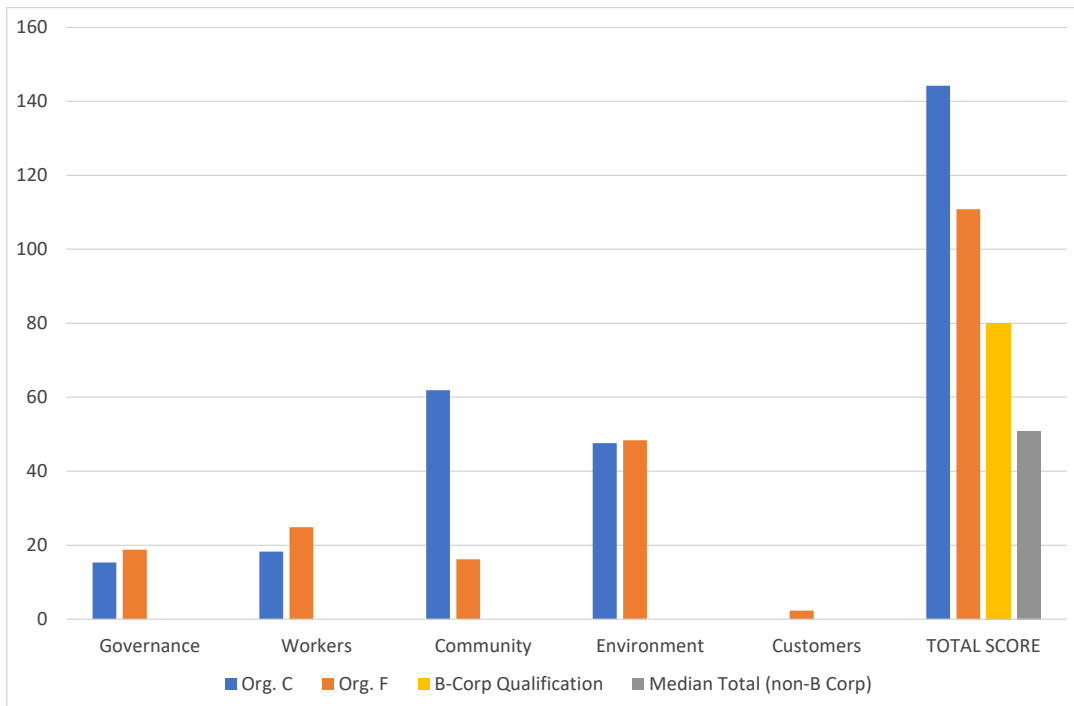
Source: Author representation.

For various other products/projects, Organisation F also partners to bring in the functions of smaller-scale 'sympathetic' commercial developers that operate in a strongly commercial environment (towards the bottom right of R3.1; Partnership 2). Such organisations are open to the ideals of community participation, but it is doubtful they could ever work directly with community groups as the speed of operation and decision-making is so different. In this way, Organisation F's value chain spanning partnerships create opportunities to combine resources from diverse parties with polycentric forms of governance and value creation focus. In such cases, the OBM could be viewed as a value chain 'bridge' as a means to allow deeper, more community-centric value creation than would have otherwise been possible.

Tradeoffs between societal value centrality and scale

It is difficult to directly compare societal value creation between case study businesses because of the diversity of markets, geographies and niches in which they operate. Nonetheless, if we consider Organisation C (Australia) alongside Organisation F (UK), we have two relatively small organisations that were 'born sustainable', with strong and transparent governance, supporting similar niches of democratised investment in renewable energy infrastructure. Both of these businesses are B-Corporation (B-Corp) certified, which applies a consistent methodology to scoring desirable social (community), environmental, governance, worker and customer characteristics. Their relative B-Corp scores are shown in Figure 68 below. Both are extremely strong performers within their sector (at least 35% above the minimum B-Corp benchmark shown in yellow) and received the 'Best for Environment' awards in 2021 and 2022. Both businesses score similarly on most category measures, with the exception of "Community", for which Organisation C scores much higher (and consistently receives 'Best for Community' and 'Best Overall' awards as a result). Both organisations employ a similar community benefit fund in their business model and deploy at least 3 of the 4 mechanisms of creating societal value identified in Section 5.2.2.

Figure 68: Organisations C and F Compared on B-Corp Scores



Source: Author representation of data from B-Corp (2021).

Organisation C shows a level of collaborative activity unmatched across the sample (refer to Figure 55 showing partnerships per organisation). This was historically forced by the challenging and unpredictable energy policy environment in its early years, resulting in an internally lean but elaborate external partnership structure. Organisation F has evolved to a more open structure in recent years. However, the most substantive structural difference between the organisations is in the geographical scope of their operations. Organisation C has a mission to demonstrate a positive model of renewable energy for community benefit within a particular geographic region. Its theory of change seeks to create a depth of societal value in a local area and to seed replicants in other regions through the development of knowledge commons resources and telling its story through communications and professional and community networks. This approach is more common to non-commercial, often not-for-profit community energy projects across the world. Organisation F, with its more commercial investment orientation, is more typical of the vast majority of businesses: it provides services across the whole country, and its scaling occurs through expanding its direct operations via growing investment capital

to catalyse greater community buy-in through more projects in more places.

This raises the question of whether it is, in fact, possible for a nationally scalable renewable energy business to create the *depth* of societal value observed in Organisation C. When reflecting upon understanding and servicing community needs (albeit as a multinational in developing country contexts), a representative of Organisation D (Enel) highlighted that the highest priority for a community might not actually be energy-related. Thus, while an energy company might wish to offer community benefit through its core services or expertise, community needs may be more diverse. Similarly, openness provides Organisation D (Enel) with solutions to manage community concerns regarding new renewable energy projects:

You have a lot of different situations to manage to optimise the use of water, waste, emissions and engage the local community. So how can we get solutions? We established a great network of...social enterprises, NGOs, universities, that we engage locally.

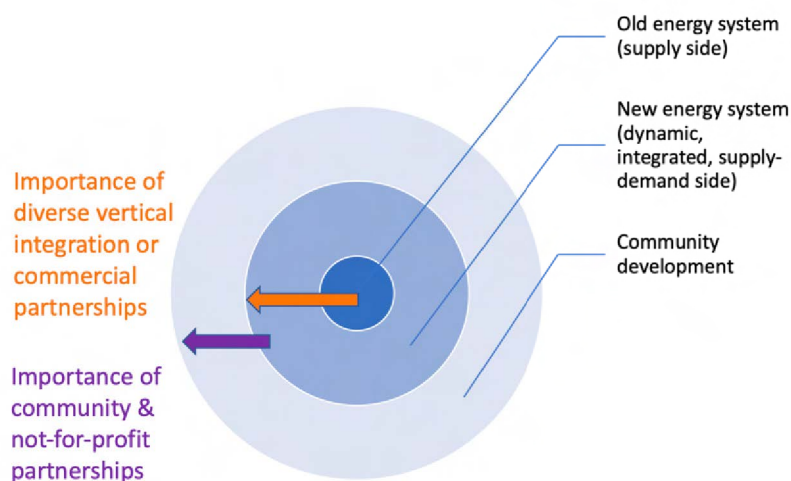
That is, Organisation D (Enel) explicitly uses a partnership model to connect other organisational types to access the diversity of skills, resources and community relationships that enable the depth of value creation required. This is likely to increase as the intersections between different community services and infrastructure types – such as between energy, water, waste, air quality and transport – grow, and greater opportunities for synergies emerge. Such observations across Organisations A, C, D and F are generalised in Figure R3.1c below. In the legacy, centralised one-way energy system, a relatively narrow, specialised set of skills and resources are required, and the diversity of resources could be managed through standard contractual relationships. This is represented by the inner dark blue circle.

As the complexity of the energy system increases with higher penetration of renewable and decentralised energy resources, with two-way energy flows, there is a greater need for new specialisation that is more difficult to manage within a single organisation. This is the technologically driven ‘push’ of the market towards BMs that combine a network of specialised organisations through OBMs analysed in this sample, generally on a business-to-business level. These broader needs can also potentially be serviced by a vertically integrated BM, depending on the scale and

resources of the focal organisation. As a multinational, Organisation D has, over the past decade, dramatically expanded the diversity of capabilities it can deliver in-house in response to the complexity of market needs, at the same time as employing an open network of partners. This extension of resource diversity to service the breadth of customer needs through commercial partners is shown in the orange arrow in Figure 69.

But to then take the next step and seek to meet the depth of community, or ‘place-based’ societal value creation, requires local relationships, contextual familiarity and cross-sectoral expertise. This can only come with a diversity of organisational types that are operating in that region, and most commonly involves social purpose-oriented not-for-profit or hybrid organisations that are strongly rooted in local societal value creation. This is represented in the purple arrow in Figure 69. One of the four societal value creation mechanisms (Section 5.2.2) and one of the four virtuous feedback loops identified (Section 5.2.3) involves the choice of partner type, and ‘activating’ the complementary societal value creation through a linked revenue stream or other mechanisms.

Figure 69: Diversity of Skills and Resources Required to Create Value in Different Systems



Note: Larger circles represent greater skill/resource diversity. Source: Author representation.

Where a business’ value creation focus is geographically rooted, the boundary between energy-related value creation blurs with community development more

generally. Indeed, representatives of Organisation C view themselves in this way:

[Our business is] community development. That's what it is...the thing that's always a challenge is that we're fringe economically, but because of the breadth of what we do, people really... they really attach to us... I think the weak link's always the economics, but the breadth means that there's a whole lot of other social factors going on that, that I think surpass the economic challenges.

Thus, a depth of place-based value matters, but so does a breadth of value creation via market reach and economies of scale. The full value of the energy transition cannot be achieved without both depth and breadth/reach. Organisation C's comment above highlights the enduring challenge of pursuing local development with little financial payback, with much of their activity being 'fringe economically'. In the absence of a mission-locked co-operative governance structure, it is unlikely this activity could take place given the financial stresses the organisation has endured over the past decade.

If we were to consider these as two distinct 'types' of societal value creation – deep and broad – their characteristics are compared in Table 7 below.

Table 7: Deep Versus Broad Societal Value Creation

Societal Value Type/Dimension	Characteristics	Pros	Cons
Deep	Place-based and contextually specific/interpreted, relationship-based, incorporates polycentric governance	Diverse and well-matched to local needs	Difficult to directly replicate or apply in other locations
Broad	Often technology-based and environmentally focussed, value accrues to society more broadly (such as emissions reduction)	Scalable across geography via markets	Generally applies in a single domain (e.g., energy)

Source: Author analysis.

Analysis of the suite of OBMs covered in this research suggests that an open partnership-based way of working enables both types of societal value creation to be operationally connected and delivered within the one business model. Figure 70 below shows a conceptualisation of how deep (place-based) and broad (market-scalable) societal value creation relate. While the deep value creators maintain relationships, knowledge and institutional forms suitable to the task of creating contextual value in a specific geography, the broad value creators provide scalable supply chains to apply (often technological) innovations in local contexts. While this representation may not always hold across all sectors, it is relevant (to varying degrees) across cases A, B, C, D, and F.

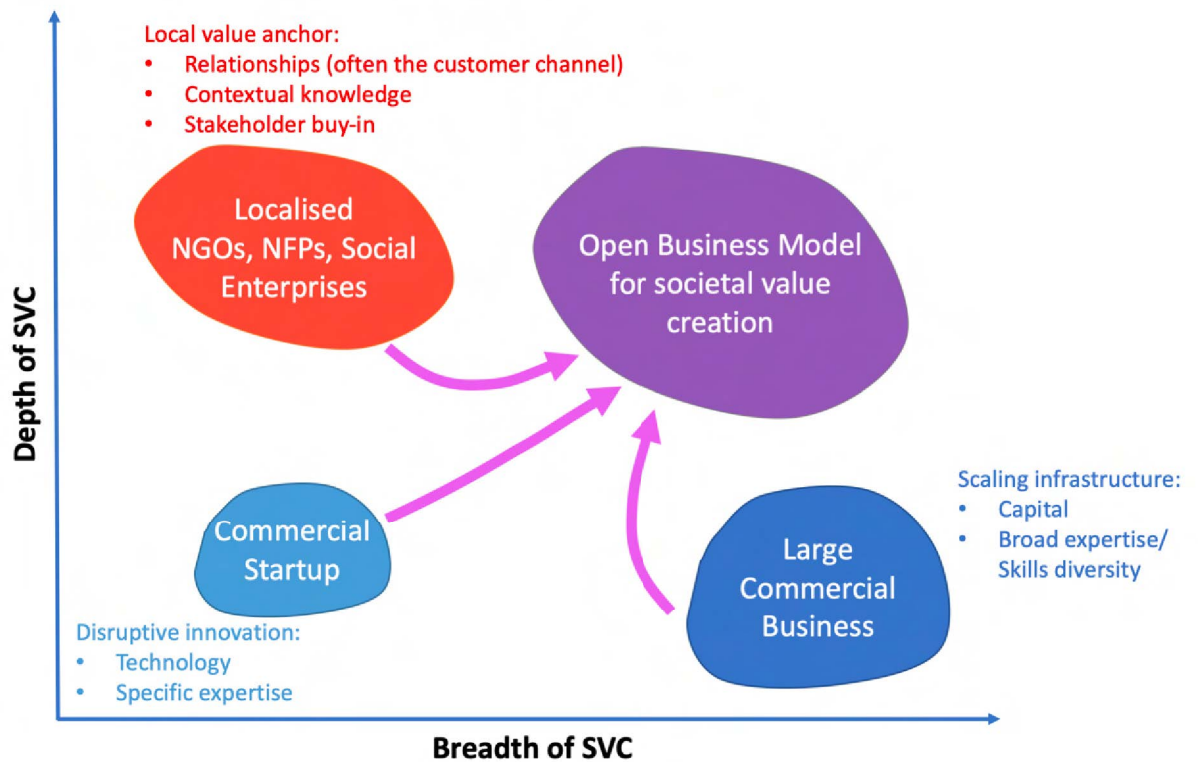
Figure 70 below shows a conceptual representation of how different types of organisations can be brought together in an OBM to combine a depth and breadth of societal value creation in one business model. The broad value creators are the large commercial businesses in dark blue, which bring scaling infrastructure, capital and momentum. The deep value creators are the geographically rooted NGOs, not-for-profit and social enterprises in red, which act as the local value anchor, bringing contextual knowledge, relationships and stakeholder buy-in. The critical role of societally oriented partners is consistent with social innovation literature, which has suggested that “social organizations are an important device to social innovation process because they can play an important mediating role between ‘sticky’ context-specific user knowledge, and complex forms of technological knowledge” (Martins & Bermejo, 2015).⁷⁵ Commercial startups in light blue bring disruptive innovation that is yet to achieve deep or broad societal value creation. Such organisations are most commonly acquired or integrated within the BM of large commercial organisations to achieve scale. If all three are brought together within an OBM, this offers the potential to combine broad and deep value creation.

Any of the three actor types can be the catalyst for societal value creation activities. In the studied cases, the catalyst is always the focal organisation, at least for its core offering, but in some cases the organisation may also act as a secondary partner completing a resource need in another organisation’s OBM in which that partner is the catalyst.

⁷⁵ Recounting the work of Chalmers (2013).

Other stakeholders like governments, regulators, academia or affected community representatives may also participate but are not always primary resource contributors so are not shown in Figure 70 (ii) for simplicity.

Figure 70: Conceptual Representation of Deep and Broad Societal Value Creation in OBM Partnerships



Source: Author representation.

While observed across these OBM cases, for commercial businesses to play the role of catalyst and empowerment agent for other organisations is not without its challenges. As most prevailing institutional business structures are solely profit-oriented (in that this is this sole *legal* purpose), pursuing societal purpose remains an increasingly marketed but not necessarily legally or operationally prioritised concern. The desire to connect to a network of place-based societal value creators also requires a willingness to forgo control where commonly an ‘empire builder mindset’ persists, and for a business to successfully achieve this requires an ‘ecosystem-builder mindset’. Organisation C offered an example of where a power asymmetry exercised in a partnership with a larger energy retailer resulted in partnership failure:

[our retail partner] ... bought [a fossil fuel generator] and they started really not wanting us to be vocal about...the renewable energy target reviews that were happening. We learned from that experience, because we were basically fighting with them...we [now] have a [cancellation] clause in our contracts...[to maintain our] independence; our members like that. (C43)

This case demonstrated how coercive control, associated with a command and conquer mindset, is incompatible with a place-based partner value creation approach. Organisation D (Enel) initially sought to acquire and control new energy technology startups via a venture capital style model. They eventually found, however, that less-controlling commercial partnerships better allowed their partners to scale up via Enel's global business network. This was because the traditional approach of taking equity had negative consequences:

We were sabotaging our acquisitions with our heavy governance; we were putting a brake on initiatives that made us acquire the company in the first place. We rather support them from a technology and development perspective and let them [be] free to innovate, without necessarily imposing our ideas. (Garcia & Monteiro, 2019, p. 15)⁷⁶

While the Enel example is perhaps driven more by the goal of maintaining the smaller partner's speed of innovation rather than necessarily its ethics and values, a negative association with controlling power dynamics is common in both cases. This is not to say that mergers and acquisitions cannot (or do not) happen in these OBM, but rather that acquisition is not the assumed end goal. For Enel, company acquisitions or direct investment in startups was narrowed to circumstances where the focal company was lacking the core technology or expertise in a strategic new market (Garcia & Monteiro, 2019). For example, it acquired an electric vehicle charging startup to accelerate its entry into an emerging market that complemented its mission.

In a traditional standard acquisition, the commercial startup is *absorbed* into the large commercial business. In an OBM, on the other hand, the commercial startup (light

⁷⁶ This quote comes from a secondary data source, as interviews were supplemented with pre-existing case study materials for Organisation D (Enel) in which similar topics were covered.

blue in Figure 70) is *connected* to the resources and assets of the large commercial business (dark blue), and the relationships and skills diversity of the deep value creators to create a partnership-based innovation ecosystem that harnesses the advantages of different organisational types for different circumstance or functions. Ultimately, the value creation outcomes seek to achieve a balance of breadth and depth.

Summary

Within an OBM, market-scalable businesses can offer a 'breadth' of societal value creation that can be applied across a range of scales or regions. Geographically rooted organisations can allow greater connection with local needs and can offer a 'depth' of societal value creation that is tailored to the local context and commonly incorporate a mix of NGO and not-for-profit organisations. Delivering diverse local, geographically relevant community value requires a breadth of resources and skills for which a partnership-based OBM is suited. Combining both types of societal value creation via collaborative networks of diverse organisational types can offer a means of achieving deeper community value creation at scale.

However, as the operating speed of commercial and community organisations are so different, successful partnerships are challenging and can require (often not-for-profit) intermediaries to understand and translate community needs.

5.4.2 Transitioned Versus Born Sustainable

Background and societal mission

Organisation D (Enel Group) is a multinational energy company operating across energy retail, generation, distribution and customer DER. It has almost 67,000 staff across more than 30 countries from Europe to Latin America, North America, Africa, Asia, and Oceania (including operations in both Australia and the UK). Enel was founded in 1962 as Italy's national entity for electricity and progressively became more global as it grew to acquire many subsidiaries, including a major utility in Spain, a renewable energy development and asset ownership business (Enel Green Power), and customer DER business (branded as Enel X).

Its foundational purpose was thus rooted in the provision of electricity as a public service. Enel has owned many types of generation, including coal, gas and nuclear. With the establishment of Enel Green Power in 2008 to concentrate its renewable energy assets, it became a major player in renewable energy generation. In 2022, Enel claims to be the world's largest private renewable energy player (Enel X, 2021).

The success of Enel Green Power saw its management team assigned to take over the broader Enel Group in 2014, which marked the beginning of the refreshing of its mission and new sustainability focus. Wishing to expand globally, particularly into emerging markets such as Latin America and Africa, they were regularly dealing with development banks such as the World Bank or the International Finance Corporation (IFC), for whom sustainability was high on the agenda. As such, the new management recognised the need to go beyond the marketing-centric sustainability norm of CSR at the time. This led to Enel enacting a creating shared value (CSV) approach, based on the Harvard Business Review article by Porter and Kramer (2011). This strategic shift ultimately took the form of its 'Open Power' strategy, which integrally combined the functions of innovation and sustainability, and set out to integrate sustainability into its business model by rethinking the value chains across its business lines.

The stated vision and approach of the organisation on its website is "Open Power for a brighter future: we empower sustainable progress" (Enel Group, 2022). While somewhat generic, as may be necessary for such a diverse company, this vision does appear strongly embedded in its sustainable long-term value creation approach (see Figure 71 below), accounting and reporting (Enel Group, 2020). The more legally oriented version within its ethics policy gives an implicit prioritisation of stakeholder value creation and distribution, beginning with customers, then shareholders, then broader society:

At Enel, our mission is to create and distribute value in the international energy market, to the benefit of our customers' needs, our shareholders' investment, the competitiveness of the countries in which we operate and the expectations of all those who work with us. Enel serves the community, respecting the environment and the safety of individuals, with a commitment to creating a better world for the future generations. (Enel Group, 2018, p. 5)

This framing is consistent with most of the ‘born sustainable’ case organisations with traditional private company structures, and the US Business Roundtable Declaration, which reinforces “a fundamental commitment to all of our stakeholders” (Business Roundtable, 2019), as distinct from profit maximisation from investors. The only deviation from this framing across the cases is Organisation C, for whom its community commitment forms part of its legal constitution in recognition of co-operative principles under the Co-operatives National Law.

Figure 71: Enel’s Sustainable Long-Term Value Creation Approach

2020-2022 Sustainability Plan



Source: Enel Group (2019). Republished with permission of Enel.

Variations in system dynamics

With respect to the system dynamics of societal value creation captured in the CLD (Section 5.2), there are four main areas in which Enel’s approach is distinct or unique, relative to the other smaller and younger OBM case organisations. These are:

addressing societal tensions, broader stakeholder listening and co-design processes, structured open innovation mechanisms (part of agility enabling processes), and investment in organisational culture shift.

Each is elaborated on below, and the codes for the CLD variables are also provided for reference if the reader wishes to explore the online interactive CLD or check back on the related discussion in Section 5.2.

Addressing societal tensions (variable 58)

The core distinction between transitioned and born sustainable organisations is the legacy societal tensions within the business model. Organisation D has numerous coal and gas electricity generation assets in its portfolio, given its history as the national vertically integrated utility of Italy in a time well before renewables became technically and economically viable. Given this historical context, it was the only OBM organisation in the sample that carried such strong societal tensions. The key to its approach to these tensions is a transparent and unequivocal commitment from executive management to phasing out these resources over time, with short-term goals aligned with a 1.5-degree warming climate trajectory and a track record of successfully delivering on previous 2.0-degree warming climate targets for 2020.⁷⁷ This is consistent with Chesbrough's early observations that "generally speaking, making fundamental changes to a company's business model requires clear commitment and support from the top" (Chesbrough, 2007, p. 27).

The 2020–2022 Strategic Plan documented a coal phase-out to less than 1% of total energy production by 2030 (Starace, 2019), which is supported by clear, near-term actions such as phasing out half of its coal power plants between 2019-2022. This commitment was recently accelerated in the 2022–2024 Strategic Plan, which shifts full net-zero decarbonisation from 2050 to 2040, moves forward an exit from coal to 2027, and commits to an exit from gas generation *and retail* by 2040 (Enel Group, 2021). The planned exit from gas retail is a level of commitment not yet seen by any integrated Australian energy retailer.

While many companies put forward long-term targets and have advocacy and lobbying positions that are not compatible with their public position, this is not the

⁷⁷ The organisation reported comfortably meeting its 2020 SBTi 2.0-degree target.

case here. Influence Map, an independent data source on corporate transparency on climate change action and lobbying, rates Enel's direct lobbying performance fourth out of 126 companies,⁷⁸ with generally consistent and positive positioning on climate action (influencemap.org, 2021a). Enel also ranks fourth out of 54 rated large companies for disclosures regarding the consistency of the lobbying positions of industry associations of which it is a member, that may not be fully aligned with global climate goals (influencemap.org, 2022). While there is clearly still some room for improvement, Enel claimed that through its CEO's leadership term as Chairman, the Euroelectric association "committed to reaching a zero-carbon emissions electrical energy mix in Europe much earlier than 2050, and to increasing energy efficiency and the electrification of energy demand in order to mitigate the effects of climate change" (Enel Group, 2019, p. 43). This is supported by an independent analysis of the association's positioning, which now has "strongly positive" climate messaging and "has become increasingly positive on a range of regulatory strands since 2017" (influencemap.org, 2021b). Thus, it appears that Enel's public positioning, lobbying and advocacy is largely consistent with its corporate direction towards sustainability and the elimination of its legacy business model tensions.

There are two noteworthy issues regarding the phase-out of legacy business model tensions.

Firstly, where legacy assets form a large part of the company's revenue generation, Enel highlights that it is vital to replace those assets with alternative revenue streams. If this does not occur, the shift is unlikely to be acceptable to shareholders: "first of all, you have to apply innovation to lower your emissions...and then find a solution to match the fact that you are exiting from that business model, and to bring something different [in its place]."

Secondly, just selling fossil fuel assets removes them from your carbon accounting ledgers, but it ultimately does not solve the carbon problem unless the asset is actually removed from operation. Yet retiring assets also creates unwanted societal side effects, such as unemployment in communities historically reliant on operations.

As a representative recounts:

⁷⁸ With a score of 83%, Enel rated in the "B" performance band, which was the highest-ranking band for a large corporate at the time of research.

The primary idea...is trying to...shut them down or to rethink that asset...but in this picture, we don't want to lose [even] one job...we want to maintain those people that are working in that conventional form of energy, rethinking...the model. Selling is easy because you are moving the problem from you to someone else...but it's not the right solution at the very end. And this is something that we try not to do. –

Organisation D interview

Note, however, that in Italy there is a national government agreement in place, with all four coal-plant operators committed to close all of Italy's coal-fired capacity by 2025 as part of the country's National Energy and Climate Plan (Baratti, 2020).

Thus, from a systems perspective, the national policy debate has no doubt influenced Enel's organisational position on coal closures. This is in contrast to the Australian policy debate, for example, where (at least up until June 2022 election) the Australian Government opposed any closure of coal-fired power before end-of-life (Morton & Murphy, 2022).

The Enel outcomes were achieved by applying its open innovation process not just to *new* value creation, but to the decommissioning process associated with reorienting its legacy business model elements. This is best encompassed by what was originally trialled as the 'Future-e' project:

Future-e now is implemented everywhere [across the company] more or less, with a different name, but the idea was taking into account 21-22 plants [for decommissioning], and try to rethink these...so in most of the cases, you can switch to new industrial solutions, commercial solutions, or training centres...but always with the idea of doing it with people – in a co-design perspective – not alone. –

Organisation D interview

Broader stakeholder listening and co-design processes towards value-sharing (variable 57)

The Future-e process mentioned above is an illustrative example of the broader stakeholder listening and involvement undertaken by Organisation D (Enel). This is distinct from other businesses whose open innovation processes and partnerships are more commonly bilateral, or within professional collaborations, such as funded research innovation projects. This narrower engagement may partly reflect smaller,

less complex value chains or smaller scales of operation, although elements of wider community engagement are also visible in Organisation C (renewable energy co-operative) and Organisation F (renewable energy investor and asset manager). All three businesses have some place-based connections given the ownership and operation of physical energy assets. Thus, the nature of the assets and activities in the value chain has an influence on the breadth of the stakeholder base that needs to be involved to adequately achieve balanced value alignment.

Organisation C recounts how, from its beginnings of very broad community involvement, the engagement approach shifted over time:

when everything was really, seriously impacted by the market and politics, we basically were like: “We’re not going to do community engagement [beyond the member base]. We’re just going to survive”...then...to get stuff done...we then started to...draw in and rely on professional collaborations.

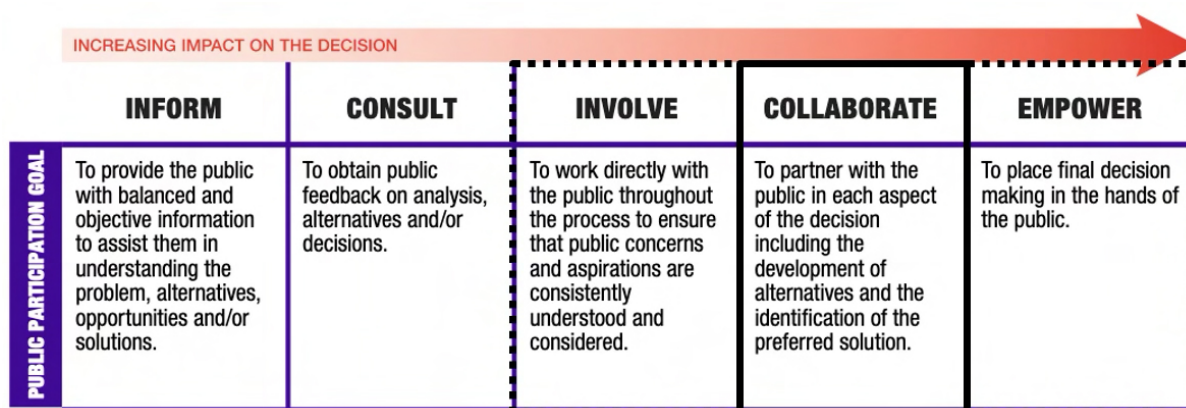
This reflects the real, time cost of partnership and engagement reflected in the OI efficiency loop (L6, in Section 5.2.3).

The co-design process also implies genuine ideas and knowledge exchange between parties, rather than just consultation. While originally and most commonly applied to public participation in community engagement rather than explicitly in business processes, the depth of stakeholder engagement is often analysed with reference to the spectrum of public participation (International Association for Public Participation, 2018). The spectrum provides a framework for understanding the legitimacy and rationale for different levels of involvement. The engagement depth in business model co-design processes that create genuine societal value tends to most closely reflect the “collaborate” level, shown in Figure 72. In some more limited instances, involvement may be shallower, at the “involve” level. Regarding OBM *partners* that contribute specific resources within an OBM, participation tends to extend to the ‘empower’ level, at least in the definition of the roles and resources that the partners bring to the process.

It is relatively uncommon, however, for non-contractually involved stakeholders to have the final decision-making power as implied at the ‘empower’ level. These are stakeholders that would not be considered to be formal ‘partners’. Organisation C is

the exception: in working with other local development actors, it does grant decision-making power to local stakeholders. However, these decisions do not materially affect the financial circumstances of the focal organisation, as they relate to the delivery of the community benefit financial allocations, which are not directly tied to revenues.

Figure 72: Depth of Participation in Co-Design



Source: IAPP (2018).

Structured open innovation mechanisms (within variable 08)

Organisation D notably uses a broader range of open innovation mechanisms than other organisations in the sample. As reported in Section 5.1, case organisations participated in an average of 7.7 open innovation mechanisms (refer back to Figure 31). Organisation D was the strongest of the sample, participating in all 13 listed open innovation activity types. This reflects the scale and diversity of the business activities of a multinational utility covering the breadth of energy sub-sectors, but also the high degree of experimentation within the open innovation paradigm. The confluence of these factors has led Enel to create a much more defined set of processes and formal internal or external collaboration structures. This speaks to the greater organisational need for structure and process to design and deliver OBM's at scale. The specific mechanisms utilised include internal and external online crowd-sourcing platforms, a global network of Innovation Hubs involving startup incubation labs, a design-thinking based Idea Factory, internal innovation communities, structured supplier innovation workshop processes, industrial and academic partnerships and an IP Competence Center (Garcia & Monteiro, 2019, p. 24).

While others in the sample predominantly rely on deep bilateral relationships and industry innovation network participation, Enel's approach adds crowd-sourcing – both internal and external – as a less personal mechanism to allow ideas to be brought to organisational attention. This diversity in the breadth of the idea search appears to be core infrastructure for scaling OBM's in Enel's case.

Investment in organisational culture shift (variable 55)

Its transition to both sustainability and openness at the same time represented a substantial change in organisational operating procedures, particularly given these approaches had to be applied across many subsidiaries. As such, a strong investment in organisational cultural change was required:

Innovation is not only technical, we had very good people inside the company that are very well skilled and trained – a lot of competencies as far as energy and electricity – but we needed a different culture, different processes; we needed startups [to get]...smarter, faster, that can change completely the way you are doing your business. – Organisation D interview

It needed to change the way it approached collaboration, risk-taking and failure to shift the structured mindset of a national risk-averse monopoly utility. This investment in culture change is consistent with early observations of the shifts recognised to be required by large organisations in adopting open innovation practices (Chesbrough, 2003).

But the shift in innovation also needed to align with new organisational purpose and values to service sustainability goals:

We needed to push the sustainability issues into our innovation domain, in order for innovation to really have the right drive in our industry...sustainability is needed because without it, innovation cannot fly in an energy company. (Garcia & Monteiro, 2019, p. 8)

This statement underscores the integral combination of innovation and purpose. When reflecting upon the extent to which the necessary cultural shift had been achieved, an Enel representative noted that:

from a cultural approach, we try to put it inside the value chain... To bring that change...[required us to explain] that sustainability is not something that has been done and managed by a central unit...but it's totally embedded into the business. So it's part of the daily activities of the business people. And they need support [of the innovation and sustainability team]...to help and support them to give value and to measure the impact of being more sustainable. – Organisation D interview

This statement clearly identifies the link between cultural change and the enabling investment in structured tools and processes.

Value reinvestment

Section 5.2.3 described the main value reinvestment (reinforcing) and value extraction (balancing) loops that operate concurrently in for-profit enterprises. Enel's apparent success in the creation and distribution of value across its stakeholder base analysed throughout this research is closely tied to its strong discovery of new value. As shown in Figure 73, this success is reflected in a rise in the 'value creation spread' since the organisation's adoption of an open sustainability-based strategy in 2015 (left-hand side). The strong rise in shareholder returns of 106% over the same period (right-hand side) highlights that both loops are clearly at play. However, while it is true that organisational governors must decide how to reinvest or distribute value, there is a risk of this representation being interpreted as a zero-sum game. Doing so would miss a key component of the dynamics that have delivered Enel's success.

Figure 73: Corporate Value Creation and Capture Metrics of Organisation D (Enel)



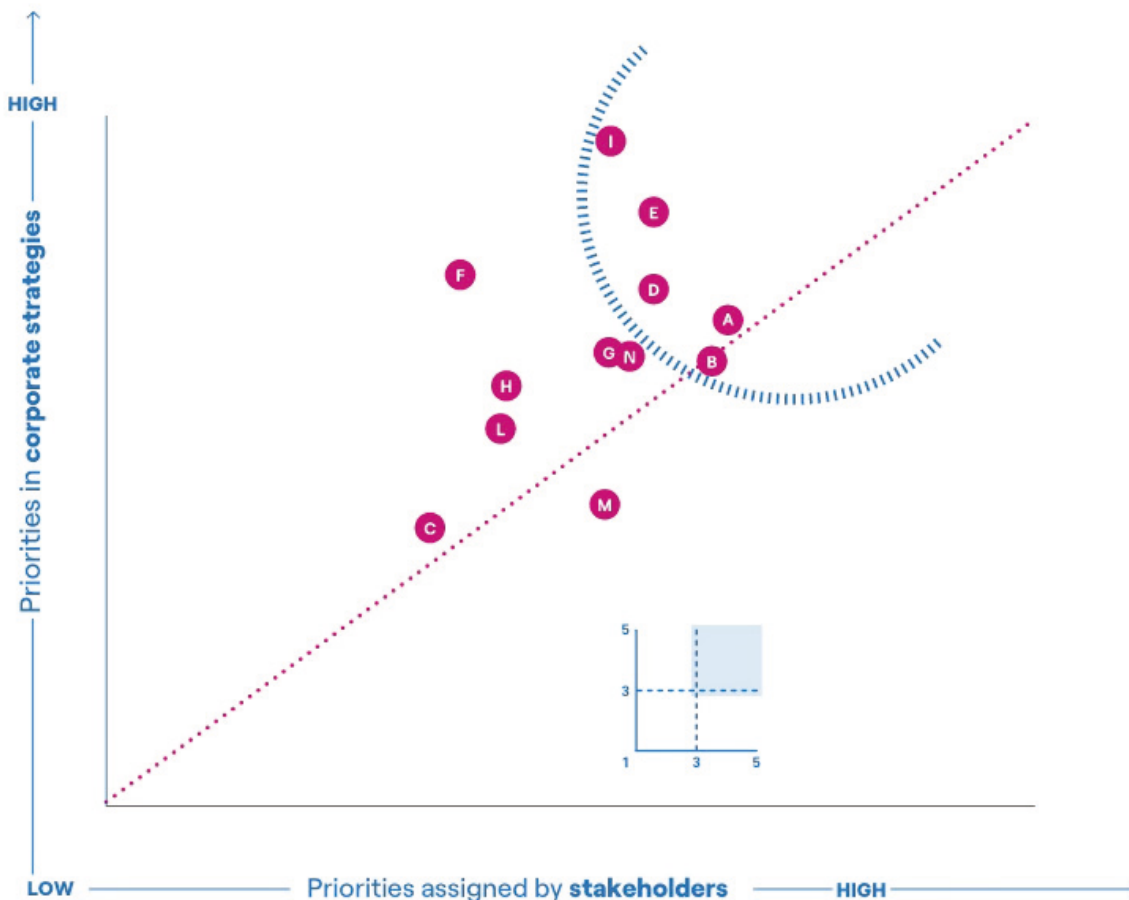
Source: Starace (2019). Republished with permission of Enel.

Since the Open Power approach has been in place, performance results have been very positive, with increasing profitability, dividends and sustainable value creation. This relates to a key tenet of Open Power and its underpinning CSV philosophy, which suggests that trade-offs between value creation for different stakeholders need not exist. Rather, if business activities and associated value chains can be reimaged from the ground up:

you can bring that change in your value chain including...not only your competitors because when you're talking about stakeholders you're talking about...the suppliers that are working with you, and for you – so you are little by little you're changing the ecosystem which is part of your daily business. And this is exactly what happened and innovation has been key. Open Power...implies [that] you redefine and rethink the way you are staying in the energy sector. – Organisation D interview

This is the focus of specific tools such as the example materiality matrix shown in Figure 74, designed to help the organisation work with its stakeholders to identify and prioritise actions that deliver co-benefits. As a standard component of co-design, potential actions (coded in pink circles) are plotted on axes of Enel's corporate priorities and stakeholder priorities.

Figure 74: Materiality Matrix Used for Identifying Business and Stakeholder Co-Benefits (Shared Value)



Source: Enel Group (2020, p. 27). Republished with permission of Enel.

The company emphasises that the CSV approach to generating co-benefits for a range of stakeholders is quite different from merely compensating communities or funding a desired list of projects. It classifies its benefit creation approaches as traditional philanthropic projects (least desirable), CSR-type projects (more desirable), or genuine CSV projects (most desirable). An Enel representative recounts some tangible examples of CSV:

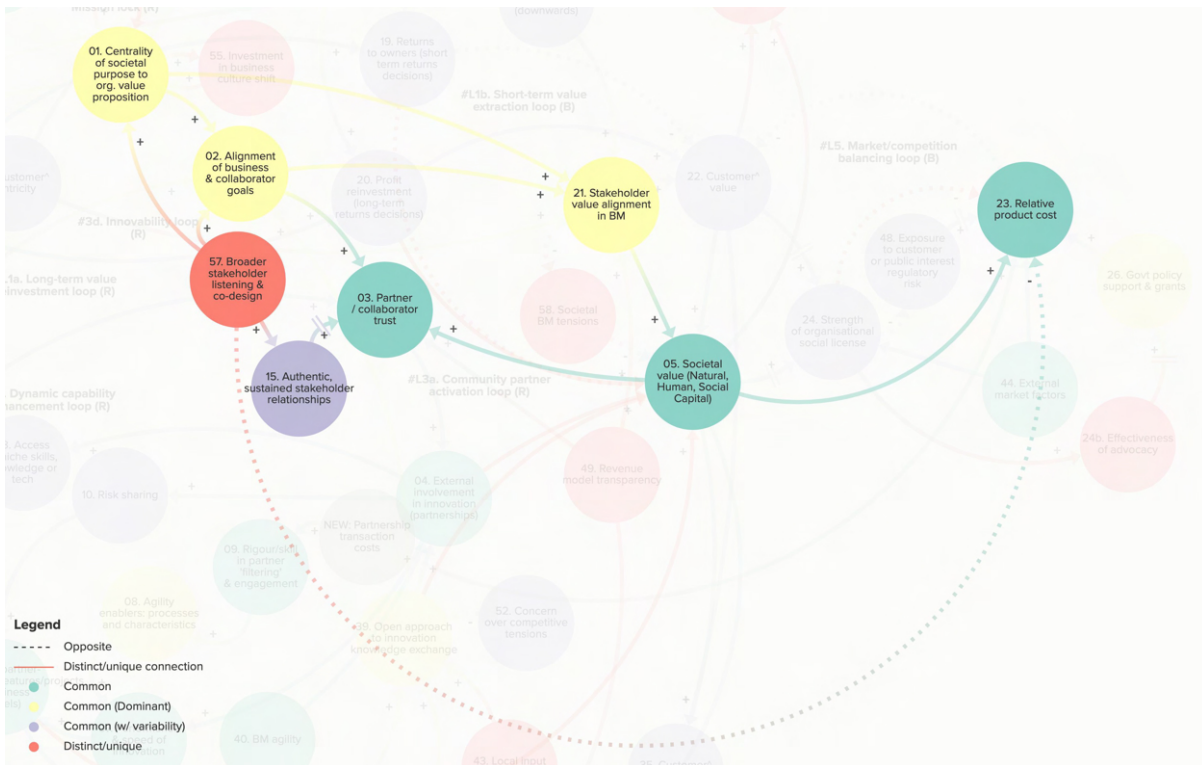
I'm building a wind farm in the middle of a semi-arid area in Mexico... Wind farms have a lot of spare parts... [but] there is no street. So it's good for me to build...a road to save time and...cost, and it's an advantage for the community because they have a new road. ...[Then these] spare parts arrive with a lot of...wooden pallets [which are considered] 'waste' in our construction sites. [So we developed] a

capacity-building program for people that work with wood, like furniture. [In doing so we] create...a new job and [products that workers] can sell in the market. ...[In scaling this up across global operation] we use a lot of social innovators...for this type of project. For instance, in an area of Chile, we engage NGOs; unbelievable NGOs that build houses [utilising pallets] with...anti-earthquake [design] and with great energy efficiency. Because [the] pallets have the space between the two parts of wood, it's a natural isolating [and insulating] material. – Organisation D interview

The societal benefits described above are clear examples of 'synergistic value' as described in the CVC framework (Austin & Seitanidi, 2012b), in that neither partner could have achieved the value in the absence of the other. The active engagement between the parties in the co-design process is what yields the synergy.

Returning to the CLD representation, this synergistic value is represented in the relationships flowing on from 'broader stakeholder listening and co-design' (variable 57) shown in Figure 75, below. Identifying synergistic co-benefits creates a positive sum game that supports the process of stakeholder value alignment in the BM (variable 21), thereby increasing societal value creation (variable 05). This is partly achieved by reducing the relative product cost (variable 23), as evidenced in the above quote. In Enel's case, it was also this listening process that initiated the reshaping of organisational purpose (variable 01).

Figure 75: Source of Synergistic Value Creation from Broader Stakeholder Listening & Co-Design (variable 57)



Source: Author analysis of case study interviews and supporting data.

As this CSV approach cannot occur without trust, however, philanthropic and CSR⁷⁹ projects are common in newly established relationships with communities. Enel explicitly seeks to build up to CSV projects over time:

We started with 20% of CSV projects, 60% of CSR projects, 20% of philanthropic projects. ...We [now] have 50% of CSV projects, 40% of CSR projects and 10% of philanthropic projects.

When innovative CSV approaches are found (such as the pallet examples), they are scaled across global operations in relevant contexts.

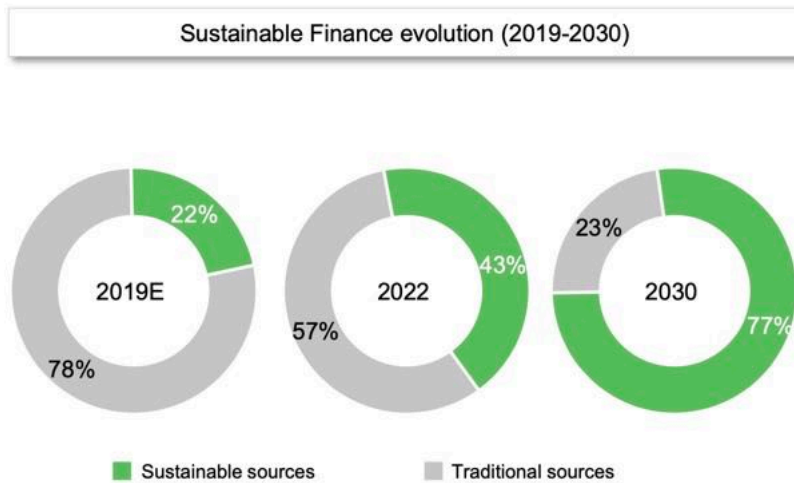
Indeed, Enel's success over the past five years certainly correlates with its progressive positioning as a facilitator of the clean energy transition, supporting the notion that its higher stakeholder returns are driven by, rather than in spite of, its shared value

⁷⁹ CSR projects are defined as having less relevance to the organisation's core business, as outlined in Section 2.1.2.

strategy. Other sample organisations reported governors being confronted with everyday trade-offs between short-term and long-term value. For example, when external market and policy conditions dictate that project margins are slim, renewable energy project developers are faced with trade-offs in how to maintain broad value distribution to stakeholders: “[commercial developers are often saying] don’t assume any [community benefit] because...with no subsidies...[we don’t think it] is viable to pay community benefit” (Organisation F), while in Organisation C, investor dividends were put on hold during low-margin market conditions. With respect to Enel, this may reflect the advantage of a global company with activity across many markets and sectors, and capacity vertically throughout the value chain, in that it has the opportunities and means for substantial new value discovery. Nonetheless, it is difficult to say from the available data how specific, daily governance trade-offs in each business line between short-term returns and long-term value creation play out, and will continue to play out given the rate of increase in shareholder returns is unlikely to be indefinitely sustained.

A clear strategy to leverage its sustainable business model positioning to lower the cost of debt is the seeking of sustainable finance through the issuance of green bonds and Sustainable Development Goal (SDG) bonds that plan to substantially increase the total share of sustainability-tied capital by 2030 (Figure 76) (Starace, 2019). The reorienting of its business model towards sustainability has attracted the attention of sustainability-oriented institutional investors, more than doubling their percentage of share capital holdings over the past five years. By allowing finance to be tied to SDG outcomes, this synergy enables greater margins to allow concurrent stakeholder value-sharing and investor returns. While all organisations have some flexibility in selecting how they raise capital, the ability to issue bonds is more common in organisations of substantial scale.

Figure 76: Evolution of Sustainable Finance Sources of Organisation D (Enel)



Source: Starace (2019). Republished with permission of Enel.

Summary

The key challenge of ‘transitioned’ relative to ‘born sustainable’ organisations is meaningfully addressing legacy BM tensions. A clear and transparent strategic transition pathway is needed from senior management to actively support teams to rethink their value chains. For Enel, the adoption of an OBM has supported the organisational capability to expedite this BM restructuring process. Openly involving value chain stakeholders in this BM redesign has enabled the identification of win-win outcomes that begin to unpick the tension between short-term returns for investors, and long-term societal value creation.

However, reforming BM tensions takes time to disentangle financial interests. This process is aided by substituting extractive revenue generators with regenerative revenue generators (e.g., fossil fuels with renewables), rather than merely ‘deleting’ them from the portfolio.

Finally, this contextual case demonstrates that OBMs for societal value creation can function at a global scale, but – at least in a hierarchical corporate organisational form – require strongly defined collaboration mechanisms and new cultural norms to operate successfully.

6. Contributions and Further Research

6.1 Contribution to Theory

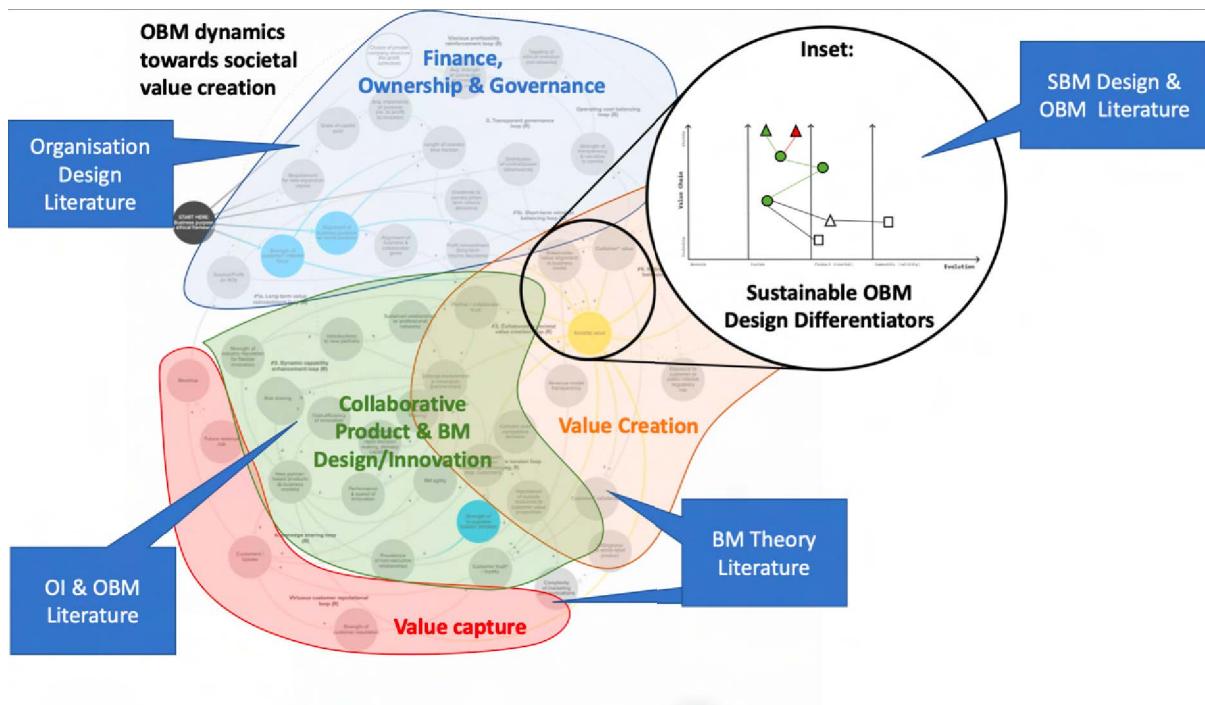
6.1.1 Systems Approach as a Connector of Theory

This research adopted a systems perspective and method in order to understand the relationships between a diverse range of factors that contribute to everyday strategic business decisions, with regard to how they positively influence societal value creation in OBMs.

While many of the factors uncovered have been partly- or well-described in the literature, the bodies of work from which these come are quite diverse. The process of developing a CLD documenting the influences between these variables proved to be integrative, in that it was able to identify connection points between a range of different research areas. The key value of these results, therefore, is to provide a more comprehensive framing of societal value using an OBM lens, and to articulate the relationships between diverse ideas to begin to weave a tapestry of *how* and *why* societal value creation is created in OBMs.

The final simplified representation of OBM dynamics towards societal value creation (originally presented in Figure 34) is reproduced below in Figure 77 alongside the identification of the bodies of literature in which the ideas are discussed.

Figure 77: Integration of diverse ideas using systems lens



Source: Author representation.

From a research content perspective, the main contributions are to OBM and BM theory, in establishing the importance of the dynamic business model construct in the analytical framing, and SBM theory in articulating the influence of opening the business model on key concepts such as societal value creation mechanisms, business model tensions, trust and partner empowerment. Bridging these areas of literature, the systems approach introduced a missing lens of societal value creation or sustainability to OBMs, and provided SBMs with a process-based lens through which to analyse the role and unique affordances of openness.

Methodologically, the process of building the visual systems maps was an important validation tool to establish a common understanding between the researcher and participants regarding the current BM design, as well as a means of communicating and challenging the emerging findings on the role of collaboration in business model change. The approach also demonstrated that combining sustainable value exchanges, tensions, and value chain structure evolution at the more granular product- or business unit-level helps to reveal the intersection of market strategy and sustainable design in OBMs. In doing so, it improves our understanding of how and

where open sustainable innovation can be used to strategically shift components of the value chain towards systemic sustainability.

Before elaborating on the theoretical contributions, it is worth comparing the findings with similar work on SBM dynamics.

6.1.2 Comparing and Elaborating Causal Dynamics

As discussed in the literature review (Section 2.4.4) and method (Section 4.4.2), relatively limited work has applied system dynamics to organisational sustainability. Early contributions have begun to develop general system dynamics modelling structures to represent sustainable value creation with the ultimate goal of establishing quantitative SD models. My research on qualitative dynamics can help to inform the continued elaboration of underlying relationships in these models, which has the potential to model the implications of changes to the functioning of the system, such as particular strategies to increase societal value. This section compares the findings of this research with those of three key existing CLD contributions to business model dynamics.

The first is the work of Kiani et al. (2009) which documents the dynamics of e-Business models, shown in Figure 78 below. Two key loops identified are 'prosperity' (reinforcing; in blue) and 'offering' (balancing; in red). These loops describe relationships between customer value, cost and revenue similar to those represented in my value reinvestment (L1a), value extraction (L1b) and market/competition (L5) balancing loops. However, my research documents slightly different core dynamics in OBMs. Kiani et al. suggest that in e-business, revenues are reinvested in new capabilities, which thereby lessens the need or desire for partnership, shown in an additional 'resource supplement' loop (balancing; in green). This dynamic surfaced during my research but was not sufficiently prominent to make the final common CLD model. It was observed in some cases where a collaborative organisation's greater exposure to a new market or new capability through the addition of a partnership can lead to a greater sense of confidence that the partner function can be brought within the focal organisation's core capability. However, this appeared to

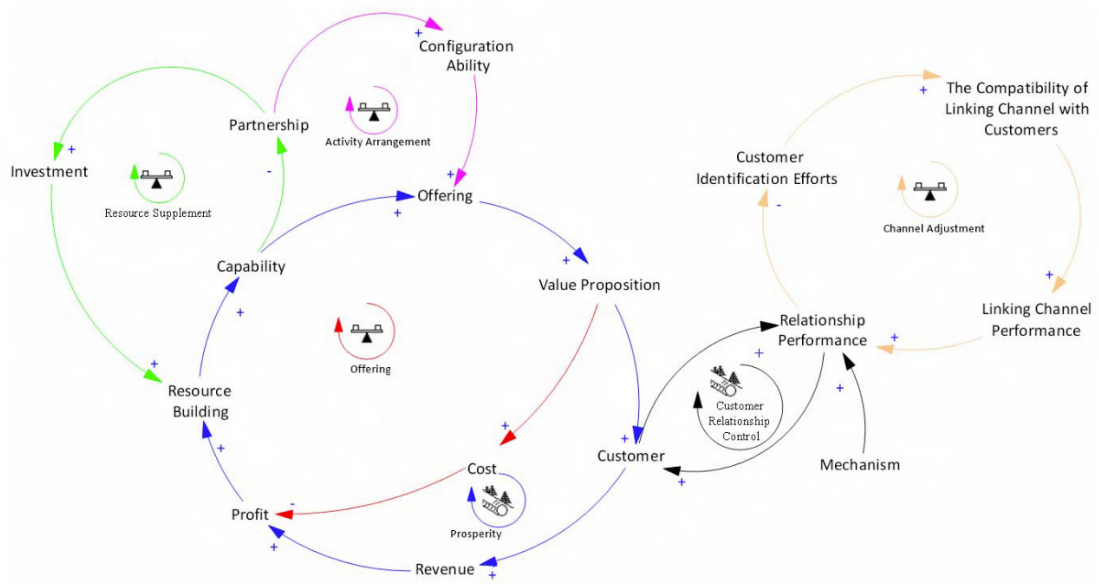
occur primarily when the value proposition of the partnering organisations was less distinct or had become less distinct when BMs underwent convergent evolution to more directly compete. In OBMs, the preference for partnership as a means of accelerating innovation was viewed as sufficiently attractive to outweigh the desire to integrate partner capabilities. Partnerships were viewed as opportunities to continue to extend market reach, and profit was reinvested in specialising expertise that was not duplicated by partners, or improving the customer value proposition or sharing value with customers or other social or environmental stakeholders. This touches on the fact that Kiani et al. only address *economic* value creation, not other forms of social or environmental value which are the focus of SBMs. Thus in OBMs, partnerships are described as part of the core innovation process loop, and not solely within the functions of resource allocation and revenue reinvestment.

Kiani et al.'s 'activity arrangement' loop (balancing; in purple) nonetheless suggests that partnerships improve 'configuration ability', which is akin to the concept of 'BM agility' described in my research. This is the positive feedback loop created by the addition of new partner resources or access to new customer segments, which increases the organisation's ability to reconfigure its BM to meet emerging market needs.

The 'channel adjustment' loop (balancing; in tan) describes the effectiveness of customer relationship management and the closeness of feedback from customers. These dynamics are both present in the OBM CLD, but appear in different places. *New* customer relationships in the studied OBMs are tightly related to the role of partners, as partnerships are commonly utilised to establish new customer channels, and the release of novel innovations grows its industry reputation, driving new partnerships and associated customer uptake. Close and rapid feedback from customers appears in my research as one of several 'agility enablers' that increase the performance and speed of innovation.

Thus, while many of the core dynamics are common in both representations, we see some deviation in the ideas particular to the open operating procedures of OBMs, as well as the focus on sustainable value creation and value-sharing.

Figure 78: CLD of e-Business Model Ontology



Source: Kiani et al. (2009).

The second piece of work is that of Abdelkafi and Täuscher (2016), which has a specific focus on the dynamics of SBMs. The authors argue that the environmental value proposition directly and positively influences four important (financial) business case drivers: reputation and brand value, risk reduction, cost reduction, and employer attractiveness. My research unequivocally supports the first two relationships, with reputation and risk reduction being vital to the success of societal value creation.⁸⁰ Additionally, openness specifically supports other forms of risk reduction. This occurs through diversifying pathways to new markets (variable 41) and enabling risk sharing between partners (variable 10), particularly where financial margins are thin. My research elaborates on several complexities with regard to cost. It is true that the environmental value proposition must secure or improve the net *revenue position* to be successful. This is most clearly evident as a *cost reduction* in examples provided by Organisation D (Enel) where societal value innovations also reduce the cost base. However, in many other cases, environmental (or social) value propositions *increase* the relative product cost but are successful because they create novel revenue streams for customers or open the organisation's access to new markets, often with customer segments with a higher willingness-to-pay or desire for

⁸⁰ See variables 48, 35 and 36 discussed in Section 5.2 and represented in the full CLD in Appendix A.

quality. Employer attractiveness did not emerge as a focus of this research but could be reasonably expected as a legitimate value driver incorporated into future work.

Abdelkafi and Täuscher (2016, pp. 88–90) also raise several propositions about the core dynamics of SBMs, including:

Proposition 1: By design, effective BMfS explicitly consider, the reinforcing feedback loops between the environmental value proposition, customer value proposition, and the captured value.

My research concurs that complementarity between the value propositions is at the heart of the SBM. This proposition is represented as the process of ‘stakeholder value alignment in the BM’ (variable 21), which flows on directly to societal value creation (variable 05), customer value (22) and ultimately value capture in revenues through customer uptake (12 and 16). My research, with its focus on OBMs, adds the element of partner value propositions (51 and 02), which must also be achieved for a successful BM fit.

Two subsequent propositions are:

Proposition 3: The beliefs of the decision maker with respect to ecological capital translate into behavior that aims to adapt the business model according to sustainability aspects or to develop a new BMfS. A major delay can occur in the translation of the ecological perceptions into an appropriate business model.

Proposition 4: A young business with sustainability designed at its core is more likely to overcome the delay induced by the causal loop that links environmental change to the decision maker’s behavior than an established, profit-oriented company. The lack of resources in young businesses and organizational inertia in established profitability-oriented companies delay the translation of the decision maker’s cognition into appropriate modifications of the business model.

Proposition 3 describes something similar to the ‘length of time horizon for value creation & capture’ (variable 31), which recognises that the societally oriented values and purpose orientation of governors positively influence value-sharing in the BM. My research adds a new dimension: the creation of a positive societal impact

narrative also helps to reinforce the long-term view of decision-makers.⁸¹ The delays in translating values or intentions into new BM logic are supported by this research, which represents value-sharing arrangements as entangled within a series of governance and financing factors that can make BM changes difficult to implement. As suggested by Proposition 4, this is most pertinent for organisations transitioning to sustainability with legacy business model tensions. My research adds to this, that openness is an important means of overcoming the barrier of resource scarcity in young or small organisations (variable 53).⁸²

Similar mechanisms described in system dynamics stock-flow model terminology by Abdelkafi and Täuscher (2016) are elaborated in the third piece of work by Cosenz et al. (2020). This work develops a BM canvas framework applied to sustainable apparel company Patagonia, shown in Figure 79 below. It provides a solid foundation for future testing of SBMs through quantitative SD modelling. My qualitative research contributes to furthering this goal in three ways. Firstly, it elaborates on the complexity of many of the hypothesised relationships by describing a series of intervening variables, such as how governance, ownership and finance control how income is reinvested. Secondly, it defines or relates the dominant variables to existing management concepts, such as customer centricity, dynamic capabilities, or inter-organisational trust (IOT), for which measurement indicators have been developed. Future work could continue to strengthen the ties between existing bodies of research involving measurement indices, further developing the foundation for quantitative system dynamics modelling. And finally, it provides empirical evidence for such connections. For example, four mechanisms of societal value creation are identified in my research:⁸³ three of these appear in Figure 79 in various forms: supporting NGO partner missions through donations (stakeholder 5 below), supporting social entrepreneur partner missions through investments (stakeholder 3 below), and environmental and economic gains from value-sharing decisions embedded in the BM (bottom right box). The fourth source – the shifting of industry norms through radical innovation and open diffusion of new ideas – is not represented in Figure 79, even though is clearly an outcome of Patagonia's

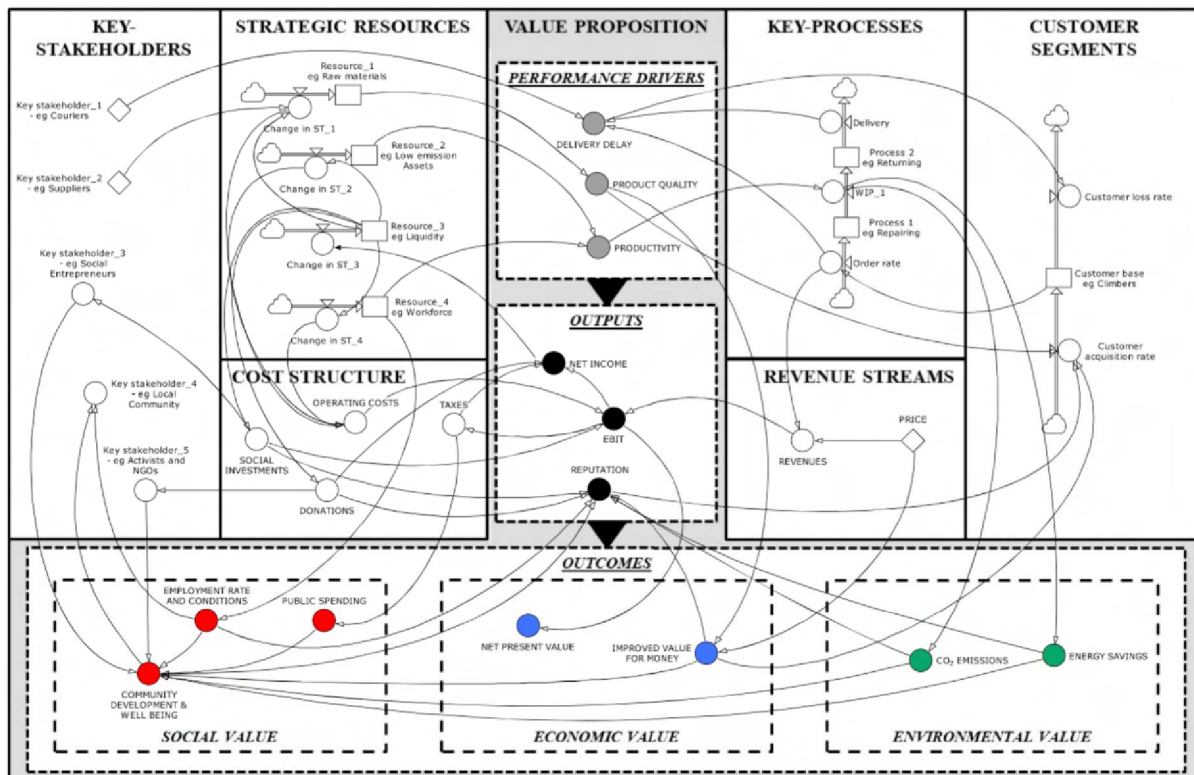
⁸¹ Refer to the transparent governance communications loop (L2) in Section 5.2.3.

⁸² This is also reflected in Kiani et al. (2009).

⁸³ See Section 5.2.2.

innovations (Khmara & Kronenberg, 2018). While this may be less important from a financial value creation perspective (the lens from which the BM canvas is often applied), but is critically important from a societal purpose perspective. Engaging with intentional, external systemic change is critical.

Figure 79: Conceptual System Dynamics Model of SBM Applied to Patagonia Case Study



Source: Cosenz et al. (2020). Republished with permission of John Wiley and Sons via RightsLink.

The two main sustainability-focussed contributions (Abdelkafi & Täuscher, 2016; Cosenz et al., 2020) have, however, only considered the positive side of environmental or social value creation in their models. My research supports the conclusions of other recent work that business models are complex and multi-faceted and can concurrently create and detract from social or environmental capital (Snihur & Bocken, 2022; van Bommel, 2018). Therefore, incorporating consideration of social or environmental tensions as subtracting from societal capital stocks is recommended as an addition to future work, to enable a more holistic picture of the societal outcomes of SBMs. For organisations and practitioners, the boundary-spanning value exchange representations developed in this research help to identify

the exchanges in which this occurs and to consider the extent to which the tensions are managed. The value chain maps developed in this research help to consider strategic moves to unpick remaining tensions. While it is possible that combined environmental or social indices could be used to quantify the *net* impact of a BM, system dynamics models may be best placed to consider value creation and destruction as separate factors which may have different drivers, similar to that shown in the CLD.⁸⁴

The combination of the above pieces of work could form the basis for a prospective area of research in quantitative or semi-quantitative modelling of open sustainable BM dynamics. This would require the identified variables to be more strongly tied to existing bodies of research for which measurement indices have been developed.

Another area of potential future work on dynamics relates to the release of a new ‘dynamic business model framework’ (Kamp et al., 2021) after the methodological design phase of this project. Kamp’s approach was developed to classify initial sources of BM change and then trace the resulting primary or flow-on effects. This work provides a useful new lens through which to examine specific BM changes at a point in time and identify cause and response. Future work could apply this framework to changes in societal value creation outcomes to systematically examine the relative contribution of internal or external stimuli and the extent to which substantive positive or negative shifts were responsive or strategic. Certainly, numerous cases of BM change in this research were driven by forced cost and revenue structure changes, which were often met through changes in the value network. A systematic examination via this framework could yield additional insights.

6.1.3 BM and OBM Theory

Defining and conceiving OBMs for sustainability

As discussed in Section 2.4.1, the concept of an OBM has been defined in many ways by different authors, with no real emerging consensus on a single, prominent definition. This research adopted Weiblen’s (2016) definition, as it relatively simply

⁸⁴ Refer to variable 58.

conveyed the underlying essence: that a business model is open if its value creation and capture logic cannot be explained without collaboration. However, the term collaboration (and in other literature partnership) is not defined by Weiblen, and is often used in the literature without clarity. This presented the problem that many businesses hold relationships with outside organisations, often as suppliers, or as part of other routine business. This posed a real challenge for case selection in that the businesses themselves struggled to determine whether they identify as, or belong in the category of OBMs. So what should constitute a collaboration, as distinct from a more traditional contractual service provider? A contribution of this research is to draw on the open innovation definition – given the close relationship between OI and OBMs – to explicitly distinguish collaboration. The final definition adopted in Chapter 4 of this research is:

‘Open business models’ refer to a subclass of business models in which collaboration with civil society, governments, other firms, citizens, and/or customers plays a central role in explaining their value creation and capture. Collaboration (or partnership) is a non-exclusive relationship between two autonomous entities that work jointly to create mutual benefits, in which purposively managed knowledge flows across organisational boundaries.

While there is still clearly some degree of interpretation required, and OBMs ultimately populate a spectrum from partly to fully open, I believe that this will aid organisations in determining whether or not their business model is indeed open.

But while this definition should assist in case selection, an important distinction emerged between *process* and *content* when attempting to understand OBM dynamics towards societal value creation. Should an OBM be thought of as a structure of organising that can be picked up and applied? Or is it a mode of operating that guides whose ideas and values shape emerging business model patterns? Sustainable business models are primarily researched as an outcome: a BM design pattern that, if replicated, might enable the scaling of sustainability. But given the degree of foundational influence of organisation design over the value creation outcomes in the business model, and the tendency for business models to evolve over time, then perhaps SBM research requires a greater understanding of the process building

blocks that yield sustainable outcomes. This work proposes that openness is an important process building block underlying SBMs. Further, I propose that if we conceive of SBM dynamics as a process, in which the right building blocks are in place (such as societal purpose, compatible finance, mechanisms for long-term governance, an ecosystem-builder and empowerment mindset, and an openness to external participation in BM evolution), SBM design patterns will emerge. Note that most of these building blocks are largely *internal* to the focal organisation, to ensure that the core values underpinning the objectives of BM design and evolution are aligned with societal value creation.

This perceptual shift is represented in the proposed definition of sustainable OBM dynamics as the *structures* and *processes* through which an organisation innovates with external parties to collectively improve the sustainability of the system within which its business model is embedded.

This is not to say that the study of SBM design patterns is any less important; it is critical to understand the breadth of business model structures and content that can be deployed. But, if the right values and innovation objectives are in place, then OBMs can become an active experimentation ground for innovation in sustainable value creation and distribution.

Furthermore, explicitly conceiving of OBMs as a potential entry point to build platforms for sustainable innovation could be valuable in considering how to increase the reach of societal value creation in interconnected organisational networks of sustainable business models. This is explored in the next section.

OBMs and the emergence of ‘business ecosystems’

As introduced in Chapter 2, OBMs are the extension of a broader phenomenon towards exposing innovation activities to a broader range of ideas and means through which to bring those ideas to market. The last century saw the dominance of vertically integrated companies that sought to monopolise control to maximise value capture across the length of the value chain. As these structures hit limitations in both innovativeness and ability to respond to rapidly evolving market demands, this century has seen the emergence of more distributed, horizontally networked specialists that yield the advantages of creativity, speed and flexibility (Deloitte

Center for the Edge, 2014). As barriers to more distributed modes of operation have lowered, market structures have shifted from a dominant centralised paradigm, to decentralised networks with smaller parties that are not fully servient to larger ones, and ultimately to a distributed structural paradigm. This shift is illustrated by Lee et al. (M. Lee et al., 2018) with respect to the industrial revolutions in Figure 80 below. The first and second industrial revolutions refer to the transformation from mechanised production and electrification, the third is digitally enabled, and the fourth evolves from pervasive connectivity and automation.

Figure 80: Evolving Network Relationships with Progressive Industrial Revolutions

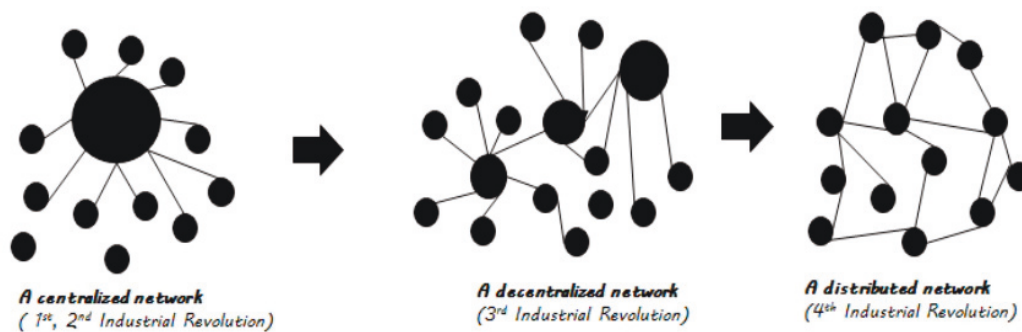


Figure 2. Industrial revolutions and network relationships.

Source: Lee et al. (2018).

The OBMs studied sit somewhere between the third and fourth industrial revolution structures shown above. It is worth exploring some underlying trends and the potential implications for distributed economic organisation, to help contextualise an understanding of the future of OBMs.

Technological influences

There are two major technology trends influencing economic restructuring, and which are particularly pertinent in the energy sector. The first is digitalisation, driven by exponential cost reductions in computing power, data storage and internet connectivity, which has had economy-wide implications as ever more products become digital (Deloitte Center for the Edge, 2014). Digital communication and automation of data interfaces have influenced not only how businesses interact with

and reach their customers, but also the ease with which organisations can interact and exchange knowledge and resources. The second trend is the decentralisation of industrialised production. While not as pervasive as digitalisation, decentralisation has also influenced key sectors such as information technology, telecommunications through the development of mobile phones, food systems in the context of the drive towards localisation, and manufacturing, with the emergence of 3D printing (Rifkin, 2015). In the context of the energy sector, the source energy production and management more commonly occur close to the end consumer, breaking down historical monopolies of the second industrial revolution. Decentralisation is inextricably linked to digitalisation and reduces transaction costs that lower the barriers to market entry for smaller, more specialised entities.

Unbundling

The prominence of smaller, more nimble and innovative new actors, along with the increasing complexity of technological niches, drives the need for a greater diversity of skills and resources that are ever more difficult to meet within a single organisation. Facilitated by digital forms of interaction between organisations, we have begun to see the ‘unbundling’ of product stacks and capabilities; meaning that such functions are no longer locked up within large centrally controlled entities (Hagel & Singer, 1999). Within this research, examples include Organisation A, which unbundled energy retailer functions to make market access more open to sustainable innovators, or Organisation B which unbundled energy monitoring and data management functions. This unbundling is referred to as the ‘fragmentation’ of value chains and is recognised as an evolutionary trend across markets (Deloitte Center for the Edge, 2014).

Industrial convergence

Alongside (and again, partly driven by) digitalisation, we are also starting to see the boundaries between traditionally understood sectors blurring, in a trend known as ‘convergence’ (J. F. Christensen, 2014) as software-based interfaces have made the interlinking of different product types both feasible and more cost-effective. This can have a countervailing effect to unbundling, in which large players in one sector use this power to ‘consolidate’ and integrate resources across sectors. In the case of the

energy sector, we are seeing communications and information technology providers entering the energy markets (such as Google Home energy management) and vice versa (such as energy retailers bundling with internet and telecoms utilities). As the imperative of decarbonisation drives a trend towards the electrification of hitherto fossil-fuelled activities, the boundaries between transport and energy are falling away. Electric vehicles are both a transport and an energy resource and demand. Recognising these trends, a new theory of 'open business dynamics' seeks to explain the evolution of industries that no longer conform to traditional product life-cycle theories that have guided management in recent decades (J. F. Christensen, 2014). Within this context, the concepts of clearly demarcated 'industries' are giving way to business or innovation ecosystems (J. F. Christensen, 2014).

Analysts suggest that this does not mean a confrontation between fragmented and consolidated powers will ultimately drive the dominance of one model of economic organising. Rather, as explained by Deloitte Centre for the Edge (2014, pp. 53–54), fragmented (more open) and consolidated (generally more closed) work together in symbiosis:

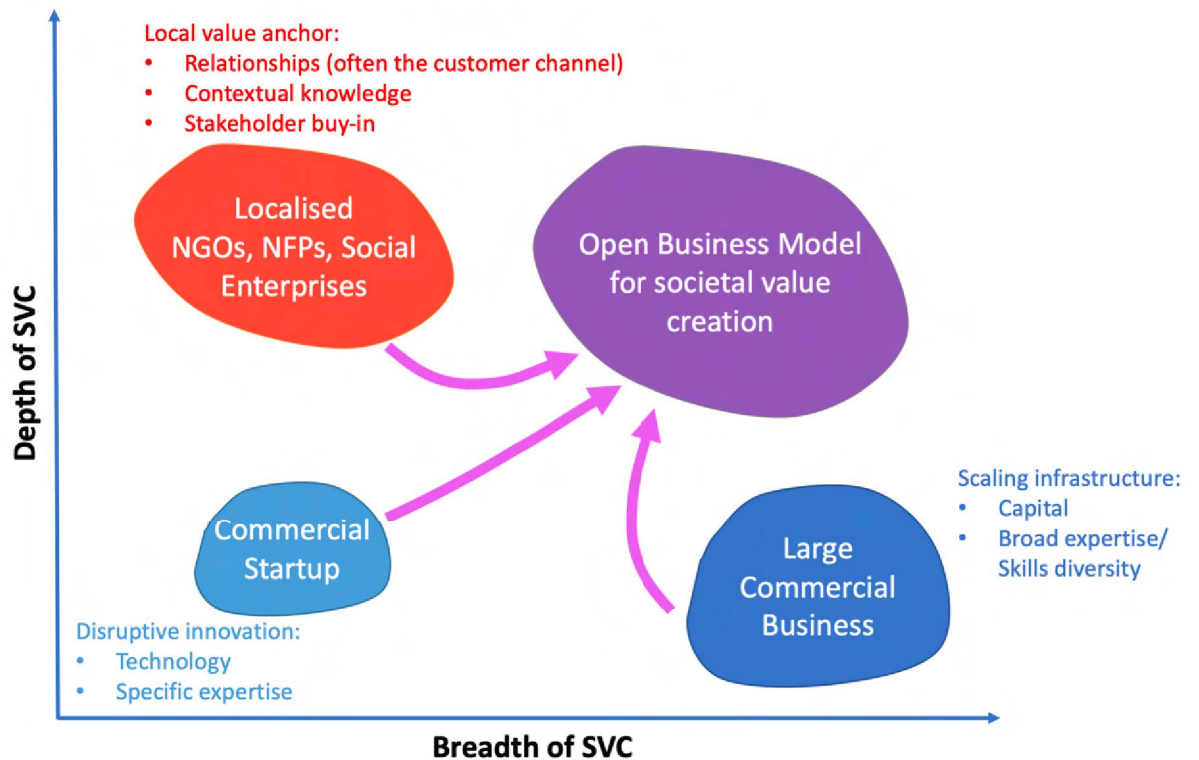
There are two broad categories of interaction in this ecosystem: transactions between the fragmented and consolidated players and broader collaboration among all players across the ecosystem. In the former, fragmented players rely on consolidated players' services for their very existence through information, scale resources and platforms (for example, cloud services, online marketplaces). In turn, consolidated players need fragmented players to purchase their services. Fragmented players also provide concentrated players with agility and diverse innovation. Each business model fuels the other in a symbiotic relationship.

They go on to suggest that 'mobilisers' play a critical role in facilitating ecosystem interaction, thereby driving continued learning and performance improvement. The authors go on to posit that collaboration will be key to survival for all businesses, be it incumbents or disruptors.

This paints a picture that is not a black-and-white canvas of open versus closed, incumbent versus disruptor, or good versus bad. But a picture that is many shades of grey, in which multiple diverse parties engage in the co-creation of value from the

position of their appropriate roles and capabilities. The process focus of sustainable BM dynamics described in this thesis provides guidance as to how that collaborative business activity can be regenerative of societal value. This contextual placement also helps to frame the generic representation of a multi-party OBM given the respective strengths of different agents, reproduced from Figure 81 (ii) below. This is consistent with the observation of Derks et al. (2022, p. 16) who, in exploring sustainability transitions, note that there is no clear distinction between niche (new innovators) and regime (incumbent) actors in value networks. As illustrated in Figure 81 below (reproduced from Section 5.4.1), each party has a different but potentially complementary role. This differs from Yun’s (2015) macroeconomic view of the contributions of social innovation as providing societal benefit, open innovation as providing a flow of commercial ideas, and closed innovation as providing tax revenue and cost reduction (in an economy more broadly). My research adds nuance by suggesting that OBMs offer a mechanism through which various institutional types integrate activities to contribute to a common societal goal.

Figure 81: Conceptual Representation of OBMs for Societal Value Creation



Source: Author representation, reproduced from Section 5.4.1 (Figure 70).

Mobilisers, in the context of sustainable OBM in this research, were most commonly the focal organisations themselves, be it a social enterprise, commercial startup or large business. The focal organisation was, however, often aided by processes driven by government or quasi-government agents such as the Australian Renewable Energy Agency (ARENA) or the Energy Systems Catapult (UK), and sometimes included university research teams. For large businesses, international not-for-profits were also observed to play a role in facilitating collaboration around a particular aspect of innovation or knowledge sharing that may then become embedded within an OBM. Examples include the Science Based Targets Initiative or the UN Global Compact.

Within this complex evolving landscape, substantial research interest in the concept of business ecosystems, innovation ecosystems or entrepreneurial ecosystems has emerged (Fischer et al., 2022). It has also led many scholars to highlight the need for an increased focus on a new research boundary, not at the organisational level, but at the ecosystem level (Bertello et al., 2022; Fjeldstad & Snow, 2018; Talmar et al., 2020).

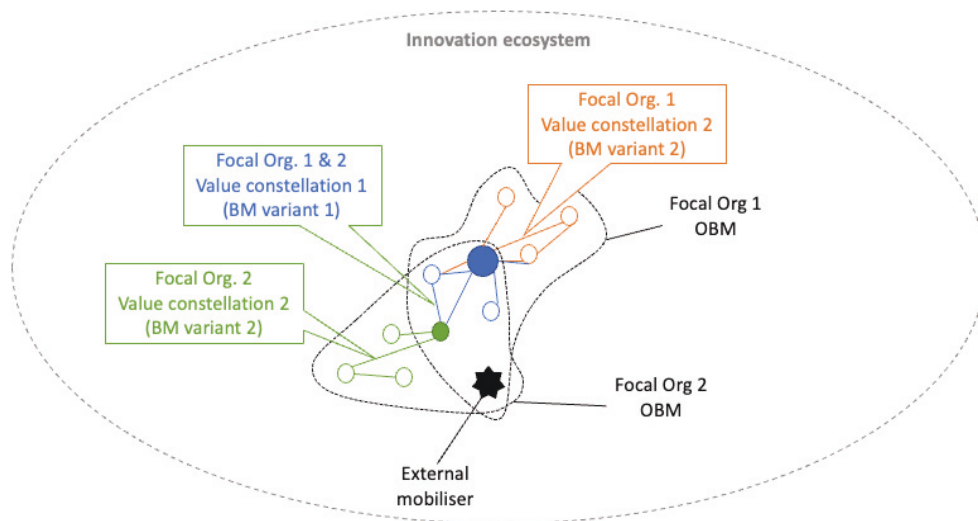
Perhaps the best analogy to help to relate business ecosystems to OBMs and value chains is the concept of ‘constellations’ used by Curley and Salmelin (2017, p. 118) in the context of their work on OI 2.0 (see Section 2.3.1). In this new landscape, the concept of ‘value chains’ can feel overly linear and rigid, while ‘value networks’ conjure images of highly distributed arrangements with connections between many parties in the network. In practice, however, a value network often looks quite different from the perspective of each participant. For example, a partner organisation that is part of another organisation’s value network, is likely the focal organisation and mobiliser in its own (quite different) value network. These networks may have low, medium or high degrees of overlap. The value constellation concept is based on the premise that the appearance of a constellation is “dependent on time, the viewer, and the location” (Curley & Salmelin, 2017, p. 118).

Most OBMs appear to have several BM variants. All of the specific exchanges in a given BM variant, in which lines are drawn between a particular value chain arrangement of parties, constitute a value constellation. The same organisation might

have several concurrent BM variants that involve exchanges between some of the same and some different parties, which constitute additional value constellations. The sum total of all of these value constellations (BM variants) makes up that organisation's innovation ecosystem. The organisation may, over time, participate in new, different knowledge or innovation communities within the ecosystem, or make new links through its existing networks that then broaden its OBM exchanges.

Each focal organisation curates its own OBM, viewed from its relational standpoint, and thus may form part of several different organisation's value constellations. The innovation ecosystem is thus a broader, more systemic concept drawing a boundary around parties active in a particular problem space. This is why a research boundary of the innovation ecosystem is useful, but is also why the concept of the focal organisation will always remain important – because OBMs and their associated value constellations are constructed from the perspective of the focal organisation. Both concepts need to be considered in future OBM analysis. These concepts are illustrated in Figure 82 below.

Figure 82: OBMs as Clusters of Value Constellations Within an Innovation Ecosystem



Source: Author representation.

The next frontier of OBM research in the context of seeking to achieve collective societal goals may be understanding the sum of collaborative OBM activity

influencing a problem space (the ecosystem). If we can understand what the ecosystem is delivering, and what it is missing, it opens the door for new innovators to fill the space, for governments and regulators as market shapers to adjust market settings, or for mobilisers to facilitate the new interactions needed to address a market gap. This does imply a shift towards a societal goal-based ecosystemic view, but must recognise that organisations are only participants in such ecosystems to the extent that they can create and adapt their value constellations to achieve their own goals.

This straddles two viewpoints in the literature. Firstly, it is consistent with Zott's (2019, Chapter 15) argument for the BM as an integrative concept:

Rather than merely construing the focal firm as one of several players in a network, the business model perspective brings the question front and center as to how a particular firm (which we call the focal firm) structures its destiny within the context of the value networks within which it exists.

And secondly, it recognises that if we are interested in systems change towards sustainability, we also need to raise our viewpoint to consider the influence of value networks at the macro level (Derks et al., 2022). Clearly, the closer organisational goals are to the societal need (the system goal), the easier this becomes. This underscores the importance of the organisation design and institutional structure elements raised in this thesis.

Furthermore, as Karami and Read (2021) suggest, if the unit of innovation analysis makes a shift to the ecosystem rather than the firm, the focus of entrepreneurship may also shift from the individual charismatic entrepreneur to a group of collaborating stakeholders as peers in a collective venture, contributing resources and attracting benefit.

Some of the world's most dominant companies are employing deliberate ecosystemic approaches which seek to create a balance between collaboration and competition, supporting ready access to resources that allow rapid evolution of the ecosystem towards customer needs. For example, market-leading appliance manufacturer Haier has captured the attention of management theorists, with its decentralised networks of small autonomous innovative units, centrally resourced and curated around a

theme of customer joy and the principle of ‘zero distance to the customer’ (Jiang et al., 2019). But what would such an ecosystem look like if was curated to combine resources towards a common societal goal? To date, business ecosystem discourses have only had a peripheral focus on sustainability or societal value creation. The conceptualisation of the intersection between OBMs for societal value creation and innovation ecosystems may thus yield a promising stream of research.

Reflecting the dynamism of OBMs

Embedded in the analysis and discussion thus far is the concept of an OBM as a subclass of business model (conceived at the organisational level), and the concept of an OBM *variant*, which sits somewhat below the organisation level, either at the business unit or product level. While a BM would only be considered open if at the organisational level the essence of value creation and capture could not be explained without collaborative activity, it is the flexibility and dynamism that an OBM offers that underpins its existence as a dynamic capability. As such, to only explore the organisational-level abstraction would potentially miss key elements of change that yield insight into the strategic direction of BM planning, and the different OBM design elements contained in these experimental variants.

This apparent reversion to a more historically prevalent view of the product-level business model does not necessarily sit neatly with the ‘modern BM’ conceptualisation of Wirtz et al. (2016) shown in the literature review in Figure 1. A historical product-level BM in Wirtz et al.’s depiction is more of an operational process description, while the organisational-level BM view is more strategic. However, I propose that in the context of OBMs, it is the BM *change* that is observed from the deployment of experimental variants that tells analysts about business strategy.

6.1.4 SBM Theory

Sustainable business model design

A substantive focus of SBM research has been BM design elements of structure,

content and governance. This research aimed to relate those analyses within a broader framework describing the dynamics of the organisational system and examine any distinctions that emerge using an OBM lens. In doing so, the method drew heavily on the ideas of Brehmer et al. (2018, p. 4520) and, as such, a direct comparison of the findings is helpful in elaborating the implications of this research.

Brehmer et al. (2018, p. 4520) find that “socially sustainable⁸⁵ value transfer content always constitutes a leak in value capture that is compensated by a different value transfer somewhere else in the BM”. This essentially means that there is a higher cost associated with the social value creation, which is offset elsewhere. The authors outline five strategies for how these compensations are made: (i) cross-subsidisation between customer classes; (ii) charging a price premium; (iii) deploying volunteers to lower costs; (iv) diversifying value capture, such as by accepting payment through time and/or expertise; and (v) donations or subsidies. All of these strategies are observable within this research sample. However, this research makes a contribution by suggesting that *additional* strategies exist, some of which may not be construed as leakage of value capture. That is, societal value creation is not necessarily a zero-sum game. The following additional strategies are identified (alongside reference to the section in which results are described):

1. Changing *who* captures the value: replacing traditional in-house organisational functions like customer acquisition or marketing with social purpose partners, such as occurs Organisation A’s retail partnership model. This can act to support societal value by transferring value capture to societally-focussed parties, supporting their complementary work and engaging them in the energy transition. This only constitutes leakage in value capture in that the focal organisation does not *itself* capture the value, but a social partner does. So within the OBM, it could be argued that this does not represent leakage of value capture. This relates to societal value creation mechanism 2 (Section 5.2.2) and the community partner activation loop (L3; Section 5.2.3).
2. Co-design for shared value creation: the shared value identification process demonstrated by Organisation D (Enel), which obtains active involvement of

⁸⁵ As distinct from *environmentally* sustainable.

host communities, employees, or other stakeholders, proactively seeks projects that concurrently serve community needs and focal organisation financial goals. An example described is supporting social enterprise development to repurpose wooden pallets, which creates local employment and reduces a direct cost on the focal organisation. This could perhaps be argued that the cost of supporting a new economic activity (such as training) is leakage, and the cost reduction for waste removal is the compensation. This is described in Section 5.4.2.

3. Creating social connection through technologies or business model governance: for example, the creation of energy data focussed groups within the community strengthens social connections and environmental practices (Org. B), or the creation or support of a local co-operative (Orgs C, F) creates a vehicle for new community interactions. This is a meaningful form of creating local community ties and does not necessarily compromise value capture or increase costs.
4. Production of open standards and knowledge: the open exchange of innovation knowledge can indirectly create new market norms for societal value creation for the rest of the industry. For example, a number of the case organisations collaborated on standards for energy data access and use, which seeks to set an ethical benchmark for how the industry should tackle such issues (Orgs B, E). The outcome of such an effort is uncertain as it is an emergent property of the system, depending on other actors such as policymakers and industry advocates. In the short term, this strategy represents an increase in costs but ultimately may also play to their financial advantage in achieving a more interconnected and interoperable energy ecosystem, aligned with their open ethos. Another example is Organisation C allowing open access to financial or business model templates to replicate its activities. This is societal value creation mechanism 3, described in Sections 5.2.2 and 5.4.1.
5. Platform structures: considering the OBM as a mechanism for empowering an ecosystem of innovation utilising the technology or infrastructure of the focal

organisation creates the opportunity for emergent innovation through the divulgence of control over value capture across the full length of the value chain. This is elaborated in Section 5.3.1.

It is considered possible, and perhaps likely, that many of the businesses studied by Brehmer would classify as OBMs, which provides a rationale for a strong intersection of findings. Note, however, that all of the additional strategies described above relate to a greater reliance on openness as an operating principle. This suggests that an explicit OBM lens may help the identification of societal value creation mechanisms, thereby extending SBM research.

My research fully supports the following Brehmer conclusions:

- BM structure patterns reflect the combinations found in conventional firms (but organisations rarely clearly conformed to a single structure).
- Sustainability can occur just in the content, governance or structure rather than across the whole BM (or throughout the whole value chain).
- Imbalanced value exchanges sometimes occur in order to service vulnerable groups within the community (although this was only seen in one of six cases).

With regard to governance, Brehmer et al. (2018, p. 4524) conclude that:

governance-related choices for environmental and social businesses seem to go hand in hand. Namely, both environmentally and socially sustainable organizations deploy for-profit, non-profit and hybrid legal forms, while environmentally and socially sustainable governance can also be achieved by positioning the locus of control over value exchanges outside of the focal organization.

My research concurs with this finding and contributes by elaborating on how those governance mechanisms actively influence sustained societal value creation and capture. This is demonstrated both within the processes of the focal organisation (seen in the CLD findings) and through the partner choices embedded in the value chain positioning and strategy (seen in the Wardley-style maps). These findings align with those of Reficco et al. (2018) that organisational identity, policies or processes that essentially relate to governance are in face ‘enabling conditions’ – that is,

precursors – to sustainable value creation. My research also observed, however, a subtle difference in the ‘transitioned to sustainability’ case (Organisation D, Enel). In this case, key changes in organisational identity, policies or processes were sparked by feedback from negatively affected supply chain stakeholders. This indicates a two-way feedback loop, suggesting that organisational identity, policies or processes are not *always* the antecedents.

Finally, Brehmer et al. (2018, p. 4524) conclude that the process of visualising the BM “appears to accurately pinpoint where sustainability is located in a BM, as well as where areas for improvement lie”. My research, by extending the visualisation to include sustainability tensions, improves the ability to pinpoint areas for improvement. Being able to clearly articulate the tension points within the BM may help organisations seeking to adaptively manage internal contradictions over time as is emerging as a differentiator of good practice in managing complexity in trade-offs (W. K. Smith et al., 2010; van Bommel, 2018). Bringing tensions (or value destruction) into the visual notation for BMs responds directly to the call from Snihur and Bocken (2022) to ensure positive and negative sides of SBMs are considered.

Recall from Section 2.3.1 that OI for sustainability literature frames the confluence of OI and sustainability primarily as “an *outside-in* [emphasis added] process, whereby external knowledge is gathered to support the internal development of [sustainable innovations]” (Rauter, Perl-Vorbach, et al., 2017, p. 254). In documenting the mechanisms of societal value creation, this research found that at least two of the four mechanisms commonly feature outgoing (inside-out) knowledge flows. These flows were important in empowering social partners to play new roles in the value chain that were not within their regular core functions, to develop joint offerings that combine the knowledge and resources of multiple partners, and is obviously central to organisations contributing to knowledge and data commons to aid others in replicating sustainability innovations or to improve social or environmental standards.

SBM links to organisation design

The literature review identified that while SBM design generally considers patterns

of content, structure and governance of BM exchanges, a lack of clarity exists on the extent to which organisational design elements are necessary to achieve these SBM design outcomes.

In Section 5.2.3, this research documented five key feedback loops to describe the dynamics of societal value creation in OBMs. Two of the feedback loops incorporate organisation design elements, covering issues of ownership, finance and organisational governance. The first of these loops is the long-term value reinvestment loop, which requires two critical variables to operate that relate to focal organisation design: a long-term view of value creation and capture, which is tightly coupled to organisational purpose and the type of investors; and to achieve stakeholder alignment in the BM innovation process, which relates to the organisational willingness to challenge existing tensions in the BM, the strength of customer focus, organisational purpose and the underpinning ethical framework. The second of these loops is the transparent governance communications loop, which employs organisational accountability structures to a broad investor base in order to control the investor connection to an organisational societal purpose.

These organisational design variables are considered to be some of the most 'foundational' or influential in the whole system. Without them in place, openness would either not be present, or not be utilised in service of societal value creation.

There is an important implication of the link to organisation design for businesses seeking to improve societal value creation through open processes: not only are *external* (collaborative) capabilities required, but there are also foundational *internal* prerequisites to ensure that the purpose, value system and investor incentives are not in conflict with multiple value creation and value-sharing with partners.

The relative weight of tensions

One interesting observation from Enel's case is that the initial stage of the process of transitioning away from fossil fuels was achieved by splitting out Enel Green Power into a spin-off company, in order to consolidate and better manage renewable energy assets that were not yet a core focus of the organisation (Chesbrough, 2016). It was

only once the success of the business proposition of renewables and its associated open approach to sustainable innovation had been demonstrated that there was sufficient certainty to more systematically restructure the organisational BM to be compatible with this new future. This raises an interesting question: If this process was indeed necessary, what might that mean for other organisations overcoming strong legacy BM tensions? Enel noted that to remove an undesirable revenue-generating component of the BM, it must be replaced by an alternative. Might there be some value in considering the relative ‘weight’ of extractive parts of the BM relative to the regenerative parts of the BM? Do the new revenue-generating activities have to reach sufficient scale or internal credibility before they can supplant the extractive legacy elements? If so, what is the tipping point at which this might occur?

The story of the past decade of large fossil-fuel-invested Australian electricity generator/retailers (‘gentailers’) is littered with failed or stagnated attempts to shift legacy BMs towards clean energy alternatives from within the company. New business units have been formed and disbanded before meaningfully shifting the core BM. Yet creating entirely separate entities as proposed by Australia’s biggest energy company, AGL Energy, has been criticised by prominent activist investors as both commercially sub-optimal and misaligned with the rapid decarbonisation of the sector (Humphery-Jenner, 2022). Having two separate entities is likely to create one that genuinely advocates for systems change towards the new interests, or doggedly lobbies for the protection of entrenched interests. This may set up a false institutional battlefield with each set of interests failing to recognise the value of the other. Such an approach suggests that we must categorically side with the interests of the past or the future, when in fact the transition period requires critical parts of both. Perhaps if we were able to quantify and understand the relative influence of these value creators and associated tipping point thresholds, it might tell us how we can most expeditiously loosen the grasp that legacy tensions hold over our future?

This relates to the earlier discussion of whether an organisation should sell its stake in legacy assets to eliminate those interests from its books or rather actively manage the retirement of those assets to ensure an orderly transition. It is plausible that a single governance structure that can effectively ‘hold BM tensions’ and manage them out of

the system could be a more effective pathway. For this to exist, however, I suggest that many of the foundations of open processes incorporating the voices of the range of affected stakeholders – as is present in Enel – are likely to be critical for such a model to succeed.

Power, agency and distributive OBMs

As emerged from the BM design analysis, the most consistent feature of the governance of the studied OBMs is that the locus of control of value creation or value capture was shifted from powerful commercial or institutional players to smaller, less traditionally empowered parties in the system. Table 8 below summarises the traditionally and newly empowered stakeholders in each organisational case, alongside the role played within the new OBM value chain.

Table 8: Transfer of Power/Agency to New OBM Stakeholders

Org.	Traditionally empowered stakeholder	Newly empowered stakeholder/s	BM role played
A	Large generator-retailers	Technology startup, Community energy group Charity or activist network	Product co-designer & customer channel Customer channel
B	Retailer Grid company	Energy customer	Informed DER owner, user and market participant
C	Commercial developer/investor	Community investor NFP community organisation	Financier & Governor Community grant recipient
D	Commercial developer Monopoly utility	Host community Technology startup Employees in retired fossil fuel assets	Benefit-sharing designer R&D/Innovation capability New industry co-design & employee
E	Grid company and retailer	Customers via aggregator partners	DER market participant
F	Commercial investor	Community investor group	Bridging loan recipient/partner

Source: Author analysis.

Empowerment generally formed a critical part of the societal value narrative and was a common market differentiator of the OBM relative to the incumbent alternatives. It was not clear the extent to which this relates to the sectoral context of the transition towards decentralised energy, or whether more broadly reflective of OBMs. Nonetheless, the pervasiveness of the feature across the sample warrants further exploration of the definition and the extent to which notions of power and agency appear in the existing literature.

Empowerment and the business model

Power has been found to be an important aspect of business-civil society partnerships (Byiers et al., 2015, p. 26), while a comprehensive review of sustainability partnerships found that “genuinely sharing power in decision-making” is critical (Gray & Sites, 2013, p. 62). The review presented in Section 2.3 concluded that societal value-creating partnerships involve deeper relationships built on mutual benefit and empowerment, rather than coercion.

The concept of ‘empowerment’ is perhaps most apparent, however, in community energy literature. Coy et al. (2021) note that empowerment is “associated with a range of different outcomes such as participation, agency, autonomy and power-shift”, and go on to define community empowerment as “the process of an individual, group or community increasing their capacity and contextual power to meet their own goals, leading to their transformative action”. This definition suggests empowerment is both a process and an outcome. Avelino (2017, p. 512) effectively⁸⁶ defines empowerment as “the process through which actors gain the capacity to mobilise resources and institutions to achieve a goal”. In deepening these concepts, Avelino (2017, p. 509) outlines notions of innovative power, which is “the capacity of actors to create new resources”, and transformative power is “the capacity of actors to develop new structures and institutions, be it a new legal structure, physical infrastructure, economic paradigm or religious ideology”.

These definitions are highly relevant to the concept of the SBMs, which is concerned

⁸⁶ In the context of defining *disempowerment*.

with the arrangement of actors, institutions and their associated resources and activities to deliver a collective value proposition. While empowerment has drivers at the individual level (Coy et al., 2021), if the value proposition solely serves the individual, such as access to a luxury good, it is unlikely that this would be defined as empowerment. This reflects the absence of a higher-level “transformative action and goal” (Coy et al., 2021, p. 6). But the greater the extent that the product or service helps customers to meet a broader community or societal goal, or that stakeholder participation as a partner in the BM services a broader societal goal, the more this would constitute empowerment. As such, if OBMs involve a diverse array of stakeholders in the design and delivery of a product or service, and innovative or transformative power is derived through this process, might OBMs themselves be considered as an empowerment device?

In examining more radically transformative post-growth compatible institutional forms, Hinton (2021a, p. 7) concluded that this school of thinking “must explicitly deal with issues of power, agency, and the distribution of access to essential resources”.

While not focussed on societal value, Tower and Noble (2017) take a behavioural science lens to look at interdependence in what they call ‘collective OBMs’. This refers to a specific type of OBM connecting consumer collectives. They note that “the concepts of power and dependence are inseparable; as one member’s dependence increases, the other member’s power increases as well” (Tower & Noble, 2017, p. 175). This reflects ideas in resource dependence theory that have been used to describe the nature of resource-based relationships in SBMs (Rossignoli & Lionzo, 2018).

Given the confluence of these ideas, future research could explore the role of OBMs as empowerment devices, through which focal organisations actively divulge control over value creation or value capture towards achieving collective societal goals.

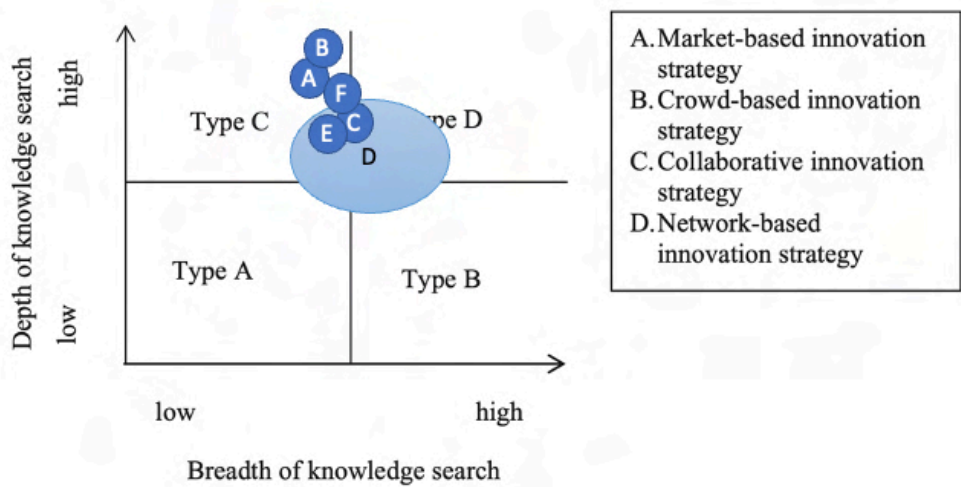
Inter-organisational trust

My research identifies trust as an important foundation of partnerships. This concept is referred to as inter-organisational trust (IOT) in the literature. Numerous methods of measuring IOT exist, but the measurement indices differ according to the

theoretical perspective underpinning the source of trust (Zhong et al., 2017). Trust can be ‘competence-based’, relating to the faith that an organisation has in the ability of a partner to achieve its goals or commitments, or ‘goodwill-based’ relating to the “knowledge of partner’s goodwill, fairness, and mutual caring” (Zhong et al., 2017, p. 1061). Authentic, sustained relationships’ (variable 03) were identified as a variable with a positive relationship to partner trust. It would appear that both sources of trust are important within the studied OBM, the latter being relatively more prominent when societal value creation is at the core of the partnership. Chesbrough et al. (2018, p. 936) point out, however, that some forms of open innovation involve “collaboration among a large number of loosely coupled actors who rarely meet in person and often do not continue working together”. While this observation was less prevalent in the small and medium organisations participating in this research, it was clearly evident in Organisation D (Enel). This organisation was the largest and most diverse, utilising a range of less personal, ‘broader’ OI search mechanisms. It is known that a broad partner network is time-consuming to maintain (Stevenson & Greenberg, 2000). Thus, the broader the network required to fulfil a given market or societal value creation niche, the harder it is for those partner ties to be strong (Frankenberger et al., 2013). As such, future work could interrogate the clustering of collaborative societal-value-creating OBMs towards the higher depth, lower breadth OI searches, as shown in Figure 83 below.

It is not yet clear from this research whether deeper relationships are needed for stronger societal value creation to take place, or if this merely reflects the smaller scope or scale of many of the case study organisations. This would be a valuable avenue for future research.

Figure 83: Case Studies Plotted on the Typology of Inbound Open Innovation Strategies



Source: Author overlay on Saebi and Foss (2015). Republished with permission of Elsevier via RightsLink.

6.2 Methodological Reflections & Limitations

Section 6.1 explored the benefits and contributions of the research and the underlying methods to conceptually connect ideas from different bodies of literature within a systemic understanding of the process of OBM dynamics for societal value creation. This section reflects on the limitations of the approaches adopted, and how they could be addressed in future studies.

6.2.1 CLD Limitations

The method developed by Kim and Andersen (2012) provided a robust and traceable approach for converting qualitative interview data into causal relationships within a CLD. Applying this approach in an iterative fashion across multiple organisations added substantial value in refining the understanding of dynamics across organisational systems. Many of the core feedback loops were identified in the first organisational case study, but the richness and robustness of the model evolved greatly through its repeated application in different organisational circumstances.

The initial model was relatively sparse, as many of the dynamics identified were not explicitly raised in the first case interviews. However, with reflection from multiple cases, additional relationships were identified that were either implicit or weaker in influence in the earlier case/s. These were then generally able to be 'ground-truthed' to confirm the presence or absence of these variables with the earlier case organisation representatives. Thus, an iterative process enabled the elaboration of a more comprehensive set of universal variables and causal relationships that are influential to differing degrees across organisations.

It was also important not to interpret all interviewee statements as 'gospel', as there is often a degree of messiness or ambiguity in the expression of ideas in any conversation. Some identified variables are often also closely intertwined or inseparable from others. In some cases, one particular statement could be interpreted as justifying a number of different possible connections, depending on the terminology used by the interviewer or interviewee, the degree of connectedness between variables, or the omission of intermediary variables in a relationship. In creating the common CLD model, the terminology often had to be adjusted to adequately reflect freshly discovered circumstances of new cases, whilst still holding validity in the initial case interpretation. Given the research covered organisations in different countries, care was also required to identify potential cultural or first-language differences that could have a bearing on the interpretation of meaning.

For some variables, the causal relationship was bi-directional, and the more dominant one was selected as the upstream variable for simplicity of visual representation. For example, 'authentic, sustainable stakeholder relationships' were identified as leading to 'partner trust'. Clearly, some degree of interpersonal trust is required to underpin any relationship, but on balance, the latter was considered to be a result of the former. This reinforces the intended interpretation of the CLD findings – just like the findings of any other thematic qualitative analysis – as being influenced by the researcher's perspective and judgement, in line with the critical realist ontological positioning.

This underscores the importance of a traceable chain of evidence, iterative model testing with informants and peers, and ensuring a sufficient sample size to reach

saturation in the common CLD model observations.

An additional limitation associated with the iterative feedback approach to developing BM value exchange maps and CLDs, is that the available time of business respondents was inevitably scarce, which placed constraints on how much could be discussed in feedback sessions. The degree of complexity in variables was too great for an individual to interpret, in full, within a 60-minute feedback discussion session. In some cases, this meant that longer interviews took place, while in others a greater degree of compromise in discussion subjects was required. While all parts of the CLD were introduced by the researcher, the most uncertain variables were prioritised for discussion, receiving the greatest attention. Thus, the informant feedback processes are best viewed as a means of determining whether any parts of the system's representation clearly did not make sense to the informant, or were at odds with their mental model of the system formed by their observation and experience. This means that the method applied could not be classified as a genuine research/informant *co-production* of sensemaking.

6.2.2 Value Exchange and Value Chain Mapping Limitations

An important limitation was identified with regard to context-specific business model representations (the value exchange maps). For organisations that are very large and diverse in the types of products and services offered, the maps were unable to be drawn to holistically encompass the breadth of organisational activity. Undertaking the process for a subset of product lines or business model groupings was considered as a means of overcoming this constraint, however, the value of this approach in seeking to explain broader processes across the entire organisation was unclear. The common CLD model did not face the same limitation due to the higher level of abstraction and process of iterative case convergence.

The later stage of the adaptive theory approach – unlike the earlier preparation of CLDs and boundary-spanning value exchange maps – did not involve iterative discussion with key informants on the BM visualisations produced. Therefore, it is important to note that the Wardley-style value chain maps are solely the author's

interpretation (drawing on three to six hours of interviews with organisational representatives and analysis of websites and other publicly available materials). Elements such as which BM variants were mapped, the selection of represented value chain components, and the nomination of evolutionary positions involved substantial author judgement. This has the potential to change the value chain shape or how a relationship is represented. Thus, it is important to think of these maps not as an independent source of truth, but as a means for eliciting understanding and discussion regarding pattern recognition in businesses with a common set of open operating procedures.

While a full analysis of all BM variants of every case organisation was beyond the scope of this research, the method demonstrated holds potential for organisational representatives intimately familiar with the value chain and strategy to explore how open BM strategies could be employed to extend societal value creation outcomes.

Finally, while Wardley value chain maps generally begin with a customer need and examine those needs are serviced, they can also be framed around *any* user or stakeholder benefit (Mosior, 2021). This makes them amenable to mapping a not-for-profit or social enterprise supply chain from the perspective of a societal need or an associated organisational mission statement. Doing so, when combined with the societal value creation and destruction lens incorporated in this research, could be an interesting area for future research to aid the shift of organisational value creation analysis towards more societal framing.

6.2.3 Addressing the Relativity of Sustainable Outcomes

An issue with the analysis of societal value creation, as with past efforts such as Brehmer et al. (2018), is that socially and environmentally desirable value flows are only able to be represented *relative to peers*. Without quantification and positioning within a contextual framework of adequacy, such analysis cannot establish whether the value creation is a sufficient contribution toward societal goals. Some, but not all, of the case organisations engage in rating schemes that go some way to achieving this goal. Organisation D (Enel), for example, has its commitments certified under the

Science Based Targets Initiative (SBTi) to confirm the compatibility of carbon outcomes with 1.5- or 2-degree warming scenarios. Organisations C and F have B-Corp certification, which provides a consistent scoring methodology, but does not situate within an adequacy framework. In all cases, the creation of social value remains unquantified and a matter of qualitative narrative. Without a picture of the totality of social value creation and destruction, this makes it difficult to discern meaningful contributions from ‘community-washing’ (Barrie & Wellington-Lynn, 2021).

With the additional representation of ‘tensions’, the research improves upon existing methodologies by identifying BM exchanges in which societal value can be depleted. Nonetheless, this falls short of a holistic consideration of adequacy. Even sustainable BM archetypes can have the opposite effect, where they increase consumption, resource demand, or inefficiencies in production (Kortmann & Piller, 2016). The work of McElroy and Thomas (2015),⁸⁷ utilising a framework of sustainability standards or thresholds, develops a ‘MultiCapital scorecard’ that seeks to address this issue by quantifying and contextualising sustainable value creation outcomes. While being a highly valuable contribution, a substantial amount of work is required to prepare such analyses. This presents a challenge for research design in that unless the organisation has already undertaken this process, it is very difficult to have robust data to compare the outcome of sustainable BM design differentiators or the influence of OBM dynamics.

If this contextual sustainability index data were available, it could also be integrated into quantitative system dynamics modelling, building upon the qualitative CLD model developed in this research. Specifically, the ‘stakeholder value alignment in BM’ (variable 21) could be quantified using MultiCapital scorecard metrics.

Thus, future work could explore case or database selection using organisations that have engaged in sustainability value creation assessments, be it relative (such as B-Corp or Economy for the Common Good benchmark) or, ideally, absolute (such as the MultiCapital scorecard or Future-Fit Economy benchmark).

⁸⁷ See also Thomas and McElroy (2015)

6.2.4 Applicability of Results to Other Sectors

This research exclusively studied OBMs in energy sector organisations. Many BM analyses of similar nature are conducted across multiple sectors, to maximise research applicability across sectoral boundaries. This sector-specific approach was taken to ensure that the researcher carried an expert perspective on the broader sectoral dynamics within which the observed phenomenon are contextualised (refer to research design in Section 4.2). This approach matched the relatively small number of deep case studies achievable within the scope of work. While some care must thus be taken in extrapolating results to other sectors, there are numerous reasons for considering that many of the documented dynamics are more widely applicable.

Firstly, the broad technological and industrial dynamics described in Section 6.1.3 are cross-sectoral and affect numerous sectors in a similar way to that of the energy sector. For example, the technological influences of digitalisation and the decentralisation of resource production and management have also heavily affected IT, telecommunications, food systems, and manufacturing. The related phenomena of the fragmentation of value chains as specialised tasks that were previously controlled by large centralised players become ‘unbundled’ is recognised as a broad evolutionary trend across markets. And the convergence of traditionally understood industrial sectors means the same institutional parties are becoming active across several domains concurrently.

Secondly, observed results are largely consistent with other economy-wide results. Chapters 5 and 6 have highlighted and discussed the findings in the context of pre-existing bodies of knowledge. While some of the findings contribute to theory building in the realm of SBMs, OBMs and partnerships (see Section 6.1), none of the findings directly *conflict* with published results. This further supports the contention that the dynamics documented are likely to extend beyond energy sector organisations. For example, the causal loops documented in the dynamics of e-Business (Kiani et al., 2009) and the basic dynamic structure of BMs developed for the capital goods industry (Lerch & Selinka, 2010), both correlate closely with the results of energy OBMs.

Aspects of the findings that are considered more contextually situated within the

energy transition and thus potentially less applicable in other sectors are:

- **Alignment of organisational goals with societal purpose:** The energy transition is a sector undergoing rapid change towards compatibility with societal decarbonisation goals. In 2022, the momentum of energy innovation clearly lies with this trajectory, and thus almost all new innovation carries an inherent societal focus. This societal focus tends to be core to the market existence of new players and is nearly impossible for incumbents to avoid entirely. For other sectors without such a clear and urgent societal change imperative, the societal alignment of parties may be less clear. This does not necessarily mean that the dynamics described are less *relevant*, but perhaps may be less pervasive in those sectors.
- **Ownership and financing structures:** The CLD describes dynamics in which equity investment plays a key role as the primary source of capital, and with an ensuing influence on organisational governance. In social sectors or business systems in which equity investment is not present, these components of the dynamics may hold little currency. This is identified as a promising area for further work in the context of not-for-profit enterprise organisational, or other organisations in which equity investment does not or can not play a role.
- **Distribution of power or control:** As technological decentralisation does not pervade every industry to the same extent as digitalisation, the underlying prominence of the distributing power or control to traditionally less influential players in the system may not be present to the same degree in other sectors. Thus a lesser influence of an empowerment-driven systems change narrative may have some bearing on the dynamics described.

6.2.5 Other Limitations and Future Work

Number of organisational respondents

This research was based on the perspectives of between one and three representatives as proxies for each organisation. While all focal organisation representatives had

sufficient seniority and involvement with management and innovation practice to provide an informed perspective, the results nonetheless represented a narrow range of perspectives. As was raised by one interviewee:

If you were having this discussion with...the CEO or one of our other people, you'd probably get quite different answers too ... I'm influenced by the fact that I've got decades of having been in the sustainability space and that's more of an influence on me than 'business' – Organisation B.

As a critical realist that recognises individually and socially constructed versions of reality, I am cognizant that this will not represent the diversity of perceived realities from different parts of the organisation. While some respondents shared with colleagues for feedback and the issue was managed across the sample through multiple case replications, follow-up research could test the system representations at the individual organisational level more broadly with other representatives to promote discussion on areas of discord, and ensuing refinement.

Validation data sources

Primarily viewing the phenomenon from the focal organisation's perspective (with a more limited number of partner perspectives) could mean other external views on claimed societal value creation differ. This issue was generally managed through data triangulation with external data sources, but for some organisations – particularly those smaller, privately owned organisations in an earlier life-cycle stage – little external comparison data was available, which may carry some risk of single-source bias (Campbell & Fiske, 1959).

Longitudinal perspective

This research has followed the activities of these organisations over three years, in relation to new product releases and media representations, but interviews took place over a relatively short span of a few months. These interviews with founders or long-serving team members were able to provide a relatively comprehensive historical view of BM changes (albeit tempered by issues associated with the accuracy of

recollection).⁸⁸ As many dominant variables relate to leadership, governance and finance, it may be valuable to revisit these organisations in 3 to 5 years' time to obtain updated perspectives on openness, BM changes and societal value creation outcomes. Such a longitudinal perspective would strengthen confidence in the reporting of changes over time as well as provide greater opportunity for exposure to critical events such as capital raising, ownership buyouts, strategic management changes or resilience in the face of pandemic-induced pressures.

Cognitive implications of visual tools

This research utilised visual sensemaking methods, in large part because these are useful for working with business model cognition (Eppler & Hoffmann, 2011; Osterwalder & Pigneur, 2010), but also because I naturally gravitate towards this learning style. This research covers both a transactional view (value exchange maps) and a causal view (CLDs), with less of a focus on an elements view (such as Osterwalder's (2010) BM canvas) (using the classification of Täuscher & Abdelkafi, 2017). Note, however, that the little research on the cognitive implications of different types of visual BM representations suggests substantial variance in effectiveness for different purposes (Henike et al., 2020). As reality must, to some extent, be simplified (even when taking a holistic systems approach), design choices influence the audience's "ability to pay attention to, encode and make inferences about reality" (Henike et al., 2020, p. 4). It is for this reason that the presentation of results to informants was considered most effective as a multimedia presentation alongside an open discussion, with the relatively high degree of visual complexity being revealed *progressively*. Ultimately this is also the rationale for the inclusion of an accompanying online presentation alongside the thesis (the link for which is provided in Section 5.2).

Sample size and future extensions

While the research utilised a sample size large enough to achieve saturation for the process of model building, future research could extend the sample size with particular regard to organisations that vary in important ways. For example,

⁸⁸ Asking respondents about historical events introduces the potential hindsight bias (Boekel et al., 2018), through which such events are recalled or rationalised differently with the passage of time.

Organisation D (Enel) was of particular interest as it shifted towards a societal value focus, rather than being 'born sustainable' like other cases. In this case, its innovation process went beyond professional partnerships and involved workers and communities within which its facilities were embedded. This wider participatory approach was critical to understand how to generate value for those stakeholders and to redesign the value chain accordingly. Given the importance of this process in moving from extractive to regenerative business models, increasing the size of this cohort would be of value.

In addition to examining more organisations *transitioning* towards sustainability, future research would benefit from further comparative examinations of:

- unsustainable organisations⁸⁹
- large organisations with diverse BM portfolios
- transitioning organisations with a closed approach to innovation
- born sustainable organisations with a closed approach to innovation
- with different ownership and financing structures (covered in more depth in Section 6.3.2)

6.3 Further Research

The preceding sections raised several opportunities for future research, including:

- Addressing the relativity of sustainability outcomes through consistent, contextual benchmarking indices (6.2.3).
- Applying value chain analysis to a societal need rather than a customer need (6.2.2).
- Exploring potential contributions of the dynamic BM framework through a societal value creation lens (6.1.2).
- Extending case organisations to examine more organisations transitioning

⁸⁹ Consistent with the recommendation of Brehmer et al. (2018).

towards sustainability, and comparative examinations with large organisations, closed innovators and organisations with different ownership and financing structures (6.2.5).

- Exploring OBMs as empowerment devices towards achieving collective societal goals (6.1.4).
- Explicitly conceiving of OBMs as a potential entry point to ‘platforms’, and in this context extending our understanding of network effects in the context of scaling societal value-creating OBMs (5.3.1).
- Further developing the qualitative relationships described in quantitative SD modelling, by tying the identified variables more strongly to existing bodies of research involving measurement indices (6.1.2).

This section discusses two additional prospective streams of future work:

- Incorporating sustainability transitions theory.
- Examining the role of profit.

6.3.1 Incorporating Sustainability Transitions Theory

The connection between business model analysis, which is the representation of the current expression of business value creation and capture logic, and long-term sustainability transitions, is difficult to make. It presents a challenge of two very different timescales. Business models can be observed in the present. Sustainability transitions can often only be effectively observed with the benefit of hindsight. Yet this is the critical connection that we must make, as we can *only* act in the present, and we can only influence things over which we have direct (or perhaps indirect) control. Yet we require a reasonable cognition of the implications of those organisational actions for the sustainability of social and ecological systems within which they are embedded. At the initiation of this thesis, few scholars had succeeded in connecting these fields. Over the course of this research, however, early strides have been taken to make these connections (see Aagaard et al., 2021a).

An understanding of how SBMs evolve is a critical part of this picture and, as such, BM dynamics must be a component of our conceptual arsenal. But as SBMs exist

within complex socio-ecological systems, societal value creation and destruction outcomes are often uncertain or delayed, and may at times be counterintuitive. The unit of study for this research is the organisation and its collaborative value network, recognising that combining a breadth of ideas and resources is critical to solving complex sustainability challenges. As discussed in Section D1, the boundaries between organisations and their surroundings are blurring, as pervasive digitalisation allows the unbundling of organisational functions. This has led to the emergence of concepts such as OBMs to help us understand exchanges between different entities working towards a common goal. While daily operating decisions are made based on the resources and relationships an organisation can influence, connections to ‘the outside world’ recur throughout the documentation of OBM dynamics. The role of government as a market shaper is a key example that governs where the floor or ceiling of societal value creation resides. The degree of purpose orientation of investors relates to the evolution of societal norms, global politics, and the strength and scale of the impact investment movement. And the fact that investors have significant sway over the incentives enshrined in business model choices reflects institutional norms governing the types of organisations operating in the marketplace (and within this research sample).

As we attempt to think more systemically about societal impact, and as organisations become more networked in how they interact, an ecosystemic perspective is gaining favour. In a recent call to action, for example, this was translated into some critical questions about SBM innovation (SBMI): “Who or what are the catalysers of virtuous cycles of SBMI impacts on business ecosystems, society, and planet?” and “How can businesses map their position in an ecosystem to better understand how to make an environmental or social impact?” (Snihur & Bocken, 2022, p. 6). While my research goes some way to understanding the effect of internal organisational, partner and market dynamics of societal value creation, a system transition lens would be well-placed to engage with the different temporal scales implied by these questions.

Very recently, research interest in the role of collaboration has led to a stream of

SBM research called ‘collaborative sustainable business modelling’ (CSBMing),⁹⁰ which seeks to bring sustainability transitions theory to collaborative business models, and an organisational perspective to transition management. The process focuses on understanding how diverse stakeholders work together to develop mutually beneficial value propositions and prevent contradictory incentives in the value network (Derks et al., 2022). Critically, CSBMing shifts from assuming that external factors outside the value chain are fixed (as is commonplace for most regular business model design), to assuming that they are within the realm of potential influence (Jonker et al., 2020, sec. 2.5). The act of collaborating with the right set of actors creates the conditions to experiment with the system settings that might be holding back the desired sustainability shift. This resembles the ideas of market-shaping discussed in Section 2.1.2. Collaborative Sustainable Business Modelling conceives sustainability transitions as a change to a business ecosystem, in which the value network of collaborators forms the bridge between the individual organisation and the broader system seeking to be changed.

Only upon successful scaling of the CSBM does this change occur, and might involve new industry standards, diffusion of technology or business models, or other system shifts. Jonker et al. (2020) argue that as niche innovations often get stuck and are unable to achieve sufficient scale to challenge or displace the current regime, the concept of CSBM can be a vehicle to achieve the explicit goal of scaling towards mainstream application. In a series of case examinations, CSBMing was shown to achieve wider ecosystem change by:

- (i) reducing the threatening factor of the incumbent regime;
- (ii) convincing more actors to join, thus scaling the innovation and creating convergence towards a dominant design;
- (iii) strengthen[ing] the pressure on regime actors outside of the value network(s) surrounding the innovation to change; and
- (iv) assist[ing] in business model alignment within the new regime, which gradually replaces the old (Derks et al., 2022, p. 19).

These ideas have strong alignment with the conceptualisation of the OBM, as

⁹⁰ CSBM refers to a collaborative sustainable business model itself. while CSBMing refers to the process through which a CSBM is created (Aagaard et al., 2021b).

presented in Section R3.2, and the connection to scaling towards ‘truly transformative’ business models (Section 2.1.4). Applications of CSBM would also likely fit the OBM definition. This is, therefore, considered to be a promising avenue for continuing to explore the OBM-centred ideas of this thesis, with a transitions lens. Future work could focus on moving from the development of CSBMing as a theoretical framing and analytical device, to a practical methodology for identifying critical tensions or leverage points between value networks and societal value creation in the broader ecosystem.

6.3.2 The Role of Profit

Despite not being an explicit focus of the literature review, when interrogating the distinction between societal good as a *secondary consideration* or a *core focus* of business activity, a recurrent division emerges between for-profit and not-for-profit organisational forms, particularly in terms of the nature of their value creation and the degree of alignment with societal purpose. Non-profits legally have a core alignment with a societal value-based mission, while for-profits have the ultimate goal of economic value creation (Cotterlaz-Rannard, 2021). This indicates that the setting of the overarching ‘system objective’ occurs in the profit orientation and the associated institutional model, consistent with Hinton’s (2021b) framework identifying these elements as the most permanent and the most influential of other dimensions of organisational sustainability.

Yet organisational forms that combine societal purpose and profit generation exist in different guises, particularly as traditional non-profit charities seek to be less donation-reliant, and for-profit businesses seek dual value creation goals. These are often called ‘hybrid’ organisational forms (Haigh et al., 2015). However, a more binary treatment of profit orientation pervades sustainable business literature, as it commonly fails to recognise forms of not-for-profit enterprise (Hinton, 2021a). These are organisations that sell products and services to generate revenue, as do for-profit businesses, but differ in that their legal constitution requires that they reinvest their surplus (i.e., profit) into the societal mission, and cannot privatise the economic value

captured. Such enterprises have been distinguished as being *not-for-profit*, in that they exist for a societal purpose, with profit being in service of that purpose. This is distinct from donation-based charities being ‘non-profit’, or for-profit enterprises that also seek to create societal value (Hinton, 2021a).

Returning to the OBM dynamics of societal value creation described in the CLD, the key loop can operate as a virtuous reinforcing loop (the long-term value reinvestment loop, L1a), or as a balancing loop (the short-term value extraction loop, L1b) according to the time-horizon taken by organisational governors. But what if value extraction did or could not occur?

The case study group does not include any not-for-profit enterprises,⁹¹ which, by definition, can only operate in the virtuous reinforcing loop (L1a) because they cannot legally privatise profit. This would create a circumstance where there is no leakage associated with value extraction for organisational owners, and the efficiency of the virtuous loop would be improved. It thereby ensures that the source of finance does not influence organisational governance or associated value-sharing arrangements in the BM. In the studied organisations with equity investors, a relatively complex suite of variables dictate daily governance decisions balancing profit and purpose: incorporation structure, the scale of equity investment, and ethical investment drivers. Each of these influences the strength of investor connection to purpose.

In not-for-profit enterprises, debt or bond finance mechanisms are used, meaning that repayment of capital is pre-agreed, as distinct from the (potentially) uncapped returns of equity investors. While all organisations in the sample had also used debt finance (see Section 5.2.3), no influence on governance dynamics was raised. This is perhaps because debt repayment is a pre-profit business expense and repayments are pre-defined commitments.

This highlights an important avenue for future work to extend or adapt the conceptual model of OBM dynamics to organisations with explicit separation of capital investment and organisational governance. Such separation is common in

⁹¹ This was an artefact of organisational availability and access rather than a distinct research design choice.

foundation-owned organisational models, common in Northern Europe (Thomsen et al., 2018). This would combine well with a longitudinal perspective on business model dynamics suggested in Section 6.2.5, as a recognised benefit of NFP enterprise structures is to reinforce purpose by eliminating the risk of mission drift or ownership takeovers (Hinton, 2021a).

The importance of foundational legal rights and cultural norms associated with the institutional form also suggests that an institutional theory lens could yield new insight for business model analysis.

My research identified that despite their for-profit form, little value extraction occurred in many of the case organisations over the research period. This was either because a long-term view of governance was maintained, or because newer organisations were in a rapid growth phase before founders had made an exit. As flagged in Section 5.2.3, under a venture capital-funded startup model, value leakage via the value extraction loop (L1b) would thus occur sporadically, rather than routinely. A deeper evaluation of the relative implications of routine versus sporadic value extraction on customer and societal value creation outcomes would require a larger, longitudinal dataset and would present an interesting avenue for further research.

7. Conclusions

This thesis set out to answer the central research question “Under what conditions does opening the business model lead to richer societal value creation?”. The findings conceptualise OBMs as a mechanism for the scaling of collaborative societal value creation and provide empirical evidence documenting the conditions within which societal value can be created and maintained within OBMs.

It responds to calls for more research to understand how business models evolve over time, how SBM and organisation design intersect, and how external collaboration directly influences the process of aligning core business activities with societal challenges. The conclusions are interwoven within a summary of responses to the three research sub-questions:

1. What dynamics support societal value creation in OBMs?
2. What is the relationship between the design of the OBM and the dynamics of societal value creation?
3. How does the business’ context shape the relationship between the OBM and societal value creation?

7.1 Research Sub-Question 1

What dynamics support societal value creation in OBMs?

Sub-question one informs the research gap regarding the influence of openness on societal value creation within the business model. The aim here was to develop a common causal model explaining the interaction of influential variables that shape the development of OBMs towards societal value creation.

The analysis identified six feedback loops controlled by a suite of influential variables. However, before summarising the detail of the findings, it is worth some macro-level reflection on some specific research gaps underlying the above question. Firstly, the literature is unclear on how important the process of opening the business model is to delivering societal value creation. The research demonstrated that

openness is *the* central source of both innovation *and* societal value creation in OBMs. Three of the four *virtuous* feedback loops involve openness at the core of their dynamics. This concurs with previous research that argued that dynamic capabilities do not exclusively reside inside firms, but can be co-created (Giudici et al., 2018).

Secondly, while SBM design considers patterns of content, structure and governance of BM exchanges, to what extent are organisational design elements necessary to achieve these SBM design outcomes? The research found that organisational design elements of the focal organisation – which incorporate ownership, governance and finance – are critical in the dynamics of two of the five feedback loops identified. These organisational design variables are ‘foundational’, in that without them in place, openness would either not be present, or not be focussed on societal value creation. This conclusion offers clarity to organisations seeking to improve societal value creation outcomes, that there is foundational *internal* as well external (collaborative) work required to achieve this goal.

And thirdly, sustainability-oriented innovation has primarily focussed on the importance of incoming knowledge flows (Rauter, Perl-Vorbach, et al., 2017). This research finds, similar to examples from Open Social Innovation (Chesbrough & Di Minin, 2014), that outgoing knowledge flows are also important to societal value creation. Four societal value creation mechanisms were identified, and outgoing knowledge flows are prominent in two to three of these mechanisms. This suggests that innovation literature should increase its focus on outgoing knowledge flows as a tool for transferring system value.

While some nuance is lost, it is possible to ‘flatten’ the most prominent findings of the causal loop model and dominant variables into a simple list. These are presented as a set of seven conditions for OBMs to successfully achieve sustained societal value creation:

1. A societally oriented system change goal needs to be an explicit focus of the collaborative innovation process, and thereby a shared goal between the focal organisation and its partners. This tends to be implicit in ‘born sustainable’ organisations but requires an explicit shift for organisations transitioning to sustainability.

2. The focal organisation must maintain a long-term view of value creation, which requires aligning its ownership and finance, ethics and governance processes.
3. The equitable distribution of multiple forms of social, environmental or economic value creation is required, which demands effective processes to understand stakeholder needs and involve them in the BM innovation process.
4. Richer societal value creation can be achieved with more diverse partner types with different value logics. This should include deliberate engagement of facilitating agents such as government, regulators and NGOs in collaborative innovation where systemic barriers to the desired change need to be challenged.
5. Legacy tensions in the focal organisation's BM must be identified and resolved by reconfiguring value exchanges.
6. An ecosystem-builder or empowerment mindset in the focal organisation is critical, which translates to a genuine willingness to share value and power. This facilitates a shift in thinking from maximising value capture for the focal organisation (a competitive framing), to achieving the most rapid or effective system change (a collaborative framing).
7. The focal organisation must recognise and carefully manage the transaction costs of partnership and ensure that complementarity exists between partner skills and resources, as more collaboration is not always better.

The implication of these findings is that opening the business model does not inherently drive societal value creation. For this to occur, the above conditions need to be true. Nonetheless, it was observed in Organisation D (Enel) that being willing to listen and integrate negative feedback from critical external stakeholders actually then drove a dramatic organisational shift towards more open processes and culture, through which societal value creation then became a more central focus.

Following these guidelines can aid businesses seeking to open their BM innovation process with a set of widely applicable rules of thumb to drive better societal value

outcomes.

The role of government as market shapers

While much of these findings facilitate businesses to directly act to improve societal value creation, an important balancing loop was identified which articulates the critical role of government and regulators in market shaping. Governments, through policy mechanisms, create markets and settings that dictate cost and revenue structures. As such, this dynamic highlights the opportunity for government actors to 'lift the bar' for societal value creation across the system. If the market is not delivering the scale of environmental benefit for that sector to meet its climate commitments, or sufficient social licence to underpin the necessary political buy-in to the sustainability transition, this can be shifted to raise the benchmark. For example, the UK government's introduction of tighter supply chain development and community engagement within its policy mechanism to deliver new renewable energy capacity (UK Government, 2021).

Summary

Individually, the conditions described here have also been identified by others. The novelty of these results is to provide a more comprehensive framing of societal value using an OBM lens, and to articulate the relationships between numerous well-studied, and other less-studied, concepts within business models, business strategy, organisational design and open innovation. In doing so, this work has begun to weave a tapestry of the complex intersections of how and why societal value creation is created in OBMs.

7.2 Research Sub-Question 2

What is the relationship between the design of the OBM and the dynamics of societal value creation?

Sub-question two informs the research gap on how more heavily studied and better-understood sustainable BM designs conceptually relate to the dynamic processes governing the evolution of the BM. This helps us to understand, for example,

whether ‘good’ SBM design can exist, or persist, without the appropriate processes governing the dynamics, and vice versa.

The key findings of this analysis were that sustainable *OBM designs* demonstrate huge heterogeneity, with each value transfer being rooted in the contextual specifics of the organisational relationship. Sustainable *OBM dynamics*, on the other hand, were largely able to be described with more limited consideration of contextual circumstances. I conclude that conceptually, sustainable OBM design is an outcome embedded within the process of sustainable OBM dynamics, which I define as ‘the *structures* and *processes* through which an organisation innovates with external parties to collectively improve the sustainability of the system within which its business model is embedded.’ The concepts are, therefore, inextricably linked, but the outcome follows good process.

So, what if we viewed the sustainability of OBMs (and SBMs, more generally) not as designs to replicate, but as an emergent property of a complex system? A focus on process rather than outcome may help organisations get the foundational structures and processes right, from which sustainable OBM designs would precipitate. Much of this sensemaking work is internal first, to ensure that the core values, incentives and goals underpinning BM design are aligned with societal value creation. The remainder involves ensuring that collaborative relationships and innovation processes are established and conducted with the right guiding philosophy: of an ecosystem-builder seeking to empower its network.

The patterns observed in sustainable *OBM designs* were found to be largely consistent with existing SBM research. The analysis of OBM designs through a more dynamic framework of value chain mapping did, however, reveal five important insights. First, organisations with OBMs create new, diverse, ‘specialised’ customer offers as mechanisms for social and environmental value creation, which tend to cluster at the top of the value chain (closest to the customer). To achieve this, some redesign is often required further down the value chain to eliminate prevailing social or environmental tensions present in incumbent BMs. Second, OBM organisations are often willing to ‘unbundle’ their core capabilities to create a more flexible foundation for partnerships relative to their incumbent competitors. Third, a shift in

value chain shape highlights a trend toward OBMs operating as ‘platforms’ to facilitate systems change, which relates to the concepts of empowerment and ecosystem-builder mindset described in the CLD analysis. Fourth, some organisations deployed a ‘portfolio’ OBM strategy, involving developing multiple OBM variants that all coexist in the market, while others use an ‘evolutionary’ OBM strategy, to implement more significant and permanent shifts in organisational focus. Finally, to reveal these findings, it was necessary to examine BM variants at the level of the product or business unit and how the relationship between variants relates to market strategy. A solely abstracted organisational-level view of the OBM would struggle to interpret the value offered by the dynamism of the OBM.

These findings contribute to BM, OBM and SBM theory in furthering understanding of the dynamic nature of collaborative BMs, and offer a new set of methods tailored towards analysing the particular affordances of openness for societal value creation.

7.3 Research Sub-Question 3

How does the business’ context shape the relationship between the OBM and societal value creation?

Sub-question three informs the research gap on the influence of organisations’ contextual setting, or boundary conditions, in shaping BM design and dynamics. The aim here was to distinguish more universal OBM dynamics and design patterns from the effect of peculiarities associated with factors such as developmental history, market or scope of operation. There were two main conclusions from this analysis.

The first relates to organisational history, and whether an organisation was born, or transitioned to, sustainability. While the core dynamics of the common CLD model were found to be applicable across organisational contexts, organisations that transitioned to sustainability required additional variables to be in place to successfully deliver societal value, and overcome previously recognised barriers BM redesign such as inertia, blindness or lock-in. For example, structured tools to facilitate the identification of shared value between stakeholders, and internal

processes to facilitate organisational culture shift. Greater degrees of formal structure in the innovation process also appeared to be associated with larger organisations.

The second relates to the geographical scope of operation. Organisations more rooted in addressing a commercial market gap create broad societal value that is often technological in origin, generally scalable across geographic contexts, and commonly delivered by for-profit businesses. Organisations more rooted in a specific geographic context that hold strong local knowledge and relationships are more able to deliver the 'deep' type of SVC, which meets contextually-specific diverse local needs, but is difficult to directly replicate or apply in other locations.

These 'deep' societal value creators were more likely to involve polycentric forms of governance and not just for-profit businesses, reflecting the link between the prioritisation of societal mission and organisational ownership, legal structure and governance mechanisms. This finding relates to the importance of organisation design elements to the dynamics of societal value creation. While the legal structure is something that theoretically can be changed, it is often something that is fixed in the organisational formation stage, and for the purposes of understanding ongoing dynamics is perhaps more pragmatically considered a contextual variable.

The OBM acted as a binding mechanism or bridge to connect the value propositions of different organisations with diverse contexts. This enabled the combination of deep and broad societal value creation within a single business model. Such an outcome is difficult to achieve within the boundaries of a single organisation due to the diversity of relationships, skills and resources to deliver deep, contextually tailored societal value. In presenting the conceptual model of an OBM, I conclude that different types of organisations play different roles within the collaboration, according to their respective strengths and resources. This case-based evidence supports previous quantitative research findings that OI-based partnerships correlate with improved sustainability performance, particularly where a broader range of non-business stakeholders are involved (Rauter et al., 2019).

7.4 Methodological Contribution

One of the central findings of this thesis is that to understand OBMs, the concept of BM dynamics is integral, as BM agility is the key dynamic capability offered by collaboration. As their function *is* evolution, they cannot be fully understood with a static lens. But understanding dynamics requires new tools and frameworks for analysing BM change. In this context, this thesis offers a methodological contribution to the field. Building on work in system dynamics, boundary-spanning SBMs, OBMs and business strategy, the methods provide a new set of visual conceptual tools for documenting and interpreting the significance of BM change towards societal value creation.

One must remember, however, in keeping with the notion of CLDs as sensemaking tools rather than representations of reality, CLDs should not be viewed as evidence that 'proves' a particular relationship. They merely seek to document the connectedness of different factors in the organisational system dynamics relating to societal value creation, OI and the BM. Documenting feedback loops is useful for articulating and debating our understanding of important influences on organisational behaviours, and for identifying which levers to pull to improve virtuous outcomes. For example, if tensions exist within the BM, and societal value is depleted at the same time as customer value is created, the resulting system concentrates benefits in one stakeholder type and feeds the continued extraction of value in another. This cannot be addressed without reconfiguring the underlying value exchanges. Or if an organisation shifts its governance mindset from long-term sustained customer growth to short-term revenue growth, this shifts the dynamics from a virtuous reinforcing loop, to a balancing loop that ultimately cannibalises customer trust and long-term growth.

7.5 Future Research Directions

This research elaborates some of the theoretical propositions contained in the foundational system dynamics models of SBMs (Abdelkafi & Täuscher, 2016; Cosenz et al., 2020) by drilling down into intermediary variables, adding elements such as

governance and finance goals and dynamic capabilities associated with open innovation, and identifying some measurable variables among existing diverse bodies of work. This adds to the knowledge base for future research to elaborate quantitative simulation-based system dynamics models of sustainable OBMs.

Recognising some of the key study limitations regarding organisational type and sample size, other recommended areas for future research include extending case organisations to examine a larger number of organisations transitioning towards sustainability, and incorporating comparison of results with large organisations, closed innovators and organisations with different ownership and financing structures. The latter area could take an institutional theory lens to clarify the role of profit in sustainable OBM dynamics outside organisations in which equity investors represent a dominant variable in governance.

Addressing the issue of *relative* sustainability, SBM scholars must more concretely tie outcomes to the concept of the adequacy of organisational contributions to the scale of the societal system need. In this context, the next frontier of OBM research is perhaps tending towards the ecosystem rather than the organisation, to aid innovators and market shapers in identifying systemic gaps that could be filled by new collaborations. This could extend the concept of OBMs as empowerment devices, to better explicate our understanding of how BMs can be applied to achieve the 'distributive' component of a regenerative and distributive economy.

Finally, a number of promising research areas have also emerged during the course of this thesis which could offer interesting avenues for future work, including interpreting the dynamic BM framework (Kamp et al., 2021) through a societal value lens, incorporating transitions theory through the emerging area of Collaborative Sustainable Business Modelling (Derks et al., 2022).

7.6 Concluding Remarks

This research began with a desire to explore business features that lie at the intersection of deeper, more root-and-branch organisational change, that better align core business activities with social challenges. It then honed in on collaborative

business models as a frame that is common to both radically sustainable business and commercial success. This prompted the question: Is the growing prevalence of collaborative approaches to business that is driven by competitive advantage, actually creating an opportunity for business models driven by purpose?

In this critical decade of climate action, it is increasingly clear that we cannot operate solely at the speed of community decision-making. Yet without businesses servicing community-scale niches, it is possible that the once-in-a-lifetime transitions such as that of the energy sector will have already occurred – and thereby remain predominantly controlled by large institutions with a primary focus on private value creation – before community-scale societal value creation is adequately understood and integrated. While many well-studied SBMs would indeed be considered ‘open’, this research provides some empirical evidence and an associated early conceptual model of how OBMs can play a role in connecting community-centric value creation with commercial scaling.

Casting back to the matrix of truly transformative business models (Section 2.1.4), recall the discussion of two pathways: a scaling pathway through which niche models with transformative *potential* find ingredients that deliver scaling success; and a transformative pathway through which disruptive models find ingredients that shift them into a more transformative mode of operation. The OBM could offer a third option that represents a mix of the above two pathways, integrated within one business model. That is *if* it incorporates sustainable OBM dynamics, which I define as ‘the *structures* and *processes* through which an organisation innovates with external parties to collectively improve the sustainability of the system within which its business model is embedded’. By introducing a focus on process as well as outcomes, sustainable OBM dynamics complement existing knowledge of SBM designs by providing a new lens to understand the intersection of organisational and business model change.

The OBM is not put forward as a utopian concept that is sharply distinguished from current practice. Business has always had interplay with and dependence on external parties, but the phenomenon is increasing with digitalisation and accelerating market change. Therefore, this research seeks to give a structured way of thinking about how

diverse agents – underpinned by a more collective mindset – can combine resources to more effectively shift the locus of value creation from private to societal gain.

References

- Aagaard, A., Lüdeke-Freund, F., & Wells, P. (2021a). *Business Models for Sustainability Transitions: How Organisations Contribute to Societal Transformation*. Springer International Publishing AG.
- Aagaard, A., Lüdeke-Freund, F., & Wells, P. (2021b). Introduction to Business Models for Sustainability Transitions. In A. Aagaard, F. Lüdeke-Freund, & P. Wells (Eds.), *Business Models for Sustainability Transitions* (pp. 1–25). Springer International Publishing. https://doi.org/10.1007/978-3-030-77580-3_1
- Abdelkafi, N., & Täuscher, K. (2016). Business Models for Sustainability from a System Dynamics Perspective. *Organization and Environment*, 29(1). <https://doi.org/10.1177/1086026615592930>
- Achtenhagen, L., Melin, L., & Naldi, L. (2013). Dynamics of Business Models – Strategizing, Critical Capabilities and Activities for Sustained Value Creation. *Long Range Planning*, 46(6), 427–442. <https://doi.org/10.1016/j.lrp.2013.04.002>
- Adams, R., Jeanrenaud, S., Bessant, J., Denyer, D., & Overy, P. (2016). Sustainability-oriented Innovation: A Systematic Review. *International Journal of Management Reviews*, 18(2), 180–205. <https://doi.org/10.1111/ijmr.12068>
- AEMO. (2021, November 23). *Negative electricity demand in South Australia*. Australian Energy Market Operator. <https://aemo.com.au/newsroom/news-updates/negative-electricity-demand-in-south-australia>
- Alexander, S. (2016). *Policies for a Post-Growth Economy* (MSSI Issues Paper No. 6). Melbourne Sustainable Society Institute, The University of Melbourne.
- Alexy, O., West, J., Klapper, H., & Reitzig, M. (2018). Surrendering control to gain advantage: Reconciling openness and the resource-based view of the firm. *Strategic Management Journal*, 39(6), 1704–1727. <https://doi.org/10.1002/smj.2706>
- Allee, V., Schwabe, O., & Babb, M. K. (2011). *Value Networks and the True Nature of Collaboration* (ePub version). Meghan-Kiffer Press.
- Amit, R., & Zott, C. (2001). Value creation in e-business. *Strategic Management Journal*, 22(6–7), 493–520. <https://doi.org/10.1002/smj.187>
- Anderson, J. C., Narus, J. A., & Rossum, W. V. (2006). Customer Value Propositions in Business Markets. *Harvard Business Review*, 91–99.
- Arcese, G., Flammini, S., Lucchetti, M., & Martucci, O. (2015). Evidence and Experience of Open Sustainability Innovation Practices in the Food Sector. *Sustainability*, 7(7), 8067–8090. <https://doi.org/10.3390/su7078067>

- Arnold, M. (2017). Fostering sustainability by linking co-creation and relationship management concepts. *Journal of Cleaner Production*, 140, 179–188.
<https://doi.org/10.1016/j.jclepro.2015.03.059>
- Austin, J. E., & Seitanidi, M. M. (2012a). Collaborative Value Creation: A Review of Partnering Between Nonprofits and Businesses. Part 2: Partnership Processes and Outcomes. *Nonprofit and Voluntary Sector Quarterly*, 41(6), 929–968.
- Austin, J. E., & Seitanidi, M. M. (2012b). Collaborative Value Creation: A Review of Partnering Between Nonprofits and Businesses: Part I. Value Creation Spectrum and Collaboration Stages. *Nonprofit and Voluntary Sector Quarterly*, 41(5), 726–758.
<https://doi.org/10.1177/0899764012450777>
- Australian Competition and Consumer Commission. (2018). *Restoring electricity affordability and Australia's competitive advantage: Retail Electricity Pricing Inquiry: Final Report*.
- Avelino, F. (2017). Power in Sustainability Transitions: Analysing power and (dis)empowerment in transformative change towards sustainability: Power in Sustainability Transitions. *Environmental Policy and Governance*, 27(6), 505–520.
<https://doi.org/10.1002/eet.1777>
- Ayuso, S., Ángel Rodríguez, M., & Enric Ricart, J. (2006). Using stakeholder dialogue as a source for new ideas: A dynamic capability underlying sustainable innovation. *Corporate Governance: The International Journal of Business in Society*, 6(4), 475–490.
<https://doi.org/10.1108/14720700610689586>
- Baratti, G. (2020, September 9). *Enel lines up three Italian coal closures for early 2021*. S&P Global Commodity Insights. <https://www.spglobal.com/commodity-insights/en/market-insights/latest-news/coal/090920-enel-lines-up-three-italian-coal-closures-for-early-2021>
- Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.
- Barratt, M. (2004). Understanding the meaning of collaboration in the supply chain. *Supply Chain Management: An International Journal*, 9(1), 30–42.
<https://doi.org/10.1108/13598540410517566>
- Barrie, N., & Wellington-Lynn, I. (2021, March 15). *Is “community-washing” the new greenwashing?* Sifted. <https://sifted.eu/articles/community-led-platforms/>
- Bates Wells. (2022). *Impact Economy Glossary*. Bates Wells, London.
<https://bateswells.co.uk/impact-economy-glossary/>
- Baue, B. (2020). *From Monocapitalism to Multicapitalism: 21st Century System Value Creation* (r3.0 White Paper No. 1). r3.0.

- Bauwens, M., & Pantazis, A. (2018). The ecosystem of commons-based peer production and its transformative dynamics. *The Sociological Review*, 66(2), 302–319.
<https://doi.org/10.1177/0038026118758532>
- B-Corp. (2021, September 29). *Directory | Certified B Corporation*. B-Corp.
<https://bcorporation.net/directory>
- Behrisch, J. (2013). *Incorporating ecological considerations into industrial design practice*. University of Technology Sydney.
- Bengtsson, L., Lakemond, N., Lazzarotti, V., Manzini, R., Pellegrini, L., & Tell, F. (2015). Open to a Select Few? Matching Partners and Knowledge Content for Open Innovation Performance: Matching Partners and Knowledge Content. *Creativity and Innovation Management*, 24(1), 72–86. <https://doi.org/10.1111/caim.12098>
- Benkler, Y., & Nissenbaum, H. (2006). Commons-based Peer Production and Virtue. *Journal of Political Philosophy*, 14(4), 394–419. <https://doi.org/10.1111/j.1467-9760.2006.00235.x>
- Benyayer, L.-D., & Kupp, M. (2017). Responding to open business models. *Journal of Business Strategy*, 38(2), 33–40. <https://doi.org/10.1108/JBS-09-2016-0094>
- Bertello, A., Battisti, E., De Bernardi, P., & Bresciani, S. (2022). An integrative framework of knowledge-intensive and sustainable entrepreneurship in entrepreneurial ecosystems. *Journal of Business Research*, 142, 683–693.
<https://doi.org/10.1016/j.jbusres.2021.12.054>
- Beschorner, T., & Hajduk, T. (2017). Creating Shared Value. A Fundamental Critique. In J. Wieland (Ed.), *Creating Shared Value – Concepts, Experience, Criticism* (Vol. 52, pp. 27–37). Springer International Publishing. https://doi.org/10.1007/978-3-319-48802-8_3
- Bidmon, C. M., & Knab, S. F. (2018). The three roles of business models in societal transitions: New linkages between business model and transition research. *Journal of Cleaner Production*, 178, 903–916. <https://doi.org/10.1016/j.jclepro.2017.12.198>
- Bigliardi, B., Ferraro, G., Filippelli, S., & Galati, F. (2021). The past, present and future of open innovation. *European Journal of Innovation Management*, 24(4), 1130–1161.
<https://doi.org/10.1108/EJIM-10-2019-0296>
- Bocken, N., & Geradts, T. H. J. (2020). Barriers and drivers to sustainable business model innovation: Organization design and dynamic capabilities. *Long Range Planning*, 101950. <https://doi.org/10.1016/j.lrp.2019.101950>
- Bocken, N., & Short, S. (2016). Towards a sufficiency-driven business model: Experiences and opportunities. *Environmental Innovation and Societal Transitions*, 18, 41–61.
<https://doi.org/10.1016/j.eist.2015.07.010>

- Bocken, N., Short, S., Rana, P., & Evans, S. (2013). A value mapping tool for sustainable business modelling. *Corporate Governance: The International Journal of Business in Society*, 13(5), 482–497. <https://doi.org/10.1108/CG-06-2013-0078>
- Bocken, N., Short, S., Rana, P., & Evans, S. (2014). A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*, 65, 42–56. <https://doi.org/10.1016/j.jclepro.2013.11.039>
- Boekel, M. V., Varma, K., & Varma, S. (2018). *Investigating hindsight bias: Lessons from using a think-aloud methodology in memory based research*. SAGE Publications Ltd.
- Boons, F., & Lüdeke-Freund, F. (2013). Business models for sustainable innovation: State-of-the-art and steps towards a research agenda. *Journal of Cleaner Production*, 45, 9–19. <https://doi.org/10.1016/j.jclepro.2012.07.007>
- Brehmer, M., Podoyntsina, K., & Langerak, F. (2018). Sustainable business models as boundary-spanning systems of value transfers. *Journal of Cleaner Production*, 172, 4514–4531. <https://doi.org/10.1016/j.jclepro.2017.11.083>
- Brenk, S. (2020). Open Business Model Innovation – The Impact of Breadth, Depth, and Freedom of Collaboration. *Academy of Management Proceedings*, 2020(1), 21971. <https://doi.org/10.5465/AMBPP.2020.19>
- Brennan, G., & Tennant, M. (2018). Sustainable value and trade-offs: Exploring situational logics and power relations in a UK brewery's malt supply network business model. *Business Strategy and the Environment*, 27(5), 621–630. <https://doi.org/10.1002/bse.2067>
- Breuer, H., & Lüdeke-Freund, F. (2014). *Normative Innovation for Sustainable Business Models in Value Networks*. 17.
- Breuer, H., & Lüdeke-Freund, F. (2015). Values-Based Innovation Framework – Innovating by What We Care About. *The Proceedings of the XXVI ISPIIM Conference 2015 -- Shaping the Frontiers of Innovation Management, 14-17 June, Budapest, Hungary*, 15.
- Breuer, H., Lüdeke-Freund, F., & Brick, C. (2018). *Business Model Innovation in the Era of Sustainable Development Goals*. https://www.researchgate.net/publication/325904721_Business_Model_Innovation_in_the_Era_of_Sustainable_Development_Goals
- Brummer, V. (2018). Community energy – benefits and barriers: A comparative literature review of Community Energy in the UK, Germany and the USA, the benefits it provides for society and the barriers it faces. *Renewable and Sustainable Energy Reviews*, 94, 187–196. <https://doi.org/10.1016/j.rser.2018.06.013>
- Brunekreeft, G., Buchmann, M., & Meyer, R. (2016). The Rise of Third Parties and the Fall of Incumbents Driven by Large-Scale Integration of Renewable Energies: The Case

- of Germany. *Energy Journal*, 37, 243–262.
- Brunswick, S., & Chesbrough, H. (2013). *Managing Open Innovation in large firms* (Executive Survey on Open Innovation 2013, p. 44). Garwood Center for Corporate Innovation, University of California, Berkeley; Fraunhofer Society, Germany.
- Burton, R. M., Erikson, B., Hakonsson, D. D., & Snow, C. C. (Eds.). (2006). *Organization design: The evolving state-of-the-art*. Springer.
- Business Roundtable. (2019, August 19). Business Roundtable Redefines the Purpose of a Corporation to Promote ‘An Economy That Serves All Americans.’ *Business Roundtable*. <https://www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans>
- Byiers, B., Guadagno, F., & Karaki, K. (2015). *From looking good to doing good: Mapping CSO-business partnerships* (Discussion Paper No. 182). European Centre for Development Policy Management.
- Campbell, D. T., & Fiske, D. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56(2), 81–105.
- Carroll, A. B. (2009). *A History of Corporate Social Responsibility* (A. Crane, D. Matten, A. McWilliams, J. Moon, & D. S. Siegel, Eds.; Vol. 1). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199211593.003.0002>
- Casadesus-Masanell, R., & Ricart, J. E. (2007). *Competing through business models* (Working Paper WP no 713; p. 30). IESE Business School – University of Navarra.
- Casadesus-Masanell, R., & Ricart, J. E. (2010). From Strategy to Business Models and onto Tactics. *Long Range Planning*, 43(2–3), 195–215. <https://doi.org/10.1016/j.lrp.2010.01.004>
- Chakrabarti, R., Henneberg, S. C., & Ivens, B. S. (2020). Open sustainability: Conceptualization and considerations. *Industrial Marketing Management*, 89, 528–534. <https://doi.org/10.1016/j.indmarman.2020.04.024>
- Chalmers, D. (2013). Social innovation: An exploration of the barriers faced by innovating organizations in the social economy. *Local Economy: The Journal of the Local Economy Policy Unit*, 28(1), 17–34. <https://doi.org/10.1177/0269094212463677>
- Chaurasia, S. S., Kaul, N., Yadav, B., & Shukla, D. (2020). Open innovation for sustainability through creating shared value-role of knowledge management system, openness and organizational structure. *Journal of Knowledge Management*, 24(10), 2491–2511. <https://doi.org/10.1108/JKM-04-2020-0319>
- Checkland, P. (2000). Soft systems methodology: A thirty year retrospective. *Syst. Res.*, 48.
- Chesbrough, H. (2003). *Open innovation: The new imperative for creating and profiting from*

- technology*. Harvard Business School Press.
- Chesbrough, H. (2006). *Open Business Models: How To Thrive In The New Innovation Landscape*. Harvard Business Press.
- Chesbrough, H. (2007). Why Companies Should Have Open Business Models. *MIT Sloan Management Review*, 48(2), 10.
- Chesbrough, H. (2016). *Innovation @ ENEL: From Monopoly Power to Open Power*. The Berkeley-Haas Case Series. University of California, Berkeley. Haas School of Business. <https://doi.org/10.4135/9781526407597>
- Chesbrough, H., & Bogers, M. (2014). Explicating Open Innovation: Clarifying an Emerging Paradigm for Understanding Innovation. In H. Chesbrough, W. Vanhaverbeke, & J. West (Eds.), *New Frontiers in Open Innovation* (p. 37). Oxford University Press.
- Chesbrough, H., & Di Minin, A. (2014). Open Social Innovation. In H. Chesbrough, W. Vanhaverbeke, & J. West (Eds.), *New Frontiers in Open Innovation* (First edition). Oxford University Press.
- Chesbrough, H., Lettl, C., & Ritter, T. (2018). Value Creation and Value Capture in Open Innovation: Value Creation and Value Capture. *Journal of Product Innovation Management*, 35(6), 930–938. <https://doi.org/10.1111/jpim.12471>
- Chesbrough, H., & Rosenbloom, R. S. (2002). The role of the business model in capturing value from innovation: Evidence from Xerox Corporation's technology spin-off companies. *Industrial and Corporate Change*, 11(3), 529–555. <https://doi.org/10.1093/icc/11.3.529>
- Christensen, C. M. (1997). *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*. Harvard Business School Press.
- Christensen, J. F. (2014). Open Innovation and Industrial Dynamics—Towards a Framework of Business Convergence. In H. Chesbrough, W. Vanhaverbeke, & J. West (Eds.), *New Frontiers in Open Innovation* (pp. 94–114). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199682461.003.0005>
- Cicero, S. (2018, September 27). *12 Patterns of Platform Design to kickstart Innovation Strategies*. Medium. <https://stories.platformdesigntoolkit.com/12-patterns-of-platform-design-to-kickstart-innovation-strategies-500c6dec9c3b>
- Ciura, B. (2022, April 26). *Will Amazon Ever Pay A Dividend?* Sure Dividend. <https://www.suredividend.com/amazon-dividend/>
- Clay, A., & Paul, R. (2012). Open Innovation: A Muse for Scaling. *Stanford Social Innovation Review*, 3.

- Cook, H. (2021, November 24). *Shell takeover of Powershop infuriates green consumers*. The Sydney Morning Herald. <https://www.smh.com.au/national/shell-takeover-of-powershop-infuriates-green-consumers-20211124-p59bp9.html>
- Coombes, P. H., & Nicholson, J. (2021). Exploring dynamic capabilities in open business models: The case of a public–private sector partnership. *The International Journal of Entrepreneurship and Innovation*, 22(2), 124–131. <https://doi.org/10.1177/1465750320915858>
- Corporate Finance Institute. (2022). *Business Life Cycle*. Corporate Finance Institute. <https://corporatefinanceinstitute.com/resources/knowledge/finance/business-life-cycle/>
- Cosenz, F., Rodrigues, V. P., & Rosati, F. (2020). Dynamic business modeling for sustainability: Exploring a system dynamics perspective to develop sustainable business models. *Business Strategy and the Environment*, 29(2), 651–664. <https://doi.org/10.1002/bse.2395>
- Cosh, A., Fu, X., & Hughes, A. (2012). Organisation structure and innovation performance in different environments. *Small Business Economics*, 39(2), 301–317. <https://doi.org/10.1007/s11187-010-9304-5>
- Cotterlaz-Rannard, G. (2021). *Nonprofit Business Models: A Bourdieusian Perspective*. <https://doi.org/10.13097/ARCHIVE-OUVERTE/UNIGE:149692>
- Coy, D., Malekpour, S., Saeri, A. K., & Dargaville, R. (2021). Rethinking community empowerment in the energy transformation: A critical review of the definitions, drivers and outcomes. *Energy Research & Social Science*, 72, 101871. <https://doi.org/10.1016/j.erss.2020.101871>
- Crane, A., Palazzo, G., Spence, L. J., & Matten, D. (2014). Contesting the Value of “Creating Shared Value.” *California Management Review*, 56(2), 130–153. <https://doi.org/10.1525/cmr.2014.56.2.130>
- Creswell, J. W. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches: Vol. Fifth Edition*. Sage Publications.
- Curley, M. (2016). Twelve principles for open innovation 2.0. *Nature*, 535(7603), 314–316. <https://doi.org/10.1038/533314a>
- Curley, M., & Salmelin, B. (2017). *Open Innovation 2.0: The New Mode of Digital Innovation for Prosperity and Sustainability*. Springer International Publishing AG. <http://ebookcentral.proquest.com/lib/uts/detail.action?docID=5093047>
- Curran, G. (2021). Contemporary environmental entrepreneurs: From the alternative technology movement to ecologically modernised community energy. *Journal of*

- Environmental Policy & Planning*, 23(4), 467–481.
<https://doi.org/10.1080/1523908X.2021.1880316>
- Dahan, N. M., Doh, J. P., Oetzel, J., & Yaziji, M. (2010). Corporate-NGO Collaboration: Co-creating New Business Models for Developing Markets. *Long Range Planning*, 43(2–3), 326–342. <https://doi.org/10.1016/j.lrp.2009.11.003>
- Damázio, L. F., Soares, J. L., Shigaki, H. B., & Gonçalves, C. A. (2020). Customer Centricity: A Bibliometric Analysis of Academic Production. *Rev. Adm. UFSM*, 13, 1510–1530. <https://doi.org/DOI:10.5902/1983465961375>
- DaSilva, C. M., & Trkman, P. (2014). Business Model: What It Is and What It Is Not. *Long Range Planning*, 47(6), 379–389. <https://doi.org/10.1016/j.lrp.2013.08.004>
- Davis-Peccoud, J., Seemann, A., Jongeneel, M., & Martins, F. (2018). *Transforming Business for a Sustainable Economy* (p. 12). Bain & Company.
<https://www.bain.com/insights/transforming-business-for-a-sustainable-economy/>
- de Leeuw, T., Lokshin, B., & Duysters, G. (2014). Returns to alliance portfolio diversity: The relative effects of partner diversity on firm's innovative performance and productivity. *Journal of Business Research*, 67(9), 1839–1849.
<https://doi.org/10.1016/j.jbusres.2013.12.005>
- de Man, A.-P., & Luvison, D. (2019). Collaborative business models: Aligning and operationalizing alliances. *Business Horizons*, 62, 473–482.
- De Marchi, V. (2012). Environmental innovation and R&D cooperation: Empirical evidence from Spanish manufacturing firms. *Research Policy*, 41(3), 614–623.
<https://doi.org/10.1016/j.respol.2011.10.002>
- De Silva, M., Al-Tabbaa, O., & Khan, Z. (2021). Business model innovation by international social purpose organizations: The role of dynamic capabilities. *Journal of Business Research*, 125, 733–749. <https://doi.org/10.1016/j.jbusres.2019.12.030>
- De Silva, M., & Wright, M. (2019). Entrepreneurial co-creation: Societal impact through open innovation. *Re3D Management*, 49(3), 318–342.
<https://doi.org/10.1111/radm.12362>
- Del Pilar Quiroz Galvan, M., Fritz, M. M. C., Šimunović, N., Stern, T., & Rauter, R. (2021). Overcoming sustainability challenges with non-profit organisations? Insights from the apparel supply chain. *Supply Chain Forum: An International Journal*, 22(2), 115–135. <https://doi.org/10.1080/16258312.2021.1911568>
- Deloitte Center for the Edge. (2014). *The Hero's Journey Through the Landscape of the Future*. <https://www2.deloitte.com/us/en/insights/topics/operations/heros-journey-landscape-future.html>

- Derks, M., Berkers, F., & Tukker, A. (2022). Toward Accelerating Sustainability Transitions through Collaborative Sustainable Business Modeling: A Conceptual Approach. *Sustainability, 14*, 3803. <https://doi.org/10.3390/su14073803>
- Di Silvestre, M. L., Favuzza, S., Riva Sanseverino, E., & Zizzo, G. (2018). How Decarbonization, Digitalization and Decentralization are changing key power infrastructures. *Renewable and Sustainable Energy Reviews, 95*, 483–498. <https://doi.org/10.1016/j.rser.2018.05.068>
- Donaldson, T., & Dunfee, T. W. (1999). *Ties that bind: A social contracts approach to business ethics*. Harvard Business School Press.
- Dyllick, T. L., & Muff, K. (2016). Clarifying the Meaning of Sustainable Business: Introducing a Typology from Business-as-Usual to True Business Sustainability. *Organization & Environment, 29*(2), 156–174. <https://doi.org/DOI:10.1177/1086026615575176>
- Ebrahim, A., Battilana, J., & Mair, J. (2014). The governance of social enterprises: Mission drift and accountability challenges in hybrid organizations. *Research in Organizational Behavior, 34*, 81–100. <https://doi.org/10.1016/j.riob.2014.09.001>
- Edwards, P. K., O'Mahoney, J., & Vincent, S. (2014). *Studying organizations using critical realism: A practical guide* (First edition.). Oxford University Press.
- Eisenhardt, K. M. (1989). Building Theories from Case Study Research. *Academy of Management Review, 14*(4), 20.
- Ellen MacArthur Foundation. (2019). *Case studies- Riversimple: A mobility revolution in Wales*. Ellen MacArthur Foundation. <https://www.ellenmacarthurfoundation.org/case-studies/a-mobility-revolution-in-wales>
- Enel Group. (2018). *Code of Ethics*. Enel SpA - Audit Department. <https://www.enel.com/investors/sustainability/strategy-sustainable-progress/sound-governance/basic-principles/code-of-ethics>
- Enel Group. (2019). *Sustainability Report 2019* [Consolidated Non-Financial Statement (NFS)]. Enel Group. https://www.enel.com/content/dam/enel-com/documenti/investitori/sostenibilita/2019/sustainability-report_2019.pdf
- Enel Group. (2020). *Sustainability Report 2020* (Consolidated Non-Financial Statement (NFS)). Enel Group. https://www.enel.com/content/dam/enel-com/documenti/investitori/sostenibilita/2020/sustainability-report_2020.pdf
- Enel Group. (2021). *2022-2024 Strategic Plan*. <https://www.enel.com/content/dam/enel-com/documenti/investitori/informazioni-finanziarie/2021/2022-2024-strategic-plan.pdf>

- Enel Group. (2022, March 12). *Vision*. <https://www.enel.com/company/about-us/vision>
- Enel X. (2021, December 6). *Enel launches greentailer business in Australia*. Enel X. <https://www.enelx.com/au/en/resources/enel-launches-greentailer-business-in-australia>
- Energy Consumers Australia. (2020). *Energy Consumer Sentiment Survey*. <https://energyconsumersaustralia.com.au/publications/energy-consumer-sentiment-survey-findings-december-2020>
- Enquist, B., Petros Sebhatu, S., & Johnson, M. (2015). Transcendence for business logics in value networks for sustainable service business. *Journal of Service Theory and Practice*, 25(2), 181–197. <https://doi.org/10.1108/JSTP-09-2013-0189>
- Eppinger, E. (2021). How Open Innovation Practices Deliver Societal Benefits. *Sustainability*, 13(3), 1431. <https://doi.org/10.3390/su13031431>
- Eppler, M. J., & Hoffmann, F. (2011). Challenges and Visual Solutions for Strategic Business Model Innovation. In M. Hülsmann & N. Pfeffermann (Eds.), *Strategies and Communications for Innovations* (pp. 25–36). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-17223-6_3
- European Commission. (2013). *Open innovation 2.0, yearbook 2013*. Directorate-General for Communications Networks, Content and Technology.
- European Commission. (2014). *Open innovation 2.0, yearbook 2014*. Directorate-General for Communications Networks, Content and Technology.
- European Commission. (2018). *Open innovation 2.0 yearbook 2017-2018*. Directorate-General for Communications Networks, Content and Technology.
- Evans, S., Vladimirova, D., Holgado, M., Van Fossen, K., Yang, M., Silva, E. A., & Barlow, C. Y. (2017). Business Model Innovation for Sustainability: Towards a Unified Perspective for Creation of Sustainable Business Models: Sustainable Business Models. *Business Strategy and the Environment*, 26(5), 597–608. <https://doi.org/10.1002/bse.1939>
- Facundo, A., Chancel, L., Piketty, T., Saez, E., & Zucman, G. (2017). *World Inequality Report 2018*. World Inequality Lab. <http://wir2018.wid.world/>
- Farquhar, J. (2012). *Case Study Research for Business* (Online edition). SAGE. <https://doi.org/10.4135/9781446287910>
- Felin, T., & Zenger, T. R. (2014). Closed or open innovation? Problem solving and the governance choice. *Research Policy*, 43(5), 914–925. <https://doi.org/10.1016/j.respol.2013.09.006>
- Fichter, K. (2009). Innovation communities: The role of networks of promoters in Open

- Innovation. *R&D Management*, 39(4), 357–371. <https://doi.org/10.1111/j.1467-9310.2009.00562.x>
- Fischer, B., Gomes, L., Bernardes, R. C., & Facin, K. (2022). Guest editorial Innovation ecosystems: New perspectives and the way forward. *Innovation & Management Review*, 19(1), 2–11. <https://doi.org/10.1108/INMR-02-2022-180>
- Fjeldstad, Ø. D., & Snow, C. C. (2018). Business models and organization design. *Long Range Planning*, 51(1), 32–39. <https://doi.org/10.1016/j.lrp.2017.07.008>
- Flyvbjerg, B. (2006). Five Misunderstandings About Case-Study Research. *Qualitative Inquiry*, 12(2), 219–245. <https://doi.org/10.1177/1077800405284363>
- Forrester, J. W., & Senge, P. (1979). *Test for Building System Dynamics Models* (D-2926-7). MIT Sloan School of Management.
- Foss, N. J., & Saebi, T. (2017). Fifteen Years of Research on Business Model Innovation: How Far Have We Come, and Where Should We Go? *Journal of Management*, 43(1), 200–227. <https://doi.org/10.1177/0149206316675927>
- Frankenberger, K., Weiblen, T., & Gassmann, O. (2013). Network configuration, customer centrality, and performance of open business models: A solution provider perspective. *Industrial Marketing Management*, 42(5), 671–682. <https://doi.org/10.1016/j.indmarman.2013.05.004>
- Frankenberger, K., Weiblen, T., & Gassmann, O. (2014). The antecedents of open business models: An exploratory study of incumbent firms: Antecedents of open business models. *R&D Management*, 44(2), 173–188. <https://doi.org/10.1111/radm.12040>
- Freeman, C. (1974). *The Economics of Industrial Innovation* (2nd ed.). Frances Pinter.
- Freeman, R. E. (1984). *Strategic Management: A Stakeholder Approach*. Pitman Publishing.
- Froese, T. (2017). *Stakeholder relationship patterns of post-growth businesses* (Issue August). Universität Hamburg.
- Future-Fit Foundation. (2019). *Futurefit Business Benchmark, Methodology Guide v.2.1.4*. Future-Fit Foundation. <https://benchmark.futurefitbusiness.org/>
- Garcia, J. M., & Monteiro, F. (2019). *Enel's Innovability: Global Open Innovation and Sustainability*. INSEAD. <https://publishing.insead.edu/case/enel>
- Garcia Martinez, M., Zouaghi, F., & Sanchez Garcia, M. (2017). Capturing value from alliance portfolio diversity: The mediating role of R&D human capital in high and low tech industries. *Technovation*, 59, 55–67. <https://doi.org/10.1016/j.technovation.2016.06.003>
- Gartner. (2021, October 15). *Definition of Platform (Digital Business)* — Gartner Information Technology Glossary. Gartner Information Technology Glossary.

<https://www.gartner.com/en/information-technology/glossary/platform-digital-business>

- Gauthier, C., & Gilomen, B. (2016). Business Models for Sustainability: Energy Efficiency in Urban Districts. *Organization and Environment*, 29(1), 124–144.
<https://doi.org/10.1177/1086026615592931>
- Gay, B. (2014). Open innovation, networking, and business model dynamics: The two sides. *Journal of Innovation and Entrepreneurship*, 3(1), 2. <https://doi.org/10.1186/2192-5372-3-2>
- Ghasemzadeh, K., Bortoluzzi, G., & Yordanova, Z. (2022). Collaborating with users to innovate: A systematic literature review. *Technovation*, 116, 102487.
<https://doi.org/10.1016/j.technovation.2022.102487>
- Ghezzi, A., Cavallo, A., Sanasi, S., & Rangone, A. (2020). Opening up to startup collaborations: Open business models and value co-creation in SMEs. *Competitiveness Review: An International Business Journal Incorporating Journal of Global Competitiveness*.
<https://doi.org/10.1108/cr-04-2020-0057>
- Gimenez-Fernandez, E. M., Bogers, M., & Sandulli, F. (2019). How the Diversity of Cooperation Partners Affects Startups' Innovation Performance: An Analysis of the Role of Cooperation Breadth in Open Innovation. In G. Rexhepi, R. D. Hisrich, & V. Ramadani (Eds.), *Open Innovation and Entrepreneurship: Impetus of Growth and Competitive Advantages* (pp. 9–35). Springer International Publishing.
https://doi.org/10.1007/978-3-030-16912-1_2
- Giudici, A., Reinmoeller, P., & Ravasi, D. (2018). Open-System Orchestration as a Relational Source of Sensing Capabilities: Evidence from a Venture Association. *Academy of Management Journal*, 61(4), 1369–1402.
<https://doi.org/10.5465/amj.2015.0573>
- Goodman, J., Korsunova, A., & Halme, M. (2017). Our Collaborative Future: Activities and Roles of Stakeholders in Sustainability-Oriented Innovation: Stakeholder Activities and Roles in Sustainability-Oriented Innovation. *Business Strategy and the Environment*, 26(6), 731–753. <https://doi.org/10.1002/bse.1941>
- Gorissen, L., Vrancken, K., & Manshoven, S. (2016). Transition Thinking and Business Model Innovation—Towards a Transformative Business Model and New Role for the Reuse Centers of Limburg, Belgium. *Sustainability*, 8(2), 112.
<https://doi.org/10.3390/su8020112>
- Gouillart, F., & Billings, D. (2013). Community Powered Problem Solving. *Harvard Business Review*, 91(4), 70.

- Grabowska, S., & Saniuk, S. (2022). Assessment of the Competitiveness and Effectiveness of an Open Business Model in the Industry 4.0 Environment. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(1), 57. <https://doi.org/10.3390/joitmc8010057>
- Graham, P., Hayward, J., Foster, J., & Havas, L. (2022). *GenCost 2022-23: Consultation draft* (csiro:EP2022-5511.). CSIRO. <https://doi.org/10.25919/hjha-3y57>
- Gray, B., & Sites, J. P. (2013). *Sustainability through Partnerships: Capitalizing on Collaboration*. Network for Business Sustainability. nbs.net/knowledge
- Greco, M., Grimaldi, M., & Cricelli, L. (2017). Hitting the nail on the head: Exploring the relationship between public subsidies and open innovation efficiency. *Technological Forecasting and Social Change*, 118, 213–225. <https://doi.org/10.1016/j.techfore.2017.02.022>
- Greco, M., Grimaldi, M., & Cricelli, L. (2019). Benefits and costs of open innovation: The BeCO framework. *Technology Analysis & Strategic Management*, 31(1), 53–66. <https://doi.org/10.1080/09537325.2018.1484442>
- Greco, M., Locatelli, G., & Lisi, S. (2017). Open innovation in the power & energy sector: Bringing together government policies, companies' interests, and academic essence. *Energy Policy*, 104, 316–324. <https://doi.org/10.1016/j.enpol.2017.01.049>
- Groesser, S. N., & Jovy, N. (2016). Business model analysis using computational modeling: A strategy tool for exploration and decision-making. *Journal of Management Control*, 27(1), 61–88. <https://doi.org/10.1007/s00187-015-0222-1>
- Gui, E. M., & MacGill, I. (2018). Typology of future clean energy communities: An exploratory structure, opportunities, and challenges. *Energy Research & Social Science*, 35, 94–107. <https://doi.org/10.1016/j.erss.2017.10.019>
- Hagel, J., & Singer, M. (1999). Unbundling the corporation. *Harvard Business Review*, 77(2), 133–141.
- Haigh, N., Walker, J., Bacq, S., & Kickul, J. (2015). Hybrid Organizations: Origins, Strategies, Impacts, and Implications. *California Management Review*, 57(3), 5–12.
- Hamwi, M., & Lizarralde, I. (2017). A Review of Business Models towards Service-Oriented Electricity Systems. *Procedia CIRP*, 64, 109–114. <https://doi.org/10.1016/j.procir.2017.03.032>
- Hankammer, S., Kleer, R., Mühl, L., & Euler, J. (2021). Principles for organizations striving for sustainable degrowth: Framework development and application to four B Corps. *Journal of Cleaner Production*, 300, 126818. <https://doi.org/10.1016/j.jclepro.2021.126818>
- Hansen, E. G., Bullinger, A. C., & Reichwald, R. (2011). Sustainability innovation contests:

- Evaluating contributions with an eco impact-innovativeness typology. *International Journal of Innovation and Sustainable Development*, 5(2/3), 221.
<https://doi.org/10.1504/IJISD.2011.043074>
- Hansen, E. G., & Schmitt, J. C. (2021). Orchestrating cradle-to-cradle innovation across the value chain: Overcoming barriers through innovation communities, collaboration mechanisms, and intermediation. *Journal of Industrial Ecology*, 25(3), 627–647.
<https://doi.org/10.1111/jiec.13081>
- Heikkilä, M., Bouwman, H., & Heikkilä, J. (2018). From strategic goals to business model innovation paths: An exploratory study. *Journal of Small Business and Enterprise Development*, 25(1), 107–128. <https://doi.org/10.1108/JSBED-03-2017-0097>
- Hellström, M., Tsvetkova, A., Gustafsson, M., & Wikström, K. (2015). Collaboration mechanisms for business models in distributed energy ecosystems. *Journal of Cleaner Production*, 102, 226–236. <https://doi.org/10.1016/j.jclepro.2015.04.128>
- Henike, T., Kamprath, M., & Hölzle, K. (2020). Effecting, but effective? How business model visualisations unfold cognitive impacts. *Long Range Planning*, 101925.
<https://doi.org/10.1016/j.lrp.2019.101925>
- Hewitt, R. J., Bradley, N., Baggio Compagnucci, A., Barlagne, C., Ceglarz, A., Cremades, R., McKeen, M., Otto, I. M., & Slee, B. (2019). Social Innovation in Community Energy in Europe: A Review of the Evidence. *Frontiers in Energy Research*, 7, 31.
<https://doi.org/10.3389/fenrg.2019.00031>
- Hinton, J. B. (2020). Fit for purpose? Clarifying the critical role of profit for sustainability. *Journal of Political Ecology*, 27(1). <https://doi.org/10.2458/v27i1.23502>
- Hinton, J. B. (2021a). *Relationship-to-Profit: A Theory of Business, Markets, and Profit for Social Ecological Economics*. Stockholm University, Université Clermont Auvergne.
- Hinton, J. B. (2021b). Five key dimensions of post-growth business: Putting the pieces together. *Futures*, 131, 102761. <https://doi.org/10.1016/j.futures.2021.102761>
- Hinton, J. B., & Maclurcan, D. (2017). A not-for-profit world beyond capitalism and economic growth? *Ephemera: Theory e³ Politics in Organization*, 17(1), 147–166.
- Hockerts, K., & Wüstenhagen, R. (2010). Greening Goliaths versus emerging Davids—Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship. *Journal of Business Venturing*, 25(5), 481–492.
<https://doi.org/10.1016/j.jbusvent.2009.07.005>
- Hoffmann, S. O. (2016). *Business model transformation influenced by Germany's Energiewende. A comparative case study analysis of business model innovation in start-up and incumbent firms* [University of Bradford]. <http://hdl.handle.net/10454/12740>

- Holm, A. B., Günzel, F., & Ulhøi, J. P. (2013). Openness in innovation and business models: Lessons from the newspaper industry. *International Journal of Technology Management*, 61(3/4), 324. <https://doi.org/10.1504/IJTM.2013.052674>
- Hossain, M., Leminen, S., & Westerlund, M. (2019). A systematic review of living lab literature. *Journal of Cleaner Production*, 213, 976–988. <https://doi.org/10.1016/j.jclepro.2018.12.257>
- Hughes, J., Chapnick, D., Block, I., & Ray, S. (2021, September 26). What is Customer-Centricity, and Why Does It Matter? *California Management Review Insights*. <https://cmr.berkeley.edu/2021/09/what-is-customer-centricity-and-why-does-it-matter/>
- Humphery-Jenner, M. (2022, June 1). *Mike Cannon-Brookes and AGL Explained*. Gizmodo. <https://www.gizmodo.com.au/2022/06/mike-cannon-brookes-and-agl-explained/>
- influencemap.org. (2021a, November). *Influence Map: Enel*. <https://influencemap.org/company/Enel-e3acfc23c1f0dfd05759e00c3fa35175/projectlink/Enel-In-Climate-Change>
- influencemap.org. (2021b, November 17). *Influence Map: Eurelectric*. <https://influencemap.org/influencer/Eurelectric-4e3c25d4b77a3031767253262563dfe2/projectlink/Eurelectric-In-Climate-Change>
- influencemap.org. (2022, May). *Influence Map: Detailed assessment of Enel's corporate industry association review*. <https://ca100.influencemap.org/site//data/000/020/Enel-Review-Scorecard-May22.pdf>
- International Association for Public Participation. (2018). *Spectrum of Public Participation*. https://cdn.ymaws.com/www.iap2.org/resource/resmgr/pillars/Spectrum_8.5x11_Print.pdf
- IRENA. (2021). *Renewable power generation costs in 2021*. International Renewable Energy Agency.
- Isaacs, W. (1999). *Dialogue and the art of thinking together: A pioneering approach to communicating in business and in life* (1st ed.). Currency.
- Jackson, T. (2017). *Prosperity without growth: Foundations for the economy of tomorrow* (Second edition). <https://www.routledge.com/Prosperity-without-Growth-Foundations-for-the-Economy-of-Tomorrow-2nd/Jackson/p/book/9781138935419>
- Jackson, T. (2018). *The post-growth challenge: Secular stagnation, inequality and the limits to growth* (Working Paper No 12). Centre for the Understanding of Sustainable Prosperity (CUSP). www.cusp.ac.uk/publications
- Jesus, G. M. K., & Jugend, D. (2021). How can open innovation contribute to circular

- economy adoption? Insights from a literature review. *European Journal of Innovation Management*. <https://doi.org/10.1108/EJIM-01-2021-0022>
- Jiang, S., Hu, Y., & Wang, Z. (2019). Core Firm Based View on the Mechanism of Constructing an Enterprise Innovation Ecosystem: A Case Study of Haier Group. *Sustainability*, *11*(11), 3108. <https://doi.org/10.3390/su11113108>
- Johanisova, N., Crabtree, T., & Fraňková, E. (2013). Social enterprises and non-market capitals: A path to degrowth? *Journal of Cleaner Production*, *38*. <https://doi.org/10.1016/j.jclepro.2012.01.004>
- Jonker, J., Berkers, F., Derks, M., Montenegro Navarro, N., Wieclawska, S., & Speijer, F. (2020). *Collaborative Business Models for Transition* (TNO 2020 R11009). TNO.
- Joyce, A., & Paquin, R. L. (2016). The triple layered business model canvas: A tool to design more sustainable business models. *Journal of Cleaner Production*, *135*, 1474–1486. <https://doi.org/10.1016/j.jclepro.2016.06.067>
- Kamp, L. M., Meslin, T. A. J., Khodaei, H., & Ortt, J. R. (2021). The Dynamic Business Model Framework—Illustrated with Renewable Energy Company Cases from Indonesia. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(4), 231. <https://doi.org/10.3390/joitmc7040231>
- Karami, M., & Read, S. (2021). Co-creative entrepreneurship. *Journal of Business Venturing*, *36*(4), 106125. <https://doi.org/10.1016/j.jbusvent.2021.106125>
- Khmara, Y., & Kronenberg, J. (2018). Degrowth in business: An oxymoron or a viable business model for sustainability? *Journal of Cleaner Production*, *177*, 721–731. <https://doi.org/10.1016/j.jclepro.2017.12.182>
- Kiani, B., Gholamian, M. R., Hamzehei, A., & Hosseini, S. H. (2009). Using Causal Loop Diagram to Achieve a Better Understanding of e-Business Models. *International Journal of Electronic Business Management*, *7*(3), 159–167.
- Kim, D. H., & Anderson, V. (1998). *Systems archetype basics: From story to structure* (Digital edition, published 2011). Pegasus Communications.
- Kim, H., & Andersen, D. F. (2012). Building confidence in causal maps generated from purposive text data: Mapping transcripts of the Federal Reserve. *System Dynamics Review*, *28*(4), 311–328. <https://doi.org/10.1002/sdr.1480>
- Kortmann, S., & Piller, F. (2016). Open Business Models and Closed-Loop Value Chains: Redefining the Firm-Consumer Relationship. *California Management Review*, *58*(3), 88–108. <https://doi.org/10.1525/cmr.2016.58.3.88>
- Kurzack, L., Schoenmaker, D., & Schramade, W. (2021). A model of long-term value creation. *Journal of Sustainable Finance & Investment*, 1–19.

- <https://doi.org/10.1080/20430795.2021.1920231>
- Lakhani, K. R., & Panetta, J. A. (2007). The Principles of Distributed Innovation. *Innovations: Technology, Governance, Globalization*, 2(3), 97–112.
<https://doi.org/10.1162/itgg.2007.2.3.97>
- Latilla, V. M., Frattini, F., Franzo, S., & Chiesa, V. (2019). Organizational Change and Business Model Innovation: An Exploratory Study of an Energy Utility. *International Journal of Innovation Management*, 24(4). <https://doi.org/10.1142/S136391962050036X>
- Laursen, K., & Salter, A. (2006). Open for innovation: The role of openness in explaining innovation performance among U.K. manufacturing firms. *Strategic Management Journal*, 27(2), 131–150. <https://doi.org/10.1002/smj.507>
- Laursen, K., & Salter, A. J. (2014). The paradox of openness: Appropriability, external search and collaboration. *Research Policy*, 43(5), 867–878.
<https://doi.org/10.1016/j.respol.2013.10.004>
- Lavrakas, P. (2008). *Encyclopedia of survey research methods* (Online edition). SAGE.
- Lawson, B., & Samson, D. (2001). Developing Innovation Capability in Organisations: A Dynamic Capabilities Approach. *International Journal of Innovation Management*, 5(3), 377–400. <https://doi.org/10.1142/S1363919601000427>
- Layder, D. (1998). *Sociological Practice*. SAGE Publications Ltd.
<https://doi.org/10.4135/9781849209946>
- Lee, M., Yun, J., Pyka, A., Won, D., Kodama, F., Schiuma, G., Park, H., Jeon, J., Park, K., Jung, K., Yan, M.-R., Lee, S., & Zhao, X. (2018). How to Respond to the Fourth Industrial Revolution, or the Second Information Technology Revolution? Dynamic New Combinations between Technology, Market, and Society through Open Innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 4(3), 21.
<https://doi.org/10.3390/joitmc4030021>
- Lee, S. P., & Babiak, K. (2017). Measured Societal Value and Its Impact on Donations and Perception of Corporate Social Responsibility: An Experimental Approach. *Nonprofit and Voluntary Sector Quarterly*, 46(5), 1030–1051.
<https://doi.org/10.1177/0899764017713725>
- Leminen, S., Westerlund, M., & Nyström, A.-G. (2012). Living Labs as Open-Innovation Networks. *Technology Innovation Management Review*, September 2012, 6–11.
- Lerch, C., & Selinka, G. (2010). *Dynamics of Business Models – Long-ranging Impact Assessment of Business Models in the Capital Goods Industry*. 28th International Conference of the System Dynamics Society, Seoul (Korea).
<https://proceedings.systemdynamics.org/2010/proceed/papers/P1257.pdf>

- Liao, S., Liu, Z., & Ma, C. (2019). Direct and configurational paths of open innovation and organisational agility to business model innovation in SMEs. *Technology Analysis & Strategic Management*, 31(10), 1213–1228.
<https://doi.org/10.1080/09537325.2019.1601693>
- Liesen, A., Dietsche, C., & Gebauer, J. (2015). *Successful Non-Growing Companies* (SSRN Scholarly Paper ID 2623920). Social Science Research Network.
<https://papers.ssrn.com/abstract=2623920>
- Löbbecke, S., & Hackbarth, A. (2017). Chapter 15—The Transformation of the German Electricity Sector and the Emergence of New Business Models in Distributed Energy Systems. In *Innovation and Disruption at the Grid's Edge* (pp. 287–318). Academic Press. <https://doi.org/10.1016/B978-0-12-811758-3.00015-2>
- Lopes, A. P. V. B. V., & de Carvalho, M. M. (2018). Evolution of the open innovation paradigm: Towards a contingent conceptual model. *Technological Forecasting and Social Change*, 132, 284–298. <https://doi.org/10.1016/j.techfore.2018.02.014>
- Lopes, C. M., Scavarda, A., Hofmeister, L. F., Thomé, A. M. T., & Vaccaro, G. L. R. (2017). An analysis of the interplay between organizational sustainability, knowledge management, and open innovation. *Journal of Cleaner Production*, 142, 476–488.
<https://doi.org/10.1016/j.jclepro.2016.10.083>
- Lüdeke-Freund, F., Carroux, S., Joyce, A., Massa, L., & Breuer, H. (2018). The Sustainable Business Model Pattern Taxonomy – 45 Patterns to Support Sustainability-Oriented Business Model Innovation. *Sustainable Production and Consumption*, 15, 145–162.
- Lüdeke-Freund, F., Massa, L., Bocken, N., Brent, A., & Musango, J. (2016). *Business models for shared value: Main report*. Network for Business Sustainability South Africa.
<http://www.nbs.net>
- Lüdeke-Freund, F., Rauter, R., Pedersen, E. R. G., & Nielsen, C. (2020). *Sustainable Value Creation Through Business Models: The What, the Who and the How*. 8(3), 62–90.
- Lujan Salazar, L. A., & Guzman, G. M. (2017). The Definition of Firm Boundaries and Its Impact on Sustainability. *Journal of Management and Sustainability*, 7(2), 126.
<https://doi.org/10.5539/jms.v7n2p126>
- Lund, M. (2012). Network-Based Business Models. In C. Nielsen & M. Lund (Eds.), *Business Models: Networking, Innovating and Globalizing* (pp. 81–84). Ventus Publishing ApS.
- Mackey, J. (2011). What Conscious Capitalism Really is: A Response to James O'Toole and David Vogel's "Two and a Half Cheers for Conscious Capitalism." *California Management Review*, 53(3), 83–90. <https://doi.org/10.1525/cm.2011.53.3.83>

- Mair, J., & Gegenhuber, T. (2021). Open Social Innovation. *Stanford Social Innovation Review*, 19(4), 26–33. Business Source Complete.
- Martins, T. C. M., & Bermejo, P. H. de S. (2015). Open Social Innovation. In I. R. Management Association (Ed.), *Economics: Concepts, Methodologies, Tools, and Applications*. IGI Global. <https://doi.org/10.4018/978-1-4666-8468-3>
- Mason, R., Lalwani, C., & Boughton, R. (2007). Combining vertical and horizontal collaboration for transport optimisation. *Supply Chain Management: An International Journal*, 12(3), 187–199. <https://doi.org/10.1108/13598540710742509>
- Massa, L., & Tucci, C. L. (2014). Business model innovation. In M. Dodgson, D. M. Gann, & N. Phillips (Eds.), *The Oxford handbook of innovation management* (pp. 420–441). Oxford University Press.
- Massa, L., Tucci, C. L., & Afuah, A. (2017). A Critical Assessment of Business Model Research. *Academy of Management Annals*, 11(1), 73–104. <https://doi.org/10.5465/annals.2014.0072>
- Mazzucato, M., & Ryan-Collins, J. (2019). *Putting value creation back into ‘public value’: From market-fixing to market-shaping* (Working Paper Series (IIPP WP 2019-05)). UCL Institute for Innovation and Public Purpose. <https://www.ucl.ac.uk/bartlett/public-purpose/wp2019-05>
- Mazzucato, M., & Ryan-Collins, J. (2022). Putting value creation back into “public value”: From market-fixing to market-shaping. *Journal of Economic Policy Reform*, 1–16. <https://doi.org/10.1080/17487870.2022.2053537>
- McElroy, M. W., & Thomas, M. P. (2015). The MultiCapital Scorecard. *Sustainability Accounting, Management and Policy Journal*, 6(3), 425–438. <https://doi.org/10.1108/SAMPJ-04-2015-0025>
- McGrath, M. (2021, August 9). Climate change: IPCC report is “code red for humanity.” *BBC News*. <https://www.bbc.com/news/science-environment-58130705>
- McKibben, B. (2006, December). Hype vs. Hope. *Mother Jones*. <https://www.motherjones.com/politics/2006/10/hype-vs-hope/>
- Meadows, D. H. (2009). *Thinking in Systems: A Primer* (D. Wright, Ed.). Earthscan.
- Meadows, D. H., Meadows, D. L., Randers, J., & Behrens, W. W. (1972). *The Limits to Growth*. Club of Rome. <https://policycommons.net/artifacts/1529440/the-limits-to-growth/2219251/>
- Mejía-Trejo, J. (2017). The determinant factors of open business model. *Nova Scientia*, 9(18), 394–436.
- Melo, C. de O. (2019). *Another Purpose for Agility: Sustainability* (P. Meirelles, M. Augusta

- Nelson, & C. Rocha, Eds.; Vol. 1106, pp. 3–7). Springer International Publishing.
https://doi.org/10.1007/978-3-030-36701-5_1
- Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation* (Fourth edition.). Jossey-Bass.
- Michelini, L. (2012). *Social Innovation and New Business Models: Creating Shared Value in Low-Income Markets*. Springer. <https://doi.org/10.1007/978-88-470-2658-2>
- Midgley, Gerald. (2000). *Systemic intervention: Philosophy, methodology, and practice*. Kluwer Academic/Plenum.
- MIT. (2016). *Utility of the Future: An MIT energy initiative response to an industry in transition*. Massachusetts Institute of Technology. energy.mit.edu/uof
- Montakhabi, M., & Van Der Graaf, S. (2021). Open Business Models' Actionability in Europe. EU Competition Policy Analysis. *Journal of Business Models*, 9(1), 29–34. <https://doi.org/10.5278/JBM.V9I1.5909>
- Montakhabi, M., Van Zeeland, I., & Ballon, P. (2022). Barriers for Prosumers' Open Business Models: A Resource-Based View on Assets and Data-Sharing in Electricity Markets. *Sustainability*, 14(9), 5705. <https://doi.org/10.3390/su14095705>
- Moon, K., & Blackman, D. (2014). A Guide to Understanding Social Science Research for Natural Scientists: Social Science for Natural Scientists. *Conservation Biology*, 28(5), 1167–1177. <https://doi.org/10.1111/cobi.12326>
- Morecroft, J. D. W. (2015). *Strategic Modelling and Business Dynamics: A Feedback Systems Approach*. John Wiley & Sons, Incorporated.
<http://ebookcentral.proquest.com/lib/uts/detail.action?docID=1895653>
- Morton, A. (2021, November 2). Australia puts fossil fuel company front and centre at Cop26. *The Guardian*. <https://www.theguardian.com/australia-news/2021/nov/03/australia-puts-fossil-fuel-company-front-and-centre-at-cop26>
- Morton, A., & Murphy, K. (2022, February 21). Mike Cannon-Brookes dismisses PM's suggestion that coal plants should run to end of scheduled life. *The Guardian*. <https://www.theguardian.com/business/2022/feb/21/mike-cannon-brookes-dismisses-pms-suggestion-that-coal-plants-should-run-to-end-of-scheduled-life>
- Mosior, B. (2021, July 10). *Non-profit IT Systems*. Learn Wardley Mapping. <https://learnwardleymapping.com/2021/07/10/non-profit-it-systems/>
- Murray, R., Caulier-Grice, J., & Mulgan, G. (2010). *The Open Book of Social Innovation*. NESTA.
- Nenonen, S., Fehrer, J., & Brodie, R. J. (2021). Editorial: JBR special issue on market shaping and innovation. *Journal of Business Research*, 124, 236–239.

- <https://doi.org/10.1016/j.jbusres.2020.11.062>
- Nenonen, S., & Storbacka, K. (2010). Business model design: Conceptualizing networked value co-creation. *International Journal of Quality and Service Sciences*, 2(1), 43–59. <https://doi.org/10.1108/17566691011026595>
- Nenonen, S., Storbacka, K., & Windahl, C. (2019). Capabilities for market-shaping: Triggering and facilitating increased value creation. *Journal of the Academy of Marketing Science*, 47(4), 617–639. <https://doi.org/10.1007/s11747-019-00643-z>
- Nesterova, I. (2020). Degrowth business framework: Implications for sustainable development. *Journal of Cleaner Production*, 262, 121382. <https://doi.org/10.1016/j.jclepro.2020.121382>
- Nolden, C., Barnes, J., & Nicholls, J. (2020). Community energy business model evolution: A review of solar photovoltaic developments in England. *Renewable and Sustainable Energy Reviews*, 122, 109722. <https://doi.org/10.1016/j.rser.2020.109722>
- Ometto, M. P., Gegenhuber, T., & Winter, J. (2015). *Losing the Activist Spirit: Mission Drift and Institutional Logics Vulnerability*. 2015(1), 16924. <https://doi.org/10.5465/ambpp.2015.16924abstract>
- Österberg, P., & Nilsson, J. (2009). Members' perception of their participation in the governance of cooperatives: The key to trust and commitment in agricultural cooperatives. *Agribusiness*, 25(2), 181–197. <https://doi.org/10.1002/agr.20200>
- Osterwalder, A., & Pigneur, Y. (2010). *Business model generation: A handbook for visionaries, game changers, and challengers*. John Wiley & Sons.
- Osterwalder, A., Pigneur, Y., Etienne, F., & Smith, A. (2020). *The invincible company*. John Wiley & Sons, Inc.
- Osterwalder, A., Pigneur, Y., & Tucci, C. L. (2005). Clarifying Business Models: Origins, Present, and Future of the Concept. *Communications of the Association for Information Systems*, 15.
- O'Toole, J., & Vogel, D. (2011). Two and a Half Cheers for Conscious Capitalism. *California Management Review*, 53(3), 60–76. <https://doi.org/10.1525/cm.2011.53.3.60>
- Papa, A., Chierici, R., Ballestra, L. V., Meissner, D., & Orhan, M. A. (2021). Harvesting reflective knowledge exchange for inbound open innovation in complex collaborative networks: An empirical verification in Europe. *Journal of Knowledge Management*, 25(4), 669–692. <https://doi.org/10.1108/JKM-04-2020-0300>
- Park, A., & McDonald, A. (2020, November 10). Australia's gas-led recovery likely to be a "mirage." *ABC News*. <https://www.abc.net.au/news/2020-11-10/gas-led-recovery-likely-to-be-a-mirage/12843276>

- Parkinson, G. (2018, October 17). Origin shareholders deliver stunning statement on anti-climate lobbying. *RenewEconomy*. <https://reneweconomy.com.au/origin-shareholders-deliver-stunning-statement-on-anti-climate-lobbying-97384/>
- Parkinson, G. (2021, May 24). *Energy retailer asks ACCC to probe possible “market gaming” in NSW*. RenewEconomy. <https://reneweconomy.com.au/energy-retailer-asks-accc-to-probe-possible-market-gaming-in-nsw/>
- Parmar, B. L., Freeman, R. E., Harrison, J. S., Wicks, A. C., Purnell, L., & de Colle, S. (2010). Stakeholder Theory: The State of the Art. *Academy of Management Annals*, 4(1), 403–445. <https://doi.org/10.5465/19416520.2010.495581>
- Parrique, T., Barth, J., Briens, F., Kerschner, C., Kraus-Polk, A., Kuokkanen, A., & Spangenberg, J. H. (2019). *Decoupling Debunked*. European Environmental Bureau.
- Peñarroya-Farell, M., & Miralles, F. (2021). Business Model Dynamics from Interaction with Open Innovation. *J. Open Innov. Technol. Mark. Complex.*, 7(81), 1–28. <https://doi.org/10.3390/joitmc7010081>
- Perey, R., Benn, S., Agarwal, R., & Edwards, M. (2018). The place of waste: Changing business value for the circular economy. *Business Strategy and the Environment*, 27(5), 631–642. <https://doi.org/10.1002/bse.2068>
- Peters, L. D., Pressey, A. D., Vanharanta, M., & Johnston, W. J. (2013). Constructivism and critical realism as alternative approaches to the study of business networks: Convergences and divergences in theory and in research practice. *Industrial Marketing Management*, 42(3), 336–346. <https://doi.org/10.1016/j.indmarman.2013.02.003>
- Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. Harper and Row.
- Platform Design Toolkit. (2021). *Platform Opportunity Exploration Guide*. Boundaryless. <https://boundaryless.io/pdt-toolkit/>
- Porter, M. E., & Kramer, M. K. (2011). Creating shared value. *Harvard Business Review*, 89(1), 62–77.
- Prahalad, C. K., & Ramaswamy, Venkat. (2004). *The future of competition: Co-creating unique value with customers*. Harvard Business School Pub.
- Purpose Foundation. (2019, September 6). Want Purpose-Driven Businesses? Rethink Ownership. *Medium*. https://medium.com/@purpose_network/want-purpose-driven-businesses-rethink-ownership-3684b9bc3ae4
- Ramaswamy, V., & Gouillart, F. (2010). Building the Co-Creative Enterprise. *Harvard Business Review*, 88(10), 100–109.
- Rauter, R., Globocnik, D., Perl-Vorbach, E., & Baumgartner, R. J. (2019). Open innovation

- and its effects on economic and sustainability innovation performance. *Journal of Innovation & Knowledge*. <https://doi.org/10.1016/j.jik.2018.03.004>
- Rauter, R., Jonker, J., & Baumgartner, R. J. (2017). Going one's own way: Drivers in developing business models for sustainability. *Journal of Cleaner Production*, *140*, 144–154. <https://doi.org/10.1016/j.jclepro.2015.04.104>
- Rauter, R., Perl-Vorbach, E., & Baumgartner, R. J. (2017). Is open innovation supporting sustainable innovation? Findings based on a systematic, explorative analysis of existing literature. *Int. J. Innovation and Sustainable Development*, *11*(2/3), 249–270.
- Raworth, K. (2017). *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist*. Chelsea Green Publishing.
- Rayna, T., & Striukova, L. (2019). Open social innovation dynamics and impact: Exploratory study of a fab lab network. *ResD Management*, *49*(3), 383–395. <https://doi.org/10.1111/radm.12376>
- Reay, T., & Hinings, C. R. (2009). Managing the Rivalry of Competing Institutional Logics. *Organization Studies*, *30*(6), 629–652. <https://doi.org/10.1177/0170840609104803>
- Reficco, E., Gutiérrez, R., Jaén, M. H., & Auletta, N. (2018). Collaboration mechanisms for sustainable innovation. *Journal of Cleaner Production*, *205*, 1170–1186. <https://doi.org/10.1016/j.jclepro.2018.08.043>
- Ribeiro-Soriano, D., & Urbano, D. (2009). Overview of Collaborative Entrepreneurship: An Integrated Approach Between Business Decisions and Negotiations. *Group Decision and Negotiation*, *18*(5), 419–430. <https://doi.org/10.1007/s10726-008-9134-x>
- Richardson, G. P. (1997). Problems in causal loop diagrams revisited. *System Dynamics Review*, *15*(3), 247–252. [https://doi.org/10.1002/\(SICI\)1099-1727\(199723\)13:3<247::AID-SDR128>3.0.CO;2-9](https://doi.org/10.1002/(SICI)1099-1727(199723)13:3<247::AID-SDR128>3.0.CO;2-9)
- Rifkin, J. (2015). *The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism* (Reprint edition). St. Martin's Griffin.
- Rodriguez, M., Doloreux, D., & Shearmur, R. (2017). Variety in external knowledge sourcing and innovation novelty: Evidence from the KIBS sector in Spain. *Technovation*, *68*, 35–43. <https://doi.org/10.1016/j.technovation.2017.06.003>
- Rohrbeck, R., Konnertz, L., & Knab, S. (2013). Collaborative business modelling for systemic and sustainable innovations. *Int. J. of Technology Management*, *65*(1/2), 4–23.
- Romero-Rubio, C., & de Andrés Díaz, J. R. (2015). Sustainable energy communities: A study contrasting Spain and Germany. *Energy Policy*, *85*, 397–409. <https://doi.org/10.1016/j.enpol.2015.06.012>
- Rossignoli, F., & Lionzo, A. (2018). Network impact on business models for sustainability:

- Case study in the energy sector. *Journal of Cleaner Production*, 182, 694–704.
<https://doi.org/10.1016/j.jclepro.2018.02.015>
- Rothwell, R., Freeman, C., Horlsey, A., Jervis, V. T. P., Robertson, A. B., & Townsend, J. (1974). SAPPHO updated-project SAPPHO phase II. *Research Policy*, 3(3), 258–291.
- Ruggeri, L. (2020, January 14). *A Platform Design Example Explained*. Medium.
<https://stories.platformdesigntoolkit.com/pdt-bootcamp-example-explained-34e08f9dd4b3>
- SA Government. (2020). *Regulatory changes for smarter homes* (South Australia) [Text]. Energy & Mining. <https://www.energymining.sa.gov.au/industry/modern-energy/solar-batteries-and-smarter-homes/regulatory-changes-for-smarter-homes>
- Saebi, T. (2015). Evolution, Adaptation, or Innovation? In N. J. Foss & T. Saebi (Eds.), *Business Model Innovation: The Organizational Dimension* (pp. 145–168). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780198701873.003.0008>
- Saebi, T., & Foss, N. J. (2015). Business models for open innovation: Matching heterogeneous open innovation strategies with business model dimensions. *European Management Journal*, 33(3), 201–213. <https://doi.org/10.1016/j.emj.2014.11.002>
- Sandulli, F., & Chesbrough, H. (2009). The Two Faces of Open Business Models. *SSRN Working Paper Series No. 1525682*.
- Santos, F. M., Pache, A.-C., & Birkholz, C. (2015). Making Hybrids Work: Aligning Business Models and Organizational Design for Social Enterprises. *California Management Review*, 57(3), 36–58.
- SBTi. (2020). *From Ambition to Impact: How Companies are Reducing Emissions at Scale with Science-Based Targets* (Science Based Targets Initiative Annual Progress Report, 2020.).
- Schaltegger, S. (2018, May 31). *Sustainable Entrepreneurship, Business Model Innovation and Market Transformation-A Co-Evolutionary Perspective*. Innovation Management, Entrepreneurship and Sustainability, Prague, Czech Republic.
- Schaltegger, S., Hansen, E. G., & Lüdeke-Freund, F. (2016). Business Models for Sustainability: Origins, Present Research, and Future Avenues. *Organization and Environment*, 29(1), 3–10. <https://doi.org/10.1177/1086026615599806>
- Seelos, C., & Mair, J. (2007). Profitable Business Models and Market Creation in the Context of Deep Poverty: A Strategic View. *Academy of Management Perspectives*, 21(4), 49–63. <https://doi.org/10.5465/amp.2007.27895339>
- Senge, P. (1990). The fifth discipline. In *The Art of Practice of Learning Organization*. Doubleday Currency, New York.

- Senge, P. M., Lichtenstein, B. B., Kaeufer, K., Bradbury, H., & Carroll, J. S. (2007). Meeting the sustainability challenge will require the kind of cross-sector collaboration for which there is still no real precedent. It must be co-created by various stakeholders by interweaving work in three realms: The conceptual, the relational and the action-driven. *MIT Sloan Management Review*, 48(2), 44–53.
- Shell. (2021, November 22). *Shell to acquire energy retailer, Powershop Australia*.
<https://www.shell.com/media/news-and-media-releases/2021/shell-to-acquire-energy-retailer-powershop-australia.html>
- Sikandar, H., & Abdul Kohar, U. H. (2021). A systematic literature review of open innovation in small and medium enterprises in the past decade. *ForeSight*.
<https://doi.org/10.1108/FS-01-2021-0030>
- Slawinski, N., Pinkse, J., Busch, T., & Banerjee, S. B. (2017). The Role of Short-Termism and Uncertainty Avoidance in Organizational Inaction on Climate Change: A Multi-Level Framework. *Business & Society*, 56(2), 253–282.
<https://doi.org/10.1177/0007650315576136>
- Smedlund, A. (2012). Value Cocreation in Service Platform Business Models. *Service Science*, 4(1), 79–88. <https://doi.org/10.1287/serv.1110.0001>
- Smith, D. (2018, April 11). Mark Zuckerberg vows to fight election meddling in marathon Senate grilling. *The Guardian*.
<https://www.theguardian.com/technology/2018/apr/10/zuckerberg-facebook-testimony-latest-news-regulation-congress>
- Smith, W. K., Binns, A., & Tushman, M. L. (2010). Complex Business Models: Managing Strategic Paradoxes Simultaneously. *Long Range Planning*, 45(2–3), 448–461.
<https://doi.org/10.1016/j.lrp.2009.12.003>
- Snihur, Y., & Bocken, N. (2022). A call for action: The impact of business model innovation on business ecosystems, society and planet. *Long Range Planning*, 102182.
<https://doi.org/10.1016/j.lrp.2022.102182>
- Snihur, Y., & Wiklund, J. (2019). Searching for innovation: Product, process, and business model innovations and search behavior in established firms. *Long Range Planning*, 52(3), 305–325. <https://doi.org/10.1016/j.lrp.2018.05.003>
- Sniukas, M. (2020). *Business Model Innovation as a Dynamic Capability: Micro-Foundations and Case Studies* (ProQuest Ebook Central). Springer International Publishing AG.
<https://ebookcentral.proquest.com/lib/uts/detail.action?docID=6273309>
- Soda, G., & Furlotti, M. (2017). Bringing Tasks Back In: An Organizational Theory of Resource Complementarity and Partner Selection. *Journal of Management*, 45(2), 348–

375. <https://doi.org/10.1177/0149206314535435>

- Sorrell, S. (2018). Explaining sociotechnical transitions: A critical realist perspective. *Research Policy*, 47(7), 1267–1282. <https://doi.org/10.1016/j.respol.2018.04.008>
- Soutar, I. (2021). Dancing with complexity: Making sense of decarbonisation, decentralisation, digitalisation and democratisation. *Energy Research & Social Science*, 80, 102230. <https://doi.org/10.1016/j.erss.2021.102230>
- Soylu, S., & Süerdem, A. (2018). Open Social Innovation: A review of the literature and the best practices. *International Journal of Management and Applied Science*, 4(1), 6–8.
- Spieth, P., Schneider, S., Clauß, T., & Eichenberg, D. (2019). Value drivers of social businesses: A business model perspective. *Long Range Planning*, 52(3), 427–444. <https://doi.org/10.1016/j.lrp.2018.04.004>
- Starace, F. (2019, November 29). *Strategic Plan 2020-2022*. Capital Markets Day, Milan. <https://www.enel.com/company/stories/articles/2019/12/strategic-plan-2020-2022>
- Steffen, W., Richardson, K., Rockström, J., Cornell, S., Fetzer, I., Bennett, E., Biggs, R., & Carpenter, S. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science*, 348(6240). <https://doi.org/10.1126/science.aaa9629>
- Steitz, C. (2014, December 1). German utility E.ON to split to focus on renewables, grids. *Reuters*. <https://www.reuters.com/article/uk-e-on-divestiture-idUKKCN0JE0TZ20141201>
- Sterman, J. D. (2000). *Business Dynamics: Systems Thinking and Modeling for a Complex World*. Irwin McGraw-Hill.
- Stevenson, W. B., & Greenberg, D. (2000). Agency and Social Networks: Strategies of Action in a Social Structure of Position, Opposition, and Opportunity. *Administrative Science Quarterly*, 45(4), 651–678. <https://doi.org/10.2307/2667015>
- Storbacka, K., Frow, P., Nenonen, S., & Payne, A. (2012). Designing Business Models for Value Co-Creation. *Review of Marketing Research*, 9, 51–78. [https://doi.org/10.1108/S1548-6435\(2012\)0000009007](https://doi.org/10.1108/S1548-6435(2012)0000009007)
- Talmar, M., Walrave, B., Podoyntsyna, K. S., Holmström, J., & Romme, A. G. L. (2020). Mapping, analyzing and designing innovation ecosystems: The Ecosystem Pie Model. *Long Range Planning*, 53(4), 101850. <https://doi.org/10.1016/j.lrp.2018.09.002>
- Tamburis, O., & Bonacci, I. (2021). Clusters and communities: Raising the bar towards open innovation 2.0 paradigms. *International Journal of Pharmaceutical and Healthcare Marketing*, 13(3), 288–305. <https://doi.org/10.1108/IJPHM-01-2018-0001>
- Tani, M., Papaluca, O., & Sasso, P. (2018). The System Thinking Perspective in the Open-Innovation Research: A Systematic Review. *Journal of Open Innovation: Technology*,

- Market, and Complexity*, 4(3), 38. <https://doi.org/10.3390/joitmc4030038>
- Tardivo, G., Santoro, G., & Ferraris, A. (2017). The role of public-private partnerships in developing open social innovation: The case of GoogleGlass. *World Review of Entrepreneurship, Management, and Sustainable Development*, 13(5–6), 580–592. <https://doi.org/10.1504/WREMSD.2017.086305>
- Täuscher, K., & Abdelkafi, N. (2017). Visual tools for business model innovation: Recommendations from a cognitive perspective. *Creativity and Innovation Management*, 26(2), 160–174. <https://doi.org/10.1111/caim.12208>
- Taylor, J. B. (1970). Introducing Social Innovation. *The Journal of Applied Behavioral Science*, 6(1), 69–77. <https://doi.org/10.1177/002188637000600104>
- Teece, D. J. (2010). Business Models, Business Strategy and Innovation. *Long Range Planning*, 43(2–3), 172–194. <https://doi.org/10.1016/j.lrp.2009.07.003>
- Teece, D. J. (2018). Business models and dynamic capabilities. *Long Range Planning*, 51(1), 40–49. <https://doi.org/10.1016/j.lrp.2017.06.007>
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, 18(7), 509–533.
- Thomas, M., & McElroy, M. W. (2015, December 10). A Better Scorecard for Your Company's Sustainability Efforts. *Harvard Business Review*. <https://hbr.org/2015/12/a-better-scorecard-for-your-companys-sustainability-efforts>
- Thomsen, S., Poulsen, T., Børsting, C., & Kuhn, J. (2018). Industrial foundations as long-term owners. *Corporate Governance: An International Review*, 26(3), 180–196. <https://doi.org/10.1111/corg.12236>
- Touboulic, A., & Walker, H. (2015). Love me, love me not: A nuanced view on collaboration in sustainable supply chains. *Journal of Purchasing and Supply Management*, 21(3), 178–191. <https://doi.org/10.1016/j.pursup.2015.05.001>
- Tower, A. P., & Noble, C. H. (2017). Exploring and extending a collective open business model. *AMS Review*, 7(3–4), 170–182. <https://doi.org/10.1007/s13162-017-0105-8>
- Tsutsui, Y., Yamada, N., Mitake, Y., Sholihah, M., & Shimomura, Y. (2020). A Strategic Design Guideline for Open Business Models. *International Journal of Automation Technology*, 14(5), 678–689. <https://doi.org/10.20965/ijat.2020.p0678>
- Tucci, C. L., Chesbrough, H., Piller, F., & West, J. (2016). When do firms undertake open, collaborative activities? Introduction to the special section on open innovation and open business models. *Industrial and Corporate Change*, 25(2), 283–288. <https://doi.org/10.1093/icc/dtw002>
- UK Government. (2021). *Contracts for Difference*. GOV.UK.

- <https://www.gov.uk/government/publications/contracts-for-difference>
- Ulrich, W. (1983). *Critical Heuristics of Social Planning: A New Approach to Practical Philosophy*. Haupt.
- Upward, A., & Jones, P. (2016). An Ontology for Strongly Sustainable Business Models. *Organization & Environment*, 29(1), 97–123.
- USDN. (2019, September 25). *B Corps and Benefit Corporations – USDN Sustainable Consumption Toolkit*. Urban Sustainability Directors Network.
<https://sustainableconsumption.usdn.org/initiatives-list/b-corps-and-benefit-corporations>
- van Bommel, K. (2018). Managing tensions in sustainable business models: Exploring instrumental and integrative strategies. *Journal of Cleaner Production*, 196, 829–841.
<https://doi.org/10.1016/j.jclepro.2018.06.063>
- van Waes, A., Farla, J., Frenken, K., de Jong, J. P. J., & Raven, R. (2018). Business model innovation and socio-technical transitions. A new prospective framework with an application to bike sharing. *Journal of Cleaner Production*, 195, 1300–1312.
<https://doi.org/10.1016/j.jclepro.2018.05.223>
- Vanhaverbeke, W., & Chesbrough, H. (2014). A Classification of Open Innovation and Open Business Models. In W. Vanhaverbeke, H. Chesbrough, & J. West (Eds.), *New Frontiers in Open Innovation* (pp. 50–68). Oxford University Press.
<https://doi.org/10.1093/acprof:oso/9780199682461.003.0003>
- Viardot, E. (2013). The role of cooperatives in overcoming the barriers to adoption of renewable energy. *Energy Policy*, 63, 756–764.
<https://doi.org/10.1016/j.enpol.2013.08.034>
- Vladimirova, D. (2019). Building Sustainable Value Propositions for Multiple Stakeholders: A Practical Tool. *Journal of Business Models*, 7(1), 1–8.
- von Hippel, E. (1976). The dominant role of users in the scientific instrument innovation process. *Research Policy*, 5(3), 212–239. [https://doi.org/10.1016/0048-7333\(76\)90028-7](https://doi.org/10.1016/0048-7333(76)90028-7)
- von Hippel, E. (2017). Free Innovation by Consumers – How Producers Can Benefit: Consumers’ free innovations represent a potentially valuable resource for industrial innovators. *Research-Technology Management*, 60(1), 39–42.
<https://doi.org/10.1080/08956308.2017.1255055>
- Vorrath, S. (2021, November 8). “Transformational:” Australia passes 3 million-mark for rooftop solar systems. RenewEconomy. <https://reneweconomy.com.au/transformational-australia-passes-3-million-mark-for-rooftop-solar-systems/>
- Wainstein, M. E., & Bumpus, A. G. (2016). Business models as drivers of the low carbon

- power system transition: A multi-level perspective. *Journal of Cleaner Production*, 126, 572–585.
- Walker, G., & Devine-Wright, P. (2008). Community renewable energy: What should it mean? *Energy Policy*, 36(2), 497–500. <https://doi.org/10.1016/j.enpol.2007.10.019>
- Ward, J. D., Sutton, P. C., Werner, A. D., Costanza, R., Mohr, S. H., & Simmons, C. T. (2016). Is decoupling GDP growth from environmental impact possible? *PLoS ONE*, 11(10). <https://doi.org/10.1371/journal.pone.0164733>
- Wardley, S. (2013). *The Future is More Predictable than You Think – A Workbook for Value Chain Mapping*. https://leadingedgeforum.com/media/1927/the-future-is-more-predictable-than-you-think-_a-workbook-for-value-chain-mapping.pdf
- Watson, R., Wilson, H. N., Smart, P., & Macdonald, E. K. (2018). Harnessing Difference: A Capability-Based Framework for Stakeholder Engagement in Environmental Innovation. *Journal of Product Innovation Management*, 35(2), 254–279. <https://doi.org/10.1111/jpim.12394>
- Weiblen, T. (2016). The Open Business Model: Understanding an Emerging Concept. *Journal of Multi Business Model Innovation and Technology*, 2(1), 35–66. <https://doi.org/10.13052/jmbmit2245-456X.212>
- Wells, P. (2018). Degrowth and techno-business model innovation: The case of Riversimple. *Journal of Cleaner Production*, 197, 1704–1710. <https://doi.org/10.1016/j.jclepro.2016.06.186>
- West, J., & Bogers, M. (2017). Open innovation: Current status and research opportunities. *Innovation*, 19(1), 43–50. <https://doi.org/10.1080/14479338.2016.1258995>
- West, J., Salter, A., Vanhaverbeke, W., & Chesbrough, H. (2014). Open innovation: The next decade. *Research Policy*, 43(5), 805–811. <https://doi.org/10.1016/j.respol.2014.03.001>
- Wilburn, K. (2009). A Model for Partnering with Not-for-Profits to Develop Socially Responsible Businesses in a Global Environment. *Journal of Business Ethics*, 85, 111–120. <https://doi.org/10.1007/s10551-008-9951-5>
- Windahl, C., Karpen, I. O., & Wright, M. R. (2020). Strategic design: Orchestrating and leveraging market-shaping capabilities. *Journal of Business & Industrial Marketing*, 35(9), 1413–1424. <https://doi.org/10.1108/JBIM-03-2019-0133>
- Wirtz, B. W., Pistoia, A., Ullrich, S., & Göttel, V. (2016). Business Models: Origin, Development and Future Research Perspectives. *Long Range Planning*, 49(1), 36–54. <https://doi.org/10.1016/j.lrp.2015.04.001>
- Wood, T., & Blowers, D. (2017). *Price shock: Is the retail electricity market failing consumers?*

Grattan Institute. <https://grattan.edu.au/is-the-retail-electricity-market-failing-consumers/>

- Wright, C., & Nyberg, D. (2017). An Inconvenient Truth: How Organizations Translate Climate Change into Business as Usual. *Academy of Management Journal*, 60(5), 1633–1661. <https://doi.org/10.5465/amj.2015.0718>
- Yang, M., Evans, S., Vladimirova, D., & Rana, P. (2017). Value uncaptured perspective for sustainable business model innovation. *Journal of Cleaner Production*, 140, 1794–1804. <https://doi.org/10.1016/j.jclepro.2016.07.102>
- Yang, M., Vladimirova, D., Rana, P., & Evans, S. (2014). Sustainable value analysis tool for value creation. *Asian J. of Management Science and Applications*, 1(4), 312. <https://doi.org/10.1504/AJMSA.2014.070649>
- Yildiz, Ö., Rommel, J., Debor, S., Holstenkamp, L., Mey, F., Müller, J. R., Radtke, J., & Rognli, J. (2015). Renewable energy cooperatives as gatekeepers or facilitators? Recent developments in Germany and a multidisciplinary research agenda. *Energy Research and Social Science*, 6, 59–73. <https://doi.org/10.1016/j.erss.2014.12.001>
- Yin, R. K. (2014). *Case study research: Design and methods* (Fifth edition). SAGE Publications Ltd.
- Yun, J. J. (2015). How do we conquer the growth limits of capitalism? Schumpeterian Dynamics of Open Innovation. *Journal of Open Innovation: Technology, Market, and Complexity*, 1(1), 17. <https://doi.org/10.1186/s40852-015-0019-3>
- Yun, J. J., Park, K., Im, C., Shin, C., & Zhao, X. (2017). Dynamics of Social Enterprises – Shift from Social Innovation to Open Innovation. *Science, Technology and Society*, 22(3), 425–439. <https://doi.org/10.1177/0971721817723375>
- Yun, J. J., Zhao, X., Wu, J., Yi, J. C., Park, K., & Jung, W. (2020). Business Model, Open Innovation, and Sustainability in Car Sharing Industry – Comparing Three Economies. *Sustainability*, 12(5), 1883. <https://doi.org/10.3390/su12051883>
- Yunus, M., Moingeon, B., & Lehmann-Ortega, L. (2010). Building Social Business Models: Lessons from the Grameen Experience. *Long Range Planning*, 43(2–3), 308–325.
- Žemaitis, E. (2014). Knowledge Management in Open Innovation Paradigm Context: High Tech Sector Perspective. *Procedia - Social and Behavioral Sciences*, 110, 164–173. <https://doi.org/10.1016/j.sbspro.2013.12.859>
- Zhong, W., Su, C., Peng, J., & Yang, Z. (2017). Trust in Interorganizational Relationships: A Meta-Analytic Integration. *Journal of Management*, 43(4), 1050–1075. <https://doi.org/10.1177/0149206314546373>
- Zobel, A.-K., Balsmeier, B., & Chesbrough, H. (2016). Does patenting help or hinder open

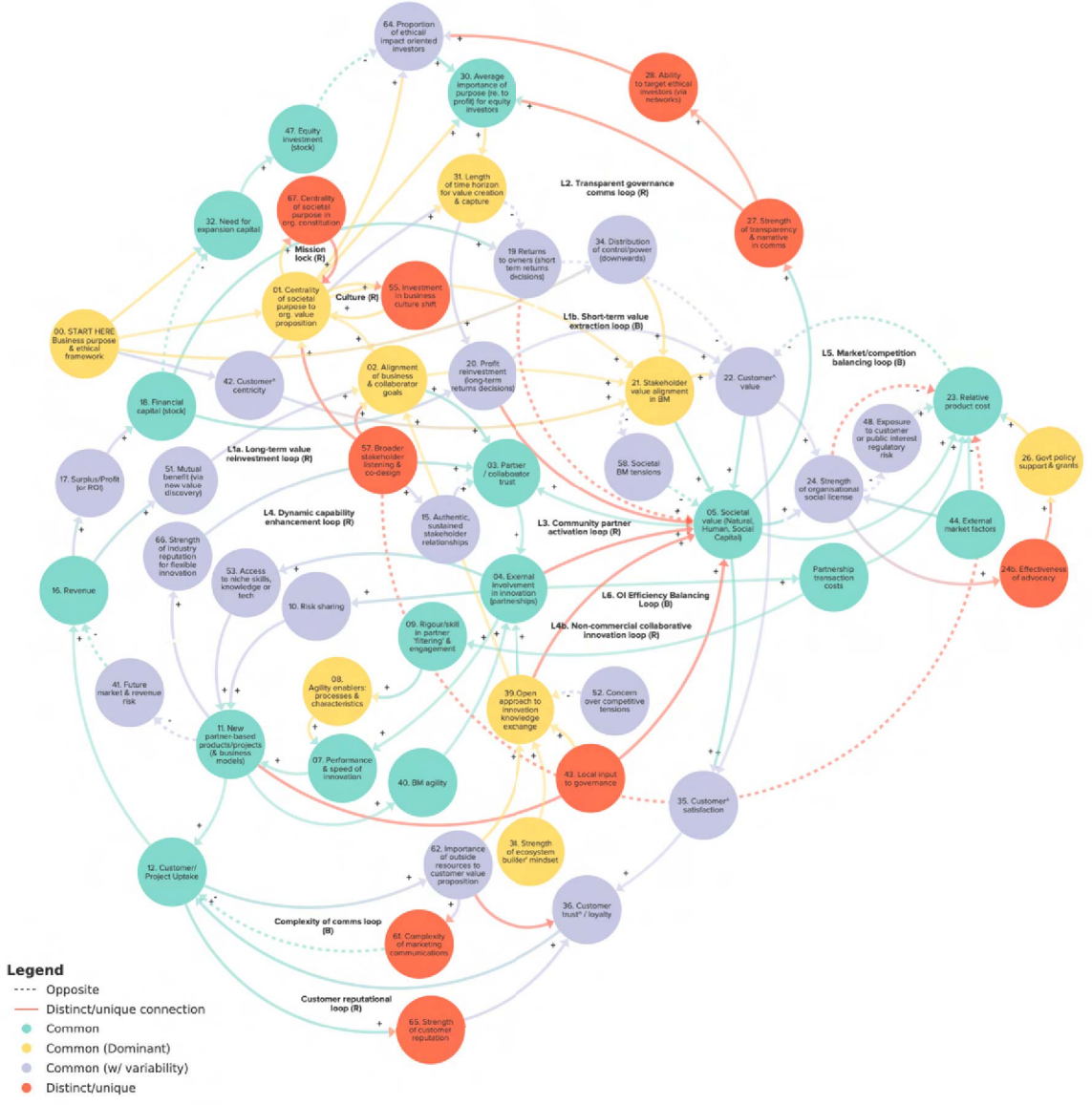
- innovation? Evidence from new entrants in the solar industry. *Industrial and Corporate Change*, 25(2), 307–331. <https://doi.org/10.1093/icc/dtw005>
- Zott, C., & Amit, R. (2010). Business Model Design: An Activity System Perspective. *Long Range Planning*, 43(2–3), 216–226. <https://doi.org/10.1016/j.lrp.2009.07.004>
- Zott, C., & Amit, R. (2019). The Business Model as the Engine of Network-Based Strategies. In P. R. Kleindorfer, Y. J. Wind, & R. E. Gunther (Eds.), *Strategy, Profit, and Risk in an Interlinked World* (Chapter 15). Wharton School Press.
- Zott, C., Amit, R., & Massa, L. (2011). The Business Model: Recent Developments and Future Research. *Journal of Management*, 37(4), 1019–1042. <https://doi.org/10.1177/0149206311406265>

Appendix A: Full Common Model CLD

An online interactive version of the Common Model CLD is also accessible at:
https://bit.ly/CLD_CommonModel



Figure A1: Common CLD Model Representing the Dynamics of Societal Value Creation in OBM (full version)



Note: The CLD displayed here is the full version which includes various additional distinct/unique and other variables. The simple version is provided in Figure 35 in Section 5.2.1. Source: Author analysis of case study interviews and supporting data.

Appendix B: BM Design Maps and Analysis

Additional BM Value Exchange Maps

Figure B1: Organisation A BM Value Exchange Map (energy retailer)

(invisible to customer) Back End ← → Front End (visible to customer)

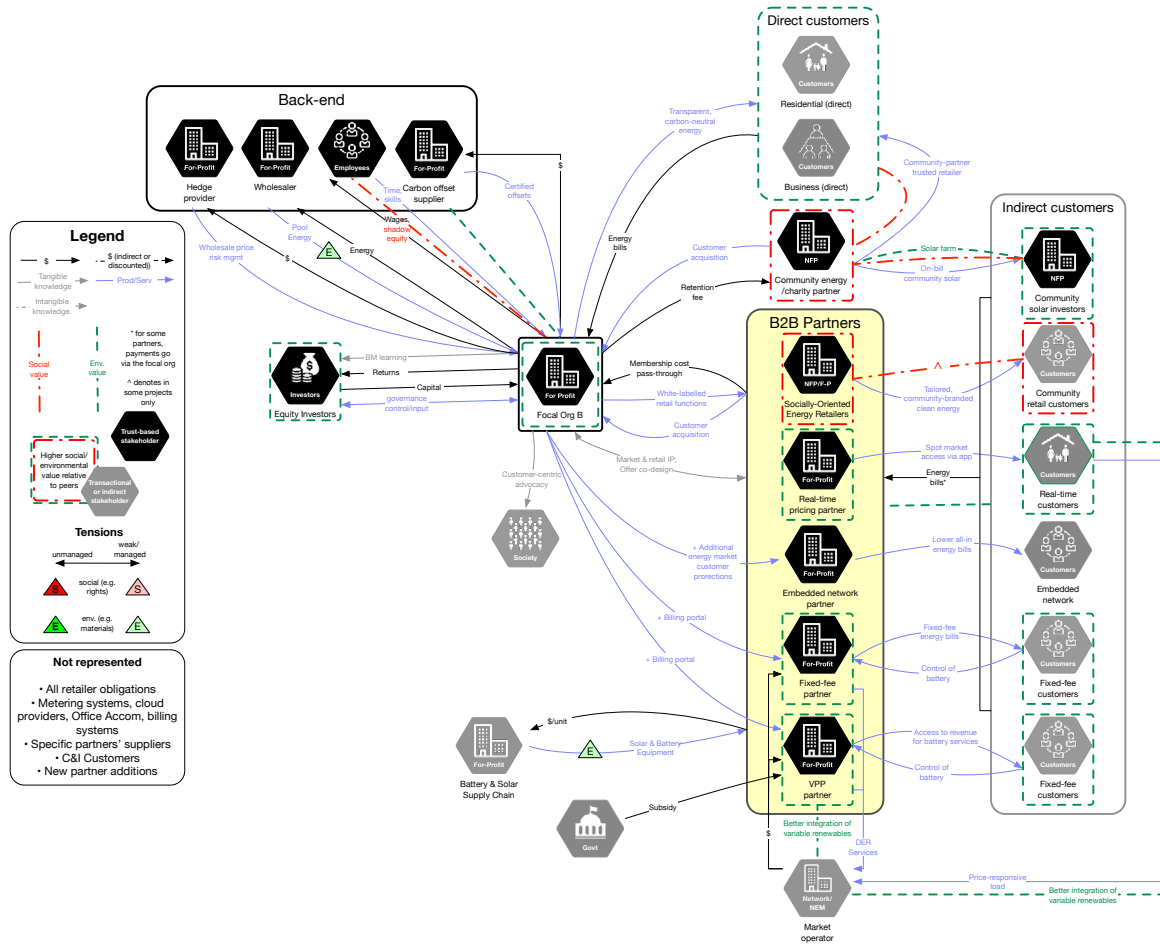


Figure B2: Organisation E BM Value Exchange Map (energy data platform)

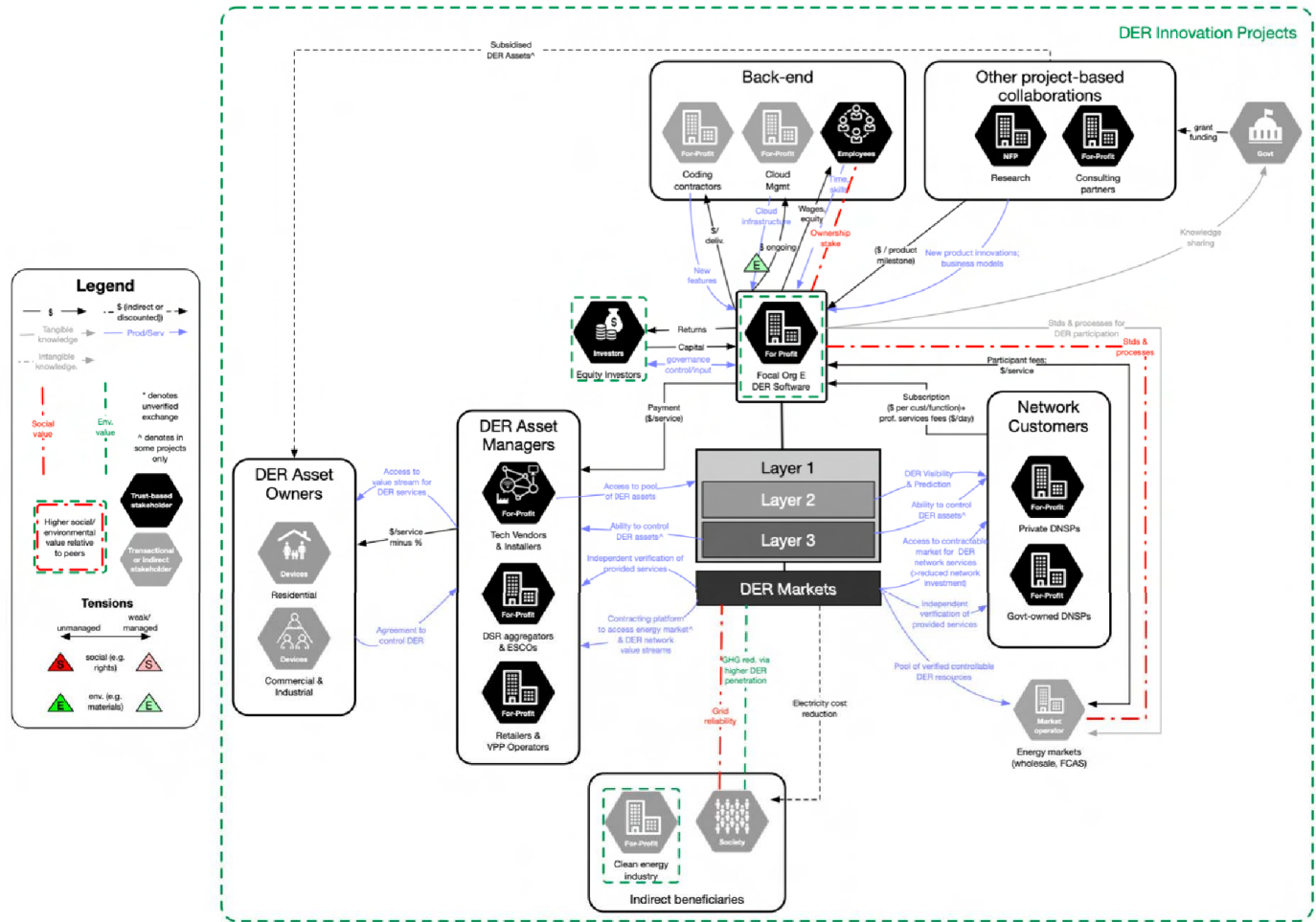
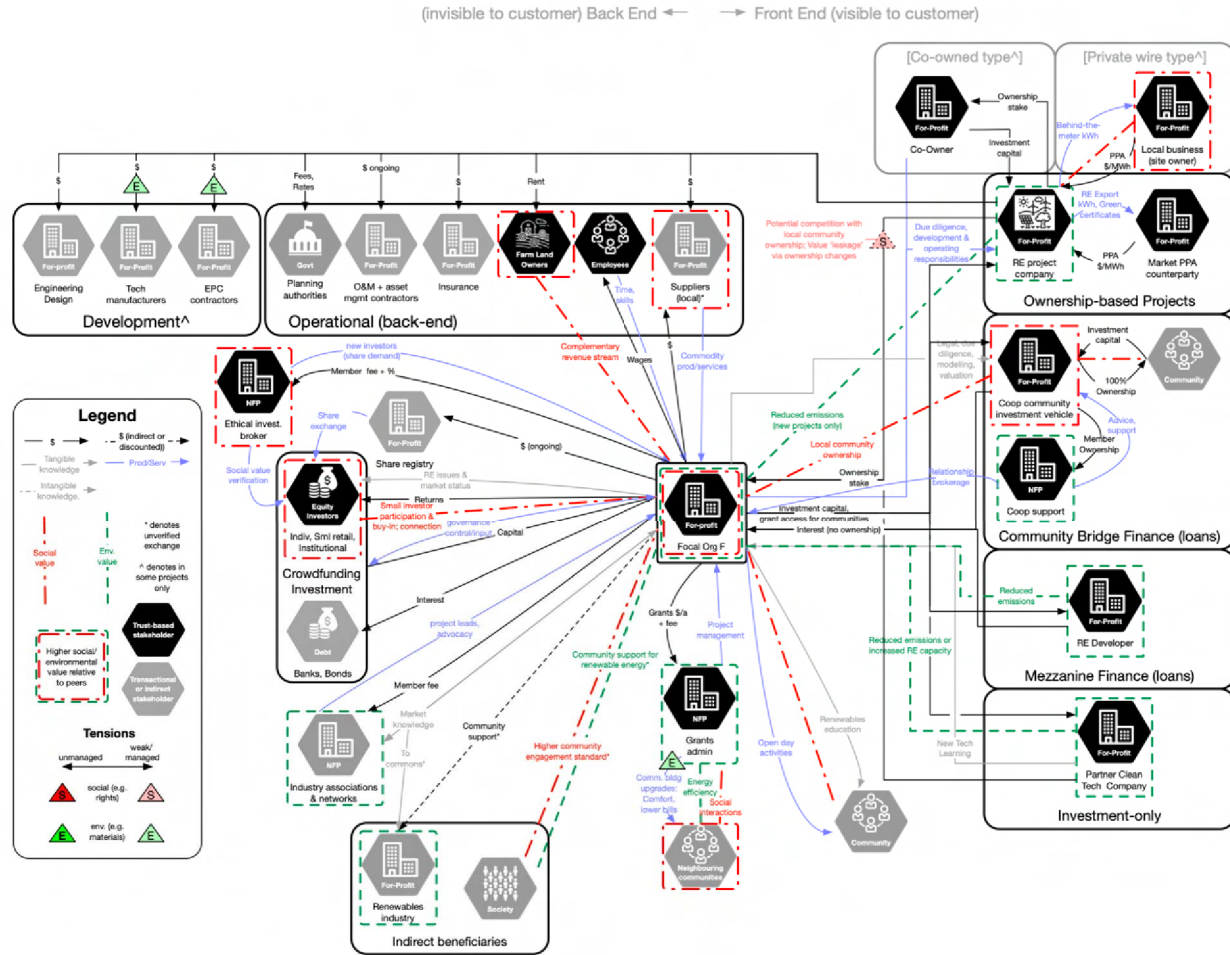


Figure B3: Organisation F BM Value Exchange Map (renewable energy investor)



BM Design Analysis

Table B1: Sustainable BM Design Features of Case Study Organisations

Org	Structure	Content	Governance	Value Config.
A	Make-sell structure with unbundled capabilities to suit partner needs, creating an empowerment outcome.	Increases diversity of societally oriented BM Actors & activities and value transfers through business model design & OBM flexibility. Eliminates common tensions through restructuring locus of payment in value capture (to per customer not per unit).	For-profit. Clearly favours disruption mission over short-term focal organisation profit. Locus of control: of both value creation and value capture shifted to partner based co-creation.	Value chain for core 'traditional' product offerings; Partner-based product co-design resembles bespoke value shop that ultimately delivers disruptive products that resemble a value network , empowering the end customer through DER.
B	Make-sell as the original hardware and data services BM, with lots of supporting activities to promote demand, adding licensing for reseller model, and emerging symmetric multi-sided platform structure for the marketplace (Structural flexibility).	Introduces a novel value transfer type (data) to the market. Using a breadth of BM Actors & Activities increases agility towards new value discovery.	For-profit. Locus of control: of value creation and value capture shifts to the customer , creating empowerment (inherent in the product).	Hardware R&D: Value chain. Newer software application solutions beginning to resemble value network (through interoperability and openness)
C	Base commercial product: Make-sell (RE generation). Newer commercial products: reselling or licensing brand/network to provide a connecting	Flexible value creation and capture leads to substantial in-kind and risk-sharing value transfers ; Strict community benefit criteria for BM	For-profit. Involves local governance in non-commercial side; Lean governance* ; Community benefit	Base commercial product: traditional value chain. Newer commercial products: New partner-based

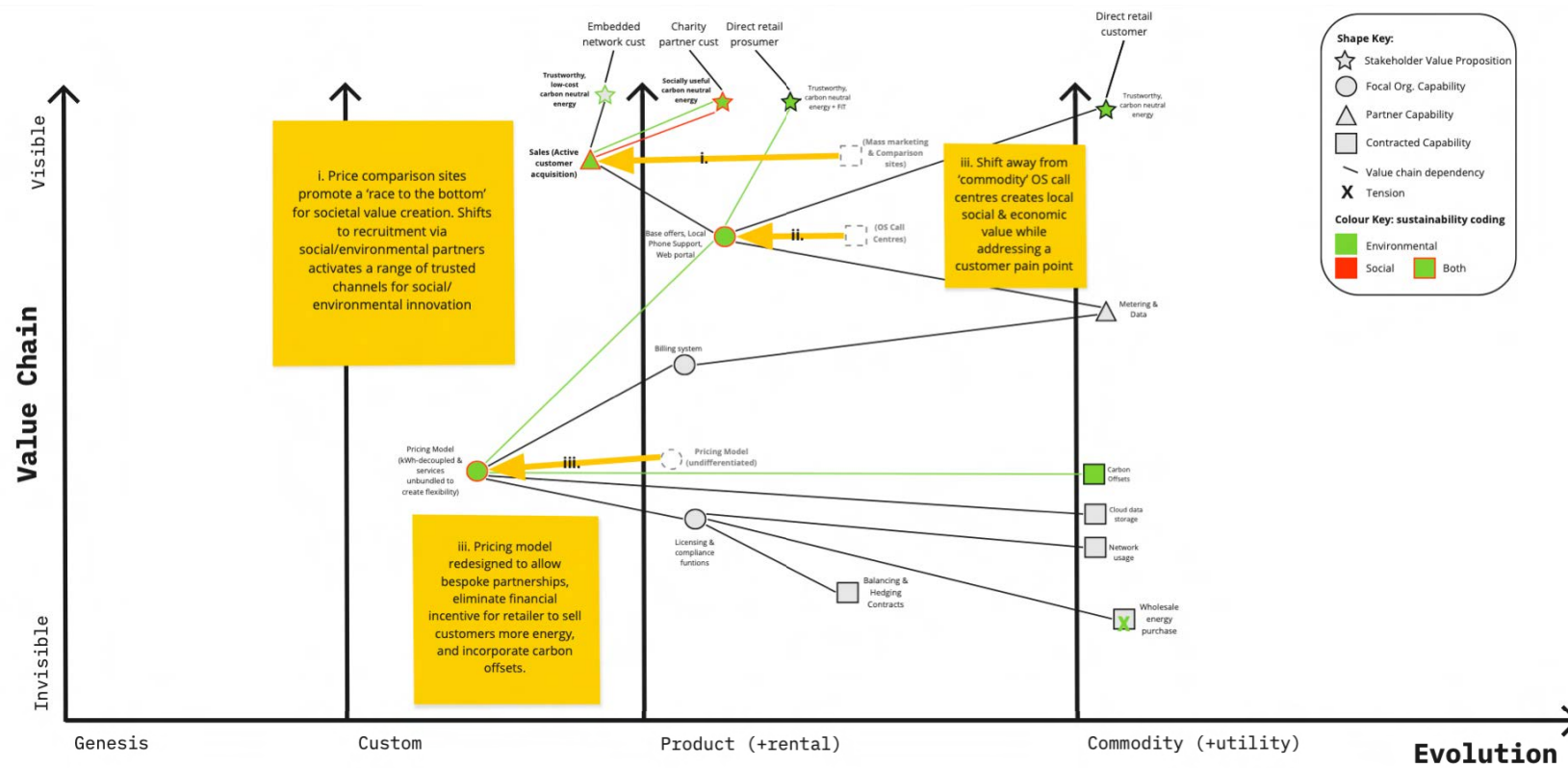
Org	Structure	Content	Governance	Value Config.
	<p>role to design/implement make-sell.</p> <p>Community benefit side of the business model: partly or fully subsidised make-sell/give model.</p>	<p>Actors (incl. legal form); Community benefit share part of value transfer.</p>	<p>unconditional in benefit hierarchy (linked to legal form); Locus of control of value creation shifted towards community innovators.</p>	<p>value chains but the solution or problem definition is societal and bespoke.</p> <p>Community benefit side of the business model: coordinator of regional value shop.</p>
D	<p>Varies by product, but make-sell for RE Generation</p>	<p>Open structures search for new value transfers & actively promote diverse BM Actors (incl. partner legal form).</p>	<p>For-profit.</p> <p>Strategic clarity from the highest level regarding BM tensions*; Open processes actively shift locus of control towards priority stakeholders.</p>	<p>Individual product value chains, but broader organisational infrastructure operates as a value shop coordinator through diverse resources & open approach, and depth of community partnerships enable societal value.</p>
E	<p>Symmetric multi-sided platform (having evolved from VPP software licensing)</p>	<p>Unique new value transfer by new BM Actors; Open structure/standards give strong marketplace coverage in BM Actors*</p>	<p>For-profit.</p> <p>Creates an entirely new locus of control of value creation (for networks and society) & value capture (for customers and networks, mediated by commercial</p>	<p>Value network (platform)</p>

Org	Structure	Content	Governance	Value Config.
			partners).	
F	New RE projects: Make-sell.	Open customer and community relationships underpin new value propositions ; Community benefit share part of value transfer ; Breadth of BM Actors & Activities increases agility towards new value discovery.	For-profit. Locus of control of value creation shifts towards community & of value capture (for small and ethical investors).	Product design: value shop for partners or customers in using its flexible partnerships to create products with new sequential value network servicing end customers.

Source: Author analysis of case study interviews and supporting data.

Appendix C: Annotated Wardley Map Examples

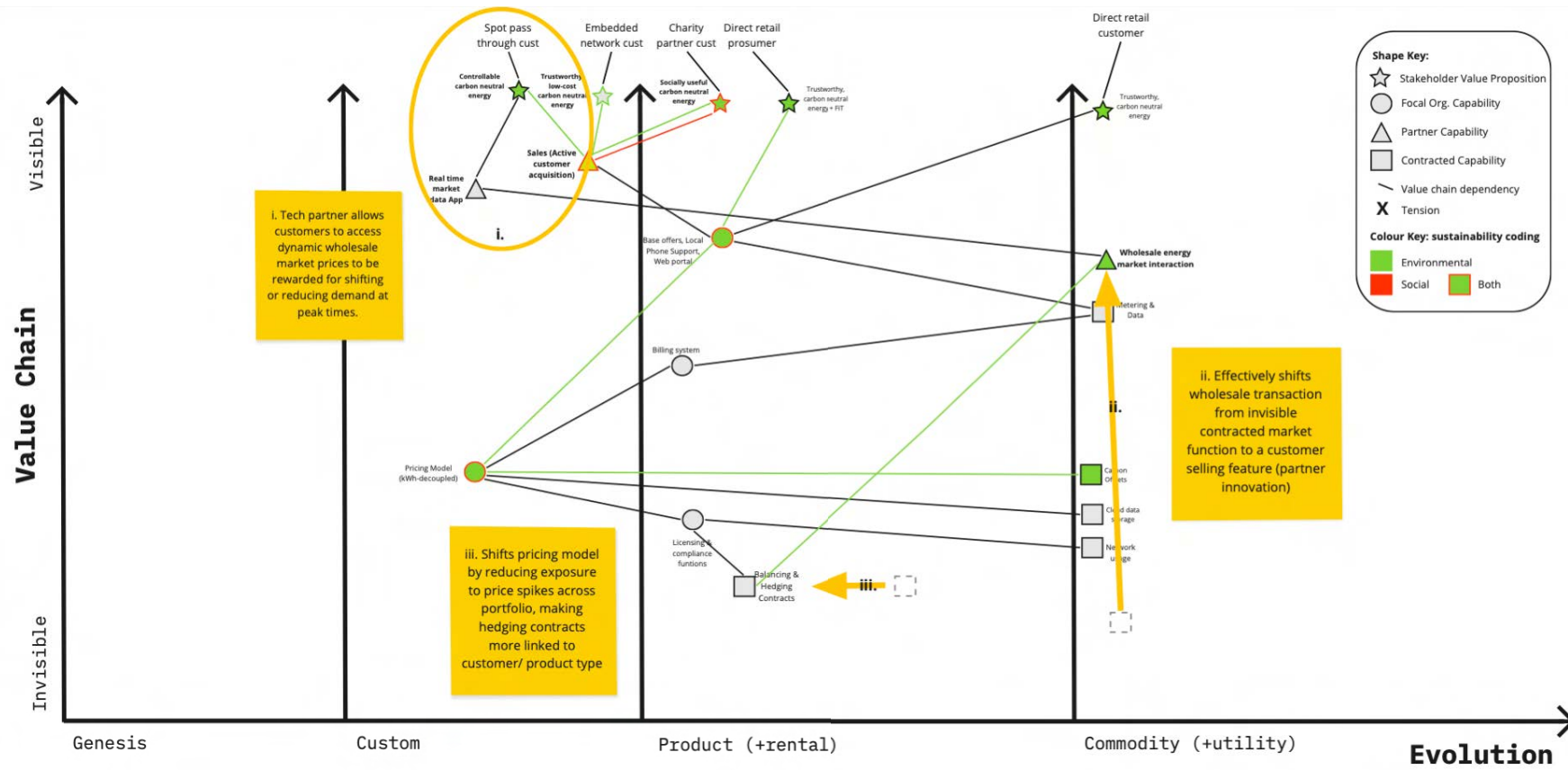
Figure C1: Annotated Wardley Map for Organisation A (Energy Retailer) Base Product Offerings



Source: Author representation, blending approaches of Wardley (2013) and Brehmer et al. (2018). Template credit: Underlying (blank) Wardley map provided under

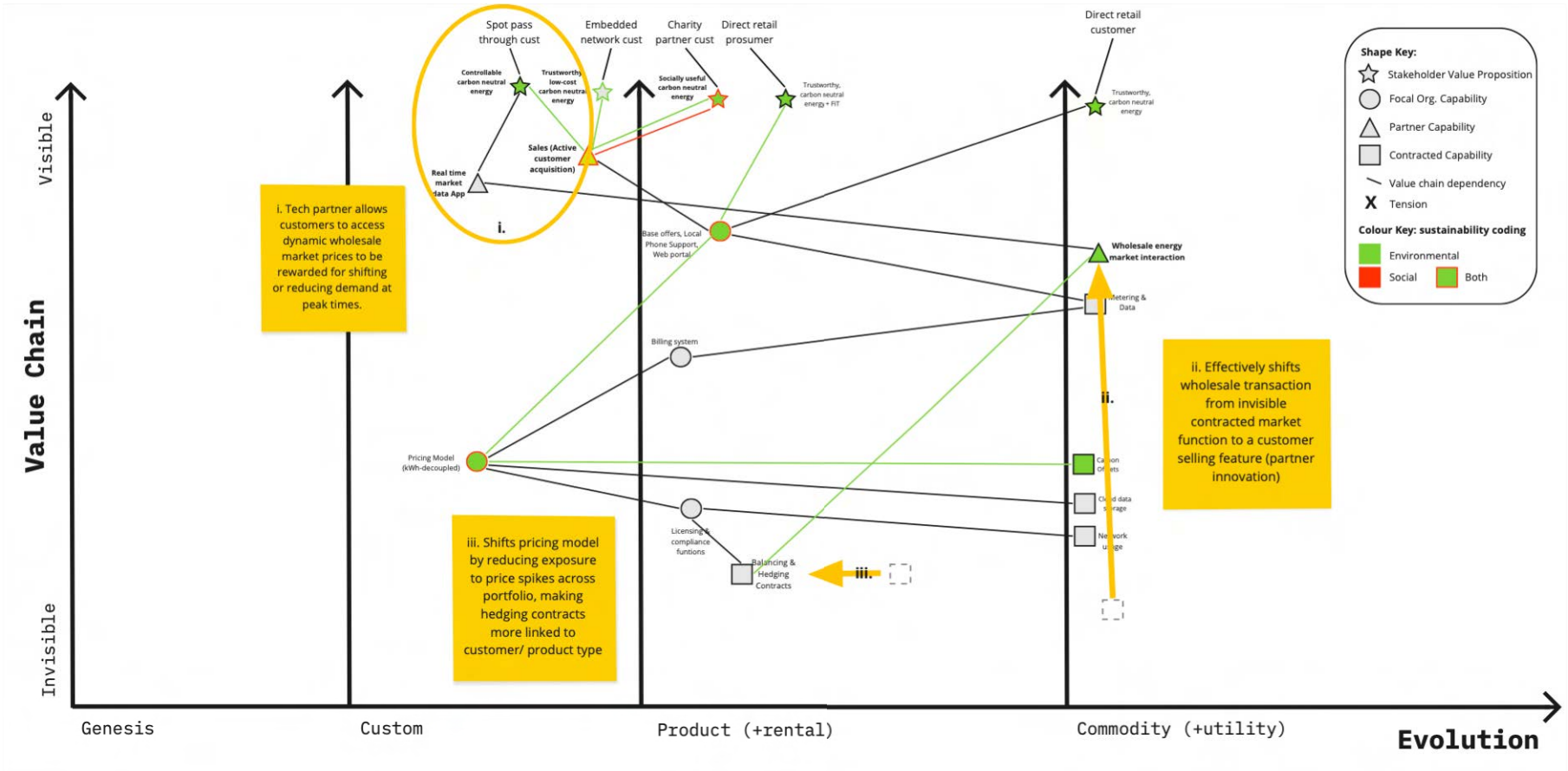
Creative Commons CC BY-SA 4.0 License, courtesy of Simon Wardley and Ben Mosior, accessed via [Miro.com](https://miro.com).

Figure C2: Annotated Wardley Map for Organisation A (Energy Retailer) Overlay of Real-Time Pricing Product



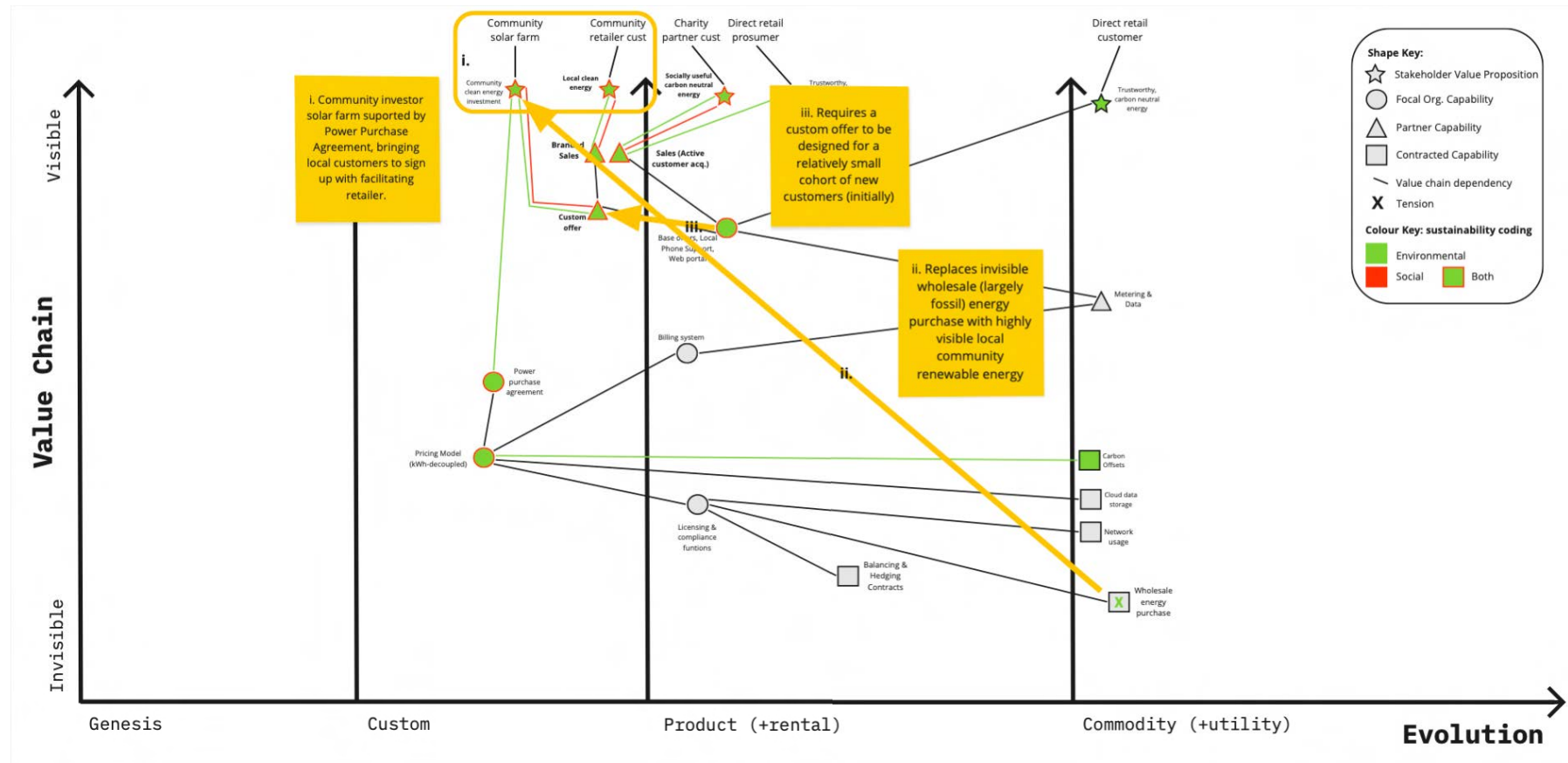
Source and template credit: as per Figure C1 above.

Figure C3: Annotated Wardley Map for Organisation A (Energy Retailer) Overlay of Virtual Power Plant (VPP) Product



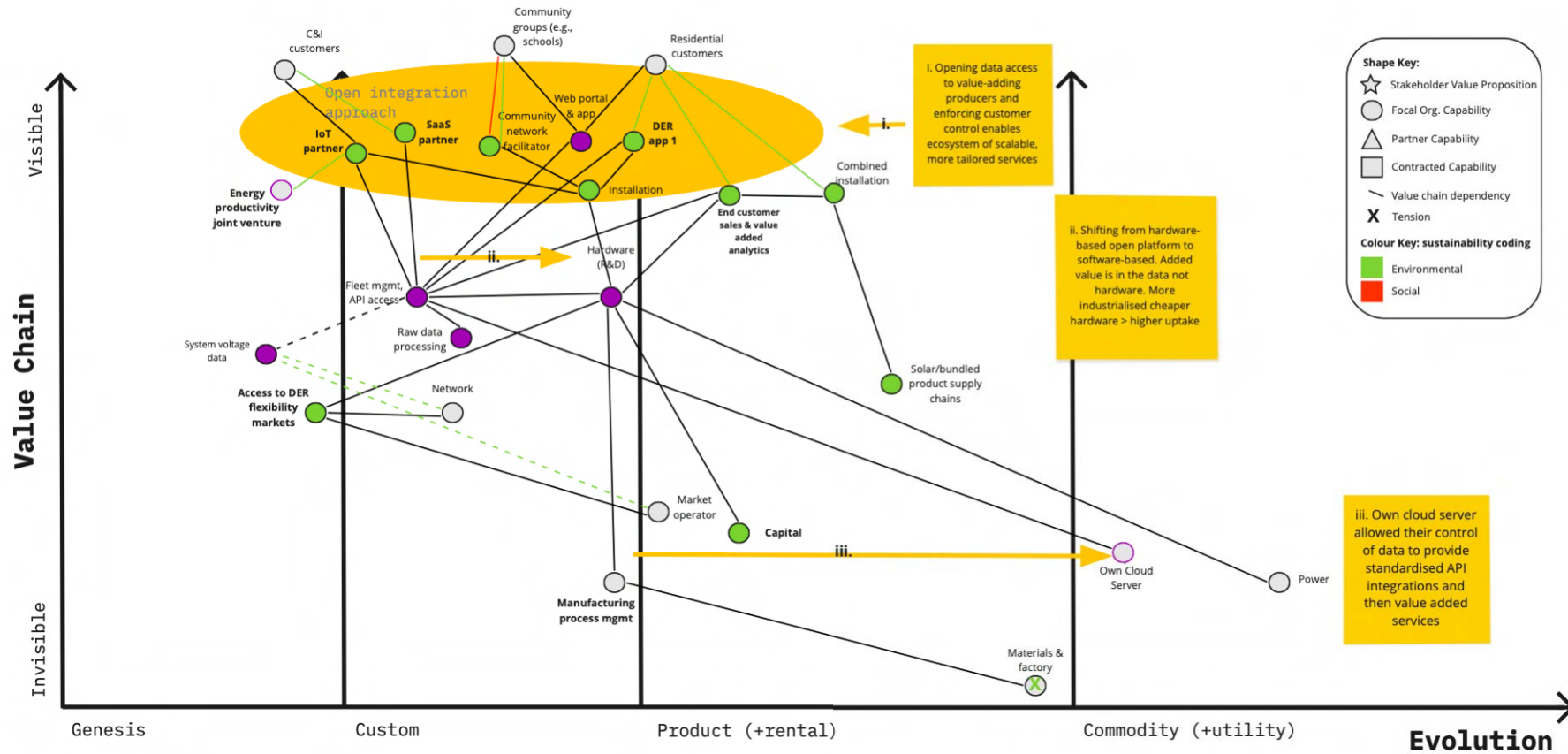
Source and template credit: as per Figure C1 above.

Figure C4: Annotated Wardley Map for Organisation A (Energy Retailer) Overlay of Community Solar Product



Source and template credit: as per Figure C1 above.

Figure C5: Annotated Wardley Map for Organisation B (Energy Data Company) Base Product Offerings



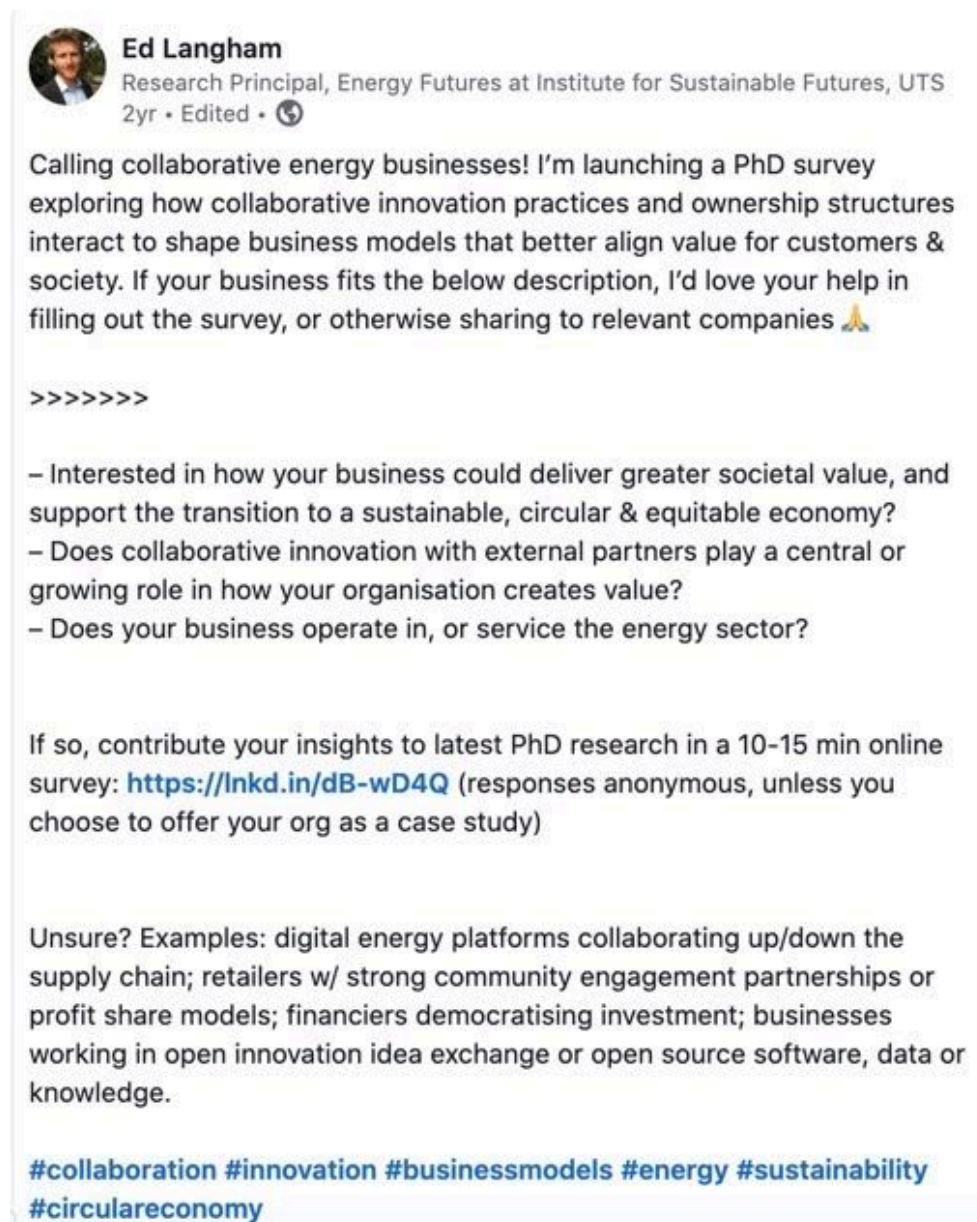
Source and template credit: as per Figure C1 above.

Appendix D: Self-identification Survey Materials

This appendix contains the following two materials relating to the self-identification survey outlined in Section 4.3 of the research design:

- Survey promotion: a social media post promoting the open business models survey.
- Survey questions deployed on online Qualtrics platform.

Figure D1: Social Media Post Promoting the OBM Survey



Ed Langham
Research Principal, Energy Futures at Institute for Sustainable Futures, UTS
2yr • Edited • 🌐

Calling collaborative energy businesses! I'm launching a PhD survey exploring how collaborative innovation practices and ownership structures interact to shape business models that better align value for customers & society. If your business fits the below description, I'd love your help in filling out the survey, or otherwise sharing to relevant companies 🙏

>>>>>>

- Interested in how your business could deliver greater societal value, and support the transition to a sustainable, circular & equitable economy?
- Does collaborative innovation with external partners play a central or growing role in how your organisation creates value?
- Does your business operate in, or service the energy sector?

If so, contribute your insights to latest PhD research in a 10-15 min online survey: <https://lnkd.in/dB-wD4Q> (responses anonymous, unless you choose to offer your org as a case study)

Unsure? Examples: digital energy platforms collaborating up/down the supply chain; retailers w/ strong community engagement partnerships or profit share models; financiers democratising investment; businesses working in open innovation idea exchange or open source software, data or knowledge.

[#collaboration](#) [#innovation](#) [#businessmodels](#) [#energy](#) [#sustainability](#)
[#circulareconomy](#)

Figure D2: Survey Questions Deployed on Online Qualtrics Platform

See the ensuing inserted pages.

Survey Call: Collaborative Energy Business Innovators

Q59 Welcome!

- Are you interested in how your business could continue to evolve to deliver greater **societal value**, and support the transition to a sustainable, circular and equitable economy?
- Do **collaborative innovation processes** with external partners play a central or growing role in how your organisation creates value?
- Does your business operate in or service the **energy sector**?

If your business fits,** contribute your insights to **latest PhD research** by exploring these issues in this 10-15 min online survey.

The survey is designed for respondents familiar with the **business model and collaborative innovation processes** (but can be any role within the organisation).

The PhD research explores how ownership structures and collaborative innovation processes interact to shape business models that better align customer and societal value. It aims to determine how an increasingly mainstream innovation trend can be harnessed to create more transformatively sustainable businesses, that are more resilient over the long term.

**** UNSURE IF YOU FIT?** Here are a few examples:

- energy trading platform developers working collaboratively with new businesses **up/down the supply chain**;
- **retailers** with strong community engagement partnerships or profit share models;
- **financiers** enabling democratisation of energy investment;
- orgs participating in **open source** software, data or knowledge ecosystems;
- advisory businesses strongly rooted in **open innovation idea exchange**;
- tech companies with strong collaborative **university partnerships**, etc.

Q58 Survey Privacy Notice

Key information (read this bit!)

- **All questions are voluntary** and may be skipped.
- Responses are captured and stored **anonymously**. If you choose to be considered for deeper case study research or to stay informed, you will be taken to a separate link to enter your contact details. For potential case study organisations (only), contact details will be re-identifiable to your survey response by the research team, solely for the purpose of further contact.
- All data collected will be treated **confidentially** and any published results will **not be identifiable** (individually or organisationally).
- Questions require **approximate answers only** - you do not need to consult organisational documents - your best guess is fine. It has been designed and tested to take **10-15 minutes** (NB: takes longer typing on a phone than on a desktop).

About the research

The research involves this survey, followed by a series of case studies of energy sector businesses in Australia and the UK considered to have 'open' business models – that is, where collaboration with actors outside traditional organisational boundaries plays a central role in how the business creates and captures value.

This survey has been developed by the Institute for Sustainable Futures, at the University of Technology Sydney (UTS). Information is being collected for the purposes of the PhD research project "Understanding the relationship between open business models and business ownership for societal value creation" undertaken by Edward Langham, supervised by Professor Damien Giurco. This research is supported by an Australian Government Research Training Program Scholarship.

Q41 I have read and understand the survey information and privacy terms above, and am happy to participate in the survey

Do not agree (1)

Agree (2)

Skip To: End of Survey If I have read and understand the survey information and privacy terms above, and am happy to partic... = Do not agree

Q1 How many years has your organisation been operating?

- < 3 years (1)
 - 3-5 years (2)
 - 6-10 years (3)
 - 11-15 years (4)
 - > 15 years (5)
-

Q3

In which countries does your organisation operate?

(select all applicable)

- United Kingdom (1)
 - Australia (2)
 - Other (please specify up to 3, if relevant; specific regions or 'global' may be applicable) (3) _____
-

Q63

Approximately how many full time equivalent employees does your organisation have?

- Less than 5 (1)
 - 5 - 20 (3)
 - 21 - 50 (4)
 - 51 - 100 (5)
 - 101 - 300 (6)
 - 301 - 1000 (7)
 - More than 1000 (8)
-

Q6 How has your total revenue changed over the last three years?

- Become smaller (1)
 - Stayed the same size (2)
 - Grown moderately (3)
 - Grown substantially (4)
 - Don't know / Prefer not to say (5)
-

Q68 To which of the following aspects of the energy sector do your organisation's products/services relate?

(select as many as relevant)

- Electricity (8)
 - Gas (9)
 - Transport (10)
 - Supply side (e.g. generation, storage) (1)
 - Demand side (e.g. flexible loads, efficiency, etc.) (4)
 - Transmission/distribution (5)
 - Retail markets (6)
 - Wholesale markets (7)
 - Cross-cutting support products/services (e.g. finance, software, knowledge, process) (11)
 - Other (specify) (12)
-
- None of the above (13)



Q8 Which of the following areas best describe your competitive advantage? *(select up to three)*

- Price/cost advantages (1)
- Speed of service (2)
- Established reputation (3)
- Product or service design/ flair/ creativity (4)
- Product or service quality (5)
- Specialised expertise/ product/ service (6)
- Range of expertise/ products/ services (7)
- Personal attention/ responsiveness to customers (8)
- Product longevity/ ability to be repaired (9)
- Resource efficiency of products/ services (10)
- Lower carbon footprint of products/ services (11)
- Minimised waste/ waste solutions/ recyclability (12)
- Don't know/Unsure (13)

Q9

What is your organisation's primary purpose or mission?
(what customer and societal needs are being addressed?)

Q36 Please describe the main product/s or service/s you offer

Q31 A **business model** describes the logic of how a business **creates** and **captures** value:

Q11 Briefly describe how your organisation **creates value for its customers**:

Q12

Where relevant, describe how your organisation **creates value for other stakeholders outside its customer base or investors/owners**

(e.g. social, environmental, employee, supply chain, etc.)

Q13

How does your organisation **capture value** in terms of financial revenue?
(select *all* that apply)

- Sale of goods (1)
 - Sale of services or advice (2)
 - Licensing of Intellectual Property (IP) (3)
 - Memberships (4)
 - Rent or interest on assets (5)
 - Grants or donations (6)
 - Other/s (please specify) (7)
-

Q64 Are there any other **non-monetary** ways in which your organisation **captures value**?
(e.g. cryptocurrency, rewards, barter, etc.)

- No (1)
 - Yes (please specify) (2) _____
-

Q44 **Roughly what proportion of your revenue comes from the sale of goods & services?**

- < 50% (1)
 - 50-75% (2)
 - 76-100% (3)
-

Q48 Assume that the future economic system is truly sustainable. To what extent would your core business model need to change for your organisation to thrive in this future?

- Not at all (1)
 - A little (2)
 - A moderate amount (3)
 - A lot (4)
 - Don't know (5)
-

Display This Question:

If Assume that the future economic system is truly sustainable. To what extent would your core busin... = A little

Or Assume that the future economic system is truly sustainable. To what extent would your core busin... = A moderate amount

Or Assume that the future economic system is truly sustainable. To what extent would your core busin... = A lot

Q65 What aspects of your business model would need to change?

Q56

Please note any stages in which external collaboration has played an important role in your organisation

(select as many per row as relevant; SCROLL RIGHT to see all)

	Formation of your organisation (1)	Initial business model design (2)	Testing or adapting your business model (3)	Ideation phase for new products/services (4)	Commercialisation phase of new products/services (5)	Marketing or distribution channels (6)	Other (7)
Other businesses (1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Professional or innovation networks (2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Civil society (NGOs & non-business institutions) (3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Customers (4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Governments or regulators (6)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other stakeholders (specify) (8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Q66 You indicated involvement of at least one set of external collaborators in the *business model design or evolution*.

Please briefly explain *how* this collaboration has influenced the business model

Q18 In the last 3 years, in which of the following activities has your organisation engaged with external parties to accelerate innovation? (Select as many as relevant)

- Engaging directly with lead users/customers and early adopters (1)
 - Participating in open source software or knowledge development (e.g. using creative commons licensing) (2)
 - Exchanging ideas through submission websites, idea “jams” and competitions (3)
 - Participating in or setting up innovation networks/ hubs with other organisations (4)
 - Sharing facilities with other organisations or researchers (5)
 - Integrating product/services with digital sharing economy platforms (6)
 - Other (please specify) (7)
-
- Joint purchasing of goods and materials (8)
 - Joint R&D (9)
 - Joint marketing/ co-branding (10)
 - Participating in research consortia or collaborations (11)
 - 'Licensing in' externally developed technologies (12)
 - Outsourcing or contracting out R&D projects (13)
 - Providing contract research to others (14)

Joint ventures, acquisitions and incubations (15)

Other (please specify) (16)

Q19 Over the last 3 years (via the above innovation activities or other) did your organisation transfer its IP, technology or informal knowledge to external parties?

No (2)

Yes (1)

Don't know (3)

Display This Question:

If Over the last 3 years (via the above innovation activities or other) did your organisation transf... = Yes

Q20

Were these transfer(s) made:

(Select all that apply)

For financial payment (as part of sales of your core product/service, e.g. consulting)? (1)

For financial payment (NOT as part of sales of your core product/service)? (2)

In exchange for other benefits? (3)

Free of charge? (directly or via creative commons licensing) (4)

Display This Question:

If Over the last 3 years (via the above innovation activities or other) did your organisation transf... = Yes

Q39 Please briefly explain the types of IP, technology or informal knowledge transfers referred to above

Q40 Ownership, Governance & Finance

Q22 What is your organisation's current legal form?

- For-profit (1)
- Not-for-profit (NFP) (3)
- Other (e.g. hybrid; please explain) (5)

Don't know (6)

Q62 Does your organisation identify as a social enterprise?

- Yes (5)
- No (6)
- Don't know (7)

Q30

Please select any ownership rights held by different stakeholders in your organisation

(select as many per line as relevant; leave blank if not applicable)

	Ownership Rights (rights to financial returns/ assets) (1)	Ownership Rights (control rights) (2)	Don't know (4)
Private shareholders (1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Institutional investors (2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Founders/founding family (3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parent company (4)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Partners (i.e. employees with status) (5)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Employees (6)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Membership base (7)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Industrial or Charitable Foundation (8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Government or public entity (9)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Directors, or Board (10)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (specify) (11)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Q24 Has your organisation's legal form or ownership structure ever changed?

- No (2)
- Yes (1)
- Don't know (3)

Display This Question:

If Has your organisation's legal form or ownership structure ever changed? = Yes

Q25 What previous legal form or ownership structure/s existed and when?

Q26

What sources of finance have funded organisational expansion to date?

(select all relevant)

- Own organisational capital or Parent organisational capital (5)
 - Debt (financial loans, bonds) (1)
 - Private equity (venture capital, equity crowdfunding) (3)
 - Issuance of new shares (publicly-listed companies) (11)
 - Grants or Donations (6)
 - Other (please specify) (7)
-
- None / Not applicable (10)
 - Don't know (8)

Q25

Case Study Research & Future Involvement

This survey is also being used to select a series of more detailed case studies, in which participating organisations critically examine how their collaborative innovation processes and ownership structures influence customer and societal value creation. Within this process, participants will be exposed to a set of new tools to refine how you create value for customers and society. Case study participation involves 4-8 hours total organisational commitment (at your convenience), and participants will receive a **Summary Comparative Analysis** to see how their practices relate to emerging innovation patterns in similar energy sector organisations in Australia and the UK.

Q45 Did this survey prompt you to reflect on issues you consider to be strategically important for your organisation?

- No (1)
 - Yes (2)
 - Somewhat (3)
-

Q26 Would your organisation be interested in being considered as a case study as part of this research?

(mandatory question)

- No (3)
 - Maybe (2)
 - Yes (1)
-

Q29 Would you like to be notified of outcomes of the research as they are published?

- No (2)
- Yes (1)

Appendix E: Case Study Interview Protocol and Questions

The first part of this appendix includes generic (deidentified) titles or levels of interviewees, a list of additional data sources analysed for each case, and an information form for focal organisations. Note that several very similar versions of this form were produced for individual interviewees, partner organisations and survey participants.

The final part of this appendix contains the case study protocol, incorporating semi-structured interview questions for focal and partner organisations, and feedback questions on BM value exchange maps and causal loop diagrams.

Table E1: Generic Titles of Interviewees

	Respondent 1	Respondent 2	Respondent 3
Organisation A	CEO/General Manager		
Organisation B	Partnership manager		
Organisation C	CEO/General Manager	Communications specialist	Parter organisation lead
Organisation D	Sustainability manager	Innovation manager	Sustainability team member
Organisation E	Executive representative	Partnership manager	
Organisation F	Executive representative	Parter organisation lead	

Table E2: Additional Data Sources Analysed

	Data type 1	Data type 2	Data type 3	Data type 4	Data type 5	Data type 6	Data type 7
Organisation A	Website	Media stories	Industry case study	Public submissions			
Organisation B	Website	Media stories	Business Development Presentation	Partner integration list	Impact statement		
Organisation C	Website	Annual Reports	B-Corp Responses & Results	Governance documents	Member survey report	Public submissions	
Organisation D	Website	Media stories	Industry case studies (x 4)	Annual & Sustainability Reports	Ethics policy	Strategic plans	Influencemap.org Profile
Organisation E	Website	Media stories	Project reports				
Organisation F	Website	Media stories	B-Corp Results				

Notes: External sources are identified in blue; Except for Organisation D (Enel), additional data sources are not referenced directly for confidentiality.

Figure E3: Focal Organisation Participant Information Form

See the ensuing inserted pages.

Understanding the relationship between open business models and business ownership for societal value creation

Information Sheet for Case Study Business Interviewees

About the research

This research is part of a PhD research project undertaken by Edward Langham of the Institute for Sustainable Futures, University of Technology Sydney, supervised by Professor Damien Giurco. It is supported by an Australian Government Research Training Program Scholarship.

The research explores how ownership structures and collaborative innovation processes interact to shape business models that better align customer and societal value. It aims to determine how an increasingly mainstream innovation trend can be harnessed to create more transformatively sustainable businesses, that are more resilient over the long term.

The research involves a survey and a series of eight case studies of energy sector businesses in Australia and the UK considered to have 'open' business models – that is, where collaboration with actors outside traditional organisational boundaries plays a central role in how the business creates and captures value. Your organisation has been selected based on your survey response detailing a desirable combination of collaborative innovation practices, business model features and ownership structures that meet the study's criteria. You have been selected based on your knowledge of the subject of Interviews 1 & 2.

Please note: The research does not seek to focus on subjects considered trade secrets, and the researcher is happy to sign a separate non-disclosure agreement to protect any specific aspects of concern if required.

Why participate?

Participation is a **valuable self-reflective exercise** to examine issues of strategic importance to your long-term organisational viability. You will get exposure to a set of **new tools** to refine how you create value for customers and society. Case study & partner businesses will also receive a **Summary Comparative Analysis** to understand their business practices relative to newly emerging innovation patterns in similar businesses in Australia and the UK.

What is involved if the organisation participates as a case study?

Each organisational case study requires a total of **4-7 hours** across your nominated representative(s), and 1-2 hours from a partner organisation (where they agree to participate). This includes approximately three 60-90 minute interviews at the relevant organisational offices (or web-based where logistics deem necessary):

- Interview 1 will focus on external value creation in the business model, purpose and ownership.
- Interview 2 will focus on interaction between open innovation, business model evolution, and strategic perspectives on the alignment of organisational purpose, business model and ownership structures.
- Interview 3 is with an **external partner** for a collaborator's perspective on societal value creation.

Depending on organisational roles and history, Interviews 1 & 2 may be undertaken by the same or different respondents. Interviews will be recorded and transcribed to ensure that contributions are captured accurately (see confidentiality section below). The organisation may also be requested to provide readily available supporting documents, and to pass on contact details for one or more external collaborative partners regarding Interview 3.

Where relevant, interviewees will be asked to review and comment on one or more visual tools constructed using interview responses:

1. A 'value map' identifying key value creation and capture relationships.
2. A 'systems diagram' of relationships between organisational purpose, processes and structures.

You are free to circulate any materials (visual tools, transcript) for wider review/feedback.

What will happen if I say no?

You are under no obligation to participate. If you decide not to participate, it will not affect your relationship with the researchers or the University of Technology Sydney.

You or the organisation can withdraw from the study at any time during the data collection and verification phase without having to give a reason, by contacting Ed Langham (edward.langham@uts.edu.au; +44 [redacted]; +61 [redacted]). If you withdraw from the study, any recordings, transcripts and notes will be destroyed unless otherwise agreed. You should be aware that after data collection and verification it may not be possible to withdraw your data from the study results if patterns have been analysed and integrated with other organisations' data. Note, however, that you can change your organisational attribution preference to 'Do not identify my organisation' at any time before publication (see below consent form).

Data Use and Confidentiality

By signing the consent form you consent to the researcher collecting and using information provided for the study and associated policy advice. Audio and transcript data collected will be treated confidentially, and be stored and processed in the UK and/or Australia in de-identified form (interviewee names are not captured). However, interview questions will capture detail on your current and past roles as well as business processes, which may make the data *indirectly* identifiable. Therefore, immediately after initial recording and transcription, indirectly identifiable components will be removed from transcriptions to a separate linking file, which will be separately and securely stored. This manages risk associated with unauthorised data access.

The research may stray into content deemed by you or the business to be commercial-in-confidence. The researcher can sign a non-disclosure agreement covering certain innovation aspects *in advance* if required, or commercial-in-confidence issues can be flagged *at any time during the interview or afterwards*. This information will not be directly referred to in any public outputs. Please ensure you are aware of any relevant confidentiality policies before the interview/s.

Recordings, transcriptions and electronic notes will be stored confidentially and securely on password-protected servers for a period of seven years from the date of final publication, accessible only by the researcher, after which they will be destroyed.

Publication & Organisational identification

The outcomes of this research will be published in a doctoral thesis, academic journal articles and/or popular research media publications such as [The Conversation](#), or be presented publicly. Case study organisations may be named in published outputs, unless this conflicts with commercial-in-confidence information or organisational attribution preferences selected in the below consent form, which can be changed *at any time* before publication. Any direct quotes will be attributed to the organisation only (consent preferences withstanding). Individuals will not be identified.

What are the risks and how are these being managed?

The management of risks for case study participants is as follows:

- The publication of specific business perspectives could influence its market prospects, positively or negatively. This is being managed by allowing organisations to specify if they wish to be identified (and change choice at any time before publication), individuals (and afterwards, organisations) can review and amend transcripts and visual outputs based on interviews, and both individuals and organisations can nominate specific information as sensitive at any time.
- Interviews with different parties in the business or external collaboration partners might reveal unexpected or contradictory perspectives which could affect operations or relationships. This is being managed by the above means, plus ensuring no written or digital notes are shared between interviewees without prior review and consent, and measures to ensure data is stored securely online and when emailed for review.
- Technology failure (laptop, recording device) resulting increased time requirements for case study participants is managed by data storage protocols and using two recording devices.

What if I have more questions or concerns?

If you have any concerns or questions about the research you can contact Edward Langham at the Institute for Sustainable Futures on edward.langham@uts.edu.au or +44 [REDACTED]; +61 [REDACTED].

This study has been approved in line with the University of Technology Sydney Human Research Ethics Committee [UTS HREC] guidelines. If you have any concerns or complaints about any aspect of the conduct of this research, please contact the Ethics Secretariat on ph.: +61 2 9514 2478 or email: Research.Ethics@uts.edu.au, and quote the UTS HREC reference number ETH19-3504. Any matter raised will be treated confidentially, investigated and you will be informed of the outcome.

Interview Participant Consent Form

I (interviewee's name)

agree to participate in the research '**Understanding the relationship between open business models and business ownership for societal value creation**' conducted by Edward Langham at the Institute for Sustainable Futures of the University of Technology Sydney.

I understand that the purpose of the research is to establish how ownership structures and collaborative innovation processes interact to shape business models that better align customer and societal value.

I have read the information on the previous pages and agree that the researcher has answered all my questions fully and clearly.

I also understand that I am free to withdraw participation from this research project at any time during the data collection and verification phase without giving a reason.

I understand that specific comments will not be attributed to me and my contributions will remain anonymous in any publications. However, I understand that non-commercial-in-confidence information I provide may be quoted in published material and **attributed to the organisation** *if agreed in the organisational consent form*.

I understand that if I wear multiple 'organisational hats', and my response/s represent the perspective of an organisation other than the case study organisation or participating partner organisation, this will be flagged with the researcher.

- I agree to be audio recorded (for transcription to assist accuracy and integrity of the research process).
- I understand that I will be given the opportunity to review the transcribed interview/s.
- I understand that I will be given a signed copy of this document to keep.
- I will ensure that I am familiar with relevant company disclosure policies before the interview/s.

Name and Signature [participant]

____/____/____
Date

Name and Signature [researcher or delegate]

____/____/____
Date

Figure E4: Case Study Protocol Incorporating Semi-Structured Interview Questions

See the ensuing inserted pages.

Protocol and Questions: Interview #1

These interviews are presented in this document as 3 discrete interviews. However, the precise breakdown of the questions by interview differed according to the respondent's knowledge of the organisation (when multiple interviewees), and the flow of the semi-structured conversation. Each Organisation participated in 2–4 interviews depending on their role and available timeslots.

Introduction to research: You've read the participant information sheet, and seen that the case study research looks at clean energy sector 'open business models' (of which your organisation's business model is one), how these relate to value creation outside the organisation's boundaries, and how this intersects with different organisational ownership structures.

- **If there is anything that comes up that you think is commercial-in-confidence just let me know and I'll note it down. You can also do this in hindsight – you can just email or call me. Do you have any additional questions upfront about the research, how the data is used, stored or attributed before we start?**

This interview is semi-structured (loosely working to a set of defined questions) and is expected to take 60-90 minutes to complete.

The focus of this interview is on:

- Interview 1: understanding the organisational origin and purpose, the social, environmental and economic value propositions to different stakeholders, and their relationship to the open business model. It will also reflect on foundational ownership decisions to develop an organisational timeline.
- Interview 2: [gap filling understanding of the business model or the role of any external collaborators in this if relevant, and] the interplay between open innovation and internal innovation management practices, business model design and refinement, and strategic perspectives on the alignment of organisational purpose, business model and ownership structures.

Questions: Role

The purpose of this section is to ascertain the perspective from which the respondent's take on the interview topics were formed, and the extent to which they are able to provide a full or partial perspective on certain questions.

1. Can you describe the title and nature of your current role?
2. Have you held other roles in the organisation in the past?
3. How have these roles intersected with issues of: current/past business model evolution; external stakeholder value propositions; open innovation processes; external collaborations; etc. *[anything that might not be clear from the description provided]*

Questions: Business Origins & Purpose

The following two sections aim to understand the foundational purpose and organisational development to establish any link between a raison d'être and legal form.

4. Can you tell me a bit about the history of the organisation?
5. Can you elaborate on the founding purpose of the organisation?
6. What would you describe as the organisation's core *values* (which may be formal or informal)?
7. How closely would you say your daily operations reflect the organisational purpose and values?
8. Can you describe what organisational 'success' looks like (and how you measure it)?

Questions: Organisational Structures and Change

9. You noted in the survey that the organisation is a [current legal model]. What were the main factors influencing the choice of legal structure at that time/s and were a range of options considered?

Questions: Ownership Tensions

This section aims to draw out any tensions between ownership and organisational purpose, while both topics have been raised in depth.

10. Do any tensions exist between the current ownership structure and the organisational purpose or values?
 - (Prompt if struggling to conceive dimensions of ownership: We can think about ownership structures as being closely associated with organisational purpose, governance mechanisms, sources of finance, and stakeholder supply chain relationships)
 - Can you recount an important management level strategic decision that erred towards favouring the organisational purpose, over competing pressures?
 - Conversely, can you recount an important management-level strategic decision that erred towards favouring the competing pressures, at odds with the organisational purpose?

11. You listed [X] source of finance for company growth in the survey. Can you elaborate on how your company has generally approached increasing its scale or reach/impact, and how this has been funded?
 - Has the source of finance influenced your approach to scaling? [If reframing is required] How do you deal with tensions between pursuing your organisational purpose vs. being profitable/financially viable?

Questions: Current Business Model & Value Creation

This section aims to flesh out an understanding of the business model – in particular, honing in on aspects of customer and societal value creation – with sufficient clarity to develop a value map for the organisation.

12. The core *customer value creation* described in the survey was XXX and YYY. Can you elaborate on your understanding of the customer value proposition? Has this changed much over time?
13. The core *societal value creation* described in the survey was XXX, YYY, ZZZ. Can you elaborate on your understanding of each aspect?
 - Has this always been central to the business model, or has this evolved over time?
14. Do you keep data or report on the customer and or societal value propositions? Is it possible to get a copy of this?
15. The core *revenue* described in the survey was XXX. Are there other ways the organisation 'captures' value? (e.g. other revenues or non-financial measures)
16. Are there any '**extractive tensions**' in your current business model? For example, does increasing your current revenue detract in any way from your:
 - organisational purpose?
 - societal value creation?
17. Can you list **all** of the external parties or partners involved in the value creation and capture we've discussed?

Questions: Interview #2

Questions: Business Model Change

This section aims to document the static or dynamic nature of the business model, in preparation for examining how open innovation processes might shape the business model.

18. When you think about your business model, do you view it as fixed or evolving? If relevant:
 - Can you describe how the business model has changed over time? Are there certain 'periods' or 'eras' that define key shifts?
 - Is the process of business model evolution actively managed? By whom?
 - How are external parties involved in this process?
19. You answered in the survey that you thought your business model would [not] need to change [a little/substantially]. Can you elaborate on this?

Questions: Innovation Processes (product development, process development, R&D) x Business Models

This section aims to document how innovation processes operate, the role of external parties in those processes, and where/how they have influenced the business model.

20. What practices and processes are used to foster innovation?
 - Who is involved internally? Who filters and decides what gets attention and funding?
 - Who is involved externally?
21. How would you trace the roots of your open philosophy to innovation?
 - To your mind, what are the key advantages of this approach?
22. Do you have a formal process through which you manage external partnerships or collaborations? What does this look like? Other prompts:
 - To what extent would you say business model evolution is strategically planned and initiated from your end, versus a 'happy confluence' of approaches by potential partners?
23. How do you decide *who* to partner with?
 - Who would you *hesitate* to partner with?
 - Is there a line you draw between *partners/collaborators* and *competitors*? What is that line?
24. Your business model involves an external collaboration with [XXX]. Can you explain how this partnership evolved? How did it come to be integrated as a core part of the business model?
 - [Repeat for any other collaborations core to the business model]

25. Your survey mentioned involvement in [XXX not discussed process] form of open innovation that you we haven't yet discussed. Can you elaborate on this?
- [Repeat for any other open innovation processes core to the business model]
26. How would you describe your internal organisational structure (e.g. units, hierarchy, reporting lines, etc.)?
- Does your internal organisational structure help or hinder your innovation processes?

Questions: Intellectual Property & External Knowledge Flows

This section aims to document intellectual property approaches and clarify how they relate to outbound knowledge flows.

27. Can you explain your organisation's approach to Intellectual Property? (e.g., are some aspects held tightly and others more open?)
28. Your survey mentioned transferring knowledge outside the organisation as part of your innovation process for payment/for other benefits/free of charge [as relevant]. Can you elaborate on this?
- Are there any other examples of transferring knowledge externally?

Questions: Strategic Perspectives on Ownership & Societal Value Creation

This section aims to allow for higher level reflection on the alignment of aspects of ownership, societal value creation and openness.

29. What are the *positive* implications of your ownership structure on your ability to create customer and societal value concurrently?
- Would the societal value creation in your current business model have been possible with another ownership structure? Why/why not? (thinking about aspects of: purpose, governance, sources of finance, stakeholder networks, etc.)
30. What are the *negative* implications of your ownership structure on your ability to create customer and societal value concurrently? (thinking about aspects of: purpose, governance, sources of finance, stakeholder networks, etc.)
- Might an alternative ownership structure facilitate better production of customer and societal value? How?
31. Have you ever had the impetus to consider alternative ownership structures?
- If no: "If you were starting the company today, would you choose the same ownership structure? Why?"
 - If yes: What was considered? What were the barriers that prevented this path from being taken?

Questions: Supporting Materials

32. Are there any public or internal documents that provide more context on the kind of things we've discussed? e.g. Annual reports, Governance documents, Organisational Policies, Sustainability footprinting documents?

Protocol and Questions: Diagram Feedback

Introduction to process: As an outcome of the previous interview/s, my interpretation of the responses have been arranged into a draft [select relevant option/s]:

1. 'Value map' that seeks through visualisation to clarify the social, environmental and economic value exchanges within the business model.
2. 'System dynamics map' that, by creating a visual logic model, seeks to collaboratively reach an understanding of the relationships between the openness in innovation processes and organisational ownership structures; and explain how these manifest in societal value creation, and the business model structure.

This part of the interview is to obtain your feedback on the [above selected option/s].

- **If there is anything that comes up that you think is commercial-in-confidence just let me know and I'll note it down. You can also do this in hindsight – you can just email or call me. Do you have any additional questions up front about the research, how the data is used, stored or attributed before we start?**

This interview is semi-structured (loosely working to a small set of defined questions) and is expected to 10-30 minutes.

Questions: Diagram Feedback

1. [If email feedback received] Your initial emailed feedback on the [value map/system dynamics map] suggested [INSERT]. Can you elaborate on this a little?
2. Overall, how well does the [value map/system dynamics map] help to explain the logic of how the organisation and its business model operates?
 - Positives: What about the [value map/system dynamics map] resonates with you (as an accurate or useful representation)? Why?
 - Negatives: What about the [value map/system dynamics map] does not 'ring true' for you? Why?
 - Adjustments: What could be changed to improve the [value map/system dynamics map] representation? Why?
3. Are all of the relevant factors or relationships captured in the [value map/system dynamics map] – what's missing?
4. Is there anyone else within the organisation that you feel should, or might like to, provide feedback on the [value map/system dynamics map]? If yes, are you able to forward it to them to allow them to respond if they choose to?

Protocol and Questions: Partner Organisations

Introduction to research

Thanks so much for your time. You've read the participant information sheet, and note that if anything comes up that you think is commercial-in-confidence just let me know and I'll note it down. You can also do this in hindsight – you can just email or call me. **Do you have any additional questions about the research, how the data is used, stored or attributed before we start?**

This interview is semi-structured (loosely working to a small set of defined questions) and is expected to take 45-60 minutes. You noted it was OK to record the call – is that OK if I start recording now?

Questions

1. Can you briefly describe your role and how you've personally been involved with the evolution of the partnership?
 - If not yet clear: Why did you choose to partner with [focal org.]?
2. How would you describe your business model and how this partnership fits in?
3. Are you ever 'in competition' with [focal org.]? How did you decide when a collaboration would add value?
4. What are the key factors underpinning organisational *trust* in this relationship?
 - How important is a shared purpose towards system change in the relationship?
Would you hesitate to partner with organisations that don't share your purpose?
5. IP & knowledge exchange:
 - What types of knowledge, IP or resources do you contribute to the partnership?
 - What types of knowledge, IP or resources do you receive through the partnership?
6. How widely do you engage in partnerships outside this one & how central are they in terms of your own business model strategy?

Appendix F: Interview Coding Structure and Examples

This appendix contains detail on interview and secondary data coding structure for CLDs, examples of how codes were applied in specific example cases, and some compiled quotes on selected themes to demonstrate the breadth of responses relating to a specific point of analysis.

Figure F1: Detailed CLD Coding Structure

Heading	Detail	Additional context
Code ID	Bus#, Code	Allows traceability
Quote/s	One or more if reinforcing point	Verbatim quote/s from interviews or documents
Main point interpretation		Author's interpretation (subjective)
Causal structures	Cause variable	
	Effect variable	
	Relationship type (+/-)	+ is same direction; - is opposite
Relationship strength	(In focal org)	See answer categories
Knowledge source		See answer categories
Confidence level		See answer categories
Point reference	Int#, Timestamp	Enables tracing of source data
Include in diagram?	Yes/No	First pass determination of whether variable helps to answer research questions
Implications for current	Description of change	Does this causal relationship change the common model? (e.g. require a new variable or terminology reframing)

Knowledge source	Description
Direct observation	Informant: "Y happened when X was undertaken"
Expert perception	Informant: "We've avoided doing X because it was clear that Y would happen"
Researcher interpreted	Researcher: Reading between the lines, it sounds like X leads to Y. Include this in the diagram and test with informant.
Verified in feedback interview	Researcher: "Does the relationship between X and Y shown in the CLD represent how this factor works in the organisation?" Business: "Yes. I can think of this example where X led to Y"

Relationship strength	Description
Absent	Not present
Embedded	Relationship present but inherited from the organisational context rather than a choice or strategy (this tag is relatively uncommon)
Weak	Present but relatively minor effect
Moderate	Moderate effect
Strong	Large effect

Confidence level	Description
Low	Author's interpretation of causality & direction (greater subjectivity). Reality check with informant.
Med	Data source indirectly indicates causality and/or direction. Confirm with informant.
High	Data source directly indicates causality and direction from informed viewpoint.

Source: Author developed, based on the foundational method of Kim and Andersen (2012).

Figure F2: CLD Coding Examples

Heading	Detail	Example 1a	Example 1b
Code ID	Bus#, Code	X1	X2
Quote/s	One or more if reinforcing point	"that bubble was going to burst at some point...with pumping up wholesale prices and then passing it through to customers as though they had no choice...[and sure enough] regulators have stuck a pin in the most inflated retail price bubbles. So...when that price re-regulation comes in, which actually didn't affect us at all, because our business model was already built predicting...that bubble would get burst."	
Main point interpretation		BM alignment reduces risk of price regulation, as customer and business financial incentives are inherently aligned.	
Causal structures	Cause variable	Alignment of incentives in BM	Customer value (financial)
	Effect variable	Customer value (financial)	Exposure to customer interest regulatory risk
	Relationship type (+/-)	+	-
Relationship strength	(In focal org)	Strong	Strong
Knowledge source		Researcher interpreted	Direct observation
Confidence level		High	High
Point reference	Int#, Timestamp	Int #1 @ 13:50, 39:44	Int #1 @ 13:50, 39:44
Include in diagram?	Yes/No	Yes	Yes
Implications for current	Description of change	Add evidence to connected variables	Add new variable (reg risk)

Source: Author analysis of interviews (generic, deidentified).

Table F1: Examples of Active Consideration of Stakeholder Value Alignment (variable 21)

Quote	Organisation
<p>Revenue model: “if you’re pushing distributed energy and you’re earning money on usage there’s a natural tension there...and customers know that. So how do you get around that and build some trust with customers in an industry that’s renowned for a lack of trust? Well, you just don’t earn money from usage. So, if we can help you lower your bills through a different network tariff, through efficiency or through distributed energy then we will, because our incentives are aligned”</p>	A (strong focus)
<p>Organisational value system: “We are a business and we have to make money, and that guides a significant portion of our decision making. But we actually have a belief system in regard to energy data, empowering consumers and how data should be handled, and the role for consumers in it. I think it’s not unusual that we will pursue business strategies, which there were alternatives to - that we could have pursued a strategy that was much more just “how do we make money right now?” - and how do we hold on to that data as tightly as we can and try to extract some additional value from it now or in the future”</p>	B (implicit focus)
<p>Partner selection & risk mitigation: “[our retail partner] ... bought [a fossil fuel generator] and they started really not wanting us to be vocal about renewables and all the renewable energy target reviews that were happening. We learned from that experience, because we were basically fighting with them...we [now] have a clause in our contracts that are our cancellation, for purposes of convenience...because of our experience. ...We’ve got independence, our members like that. We have to continue to deliver that”</p>	C (strong focus but managed by narrower partner types)
<p>Co-design to eliminate tensions: “the idea was taking into account 21-22 [fossil fuel] plants, and try to rethink...these assets. ...So in most of the cases, you can switch to new industrial solutions, commercial solutions, or training centre or whatever. But always with the idea of doing it with people - in a codesign perspective...not alone. ...The primary idea [is] ... to rethink that asset. Shutting them down but...we don’t want to lose [even] one job...we want to maintain those people that are working in that conventional form of energy, rethinking...the model. Selling is easy because you are moving the problem from you to someone else. Okay. But it’s not the right solution at the very end. And this is something that we try not to do”</p>	D (strong focus)
<p>Balancing partner value propositions: “If it is a common platform...it needs to work for a lot of partners, and it ultimately needs to work for competitors within a segment. So the role in the partnership has got to be that we’re clearly providing value and that those partners are confident</p>	E (implicit focus)

Quote	Organisation
<p>and comfortable that we're not favouring one over the other"</p> <p>Source of investment: "...coming back to who might invest in us... What's the ramification if we were to take money from one inverter manufacturer, it would be fair to say that the other manufacturer would say, 'Alright, you're that thing, we're over, we're gonna go and do something else'"</p>	
<p>Sharing innovation risk: "[Given the unsupportive policy environment constraining existing business models] it seemed like joining people on that journey to make things happen was the right thing for us...there was a need to be more flexible and partly share risk with others as well, because it might leak into this investment very quickly...We felt it's a difference we...can make to make these projects happen."</p>	F (moderate focus)

Source: Case study interviews.

Table F2: Direct and Indirect Cost Pressures Relating to Societal Value and Social Licence (variables 05, 23 & 24)

Quote	Analysis Notes
<p>"the majority of customers just want to be 'green enough'...they want to do the right thing, but they don't want to pay extra for it" – Organisation A</p>	<p>Designing a standard offer with carbon neutrality requires no- to low-cost premium, making it difficult to <i>only</i> sell higher cost certified Green Power.</p>
<p>"I think it's a very open question whether the regulators and powers that be ultimately are going to allow anybody to get away with the sort of walled garden models. And they do have some power in this because, in the end, if you want your solution to be integrated with the grid and be part of it then they've got some leverage" – Organisation B</p>	<p>Open strategy is seen as critical to societal value, and presents less risk to social licence.</p>
<p>"The original forecast that the wind farm was built on...we should be receiving an all in price of \$X/MWh according to those original forecasts, which we've never hit that amount. We never will...We've never delivered what we wanted to financially to members. Because of that, we're very sensitive about what are our operational costs" – Organisation C</p>	<p>With a fixed community benefit in place, market pressures (variable 44) on revenues result in financial stress.</p>
<p>"You can't go straight on to [projects that add community value that reduce your own costs] because you have to build trust between you and the community. It could be, 'I need a school'...OK, it's not a direct [benefit to] my business, but I can build you a school" –</p>	<p>The less evolved the relationship (local social licence), the more creating community value represents a cost pressure.</p>

Organisation D	
“At the end of the day there isn’t the money at the moment in this entire activity, to run the company on a fully commercial basis [yet]. I would argue that in very few instances, there is money to run a company a commercial basis in aggregation, in demand response, in renewable energy technologies” – Organisation E	This nascent space that creates societal value at the system level is not yet commercially viable and needs support.
I must say a lot of the community payment schemes have been established by other developers when projects were getting very high feed-in tariffs, or high ROCs [Renewable Obligation Certificates]. There was just more value to...share with others. You might find turbines in Scotland that pay a massive community benefit, but it might be because they are just seeing which projects and they promised that they would pay in the planning process” – Organisation F	Community benefit payments often relate more to the era in which the project was developed (which defined the financial margins), than the developer’s community orientation.

Source: Case study interviews.

Table F3: Examples Representing ‘Ecosystem-Builder’ Mindset (variable 38)

Quote	Org
“[the big energy retailers] all claim they’re going to ‘win’, they’re going to ‘own the new energy space’. They all...genuinely believed they’re going to own the space, which is fascinating. So good luck to them, but I don’t have that view...there are lots of people out there doing smart things that we could work well together with and we can move the market along faster as a result of working with them, rather than sitting here and just trying to invent it all ourselves”	A
“We recognize that we want to move fast, we don’t want to reinvent the wheel. So if we can integrate with somebody else’s product even though they...appear to be a competitor...then there’s a part of us that just says “well, let’s just do that”, rather than just get locked in a sort of adversarial [relationship]. ...You’ve got all these founders and their egos and their belief that their solution will be the one true winner, and everybody else will die and disappear and they’ll emerge as the unicorn. And we just don’t buy that! ...in some ways, we think we’re better off being in a marketplace with viable competitors and you can get actual recognition that there is a sector”	B
“Sometimes other people think of us as competitors and we just find it really weird because there’s so much work to be done and we’re always open to collaborate”	C
“We started to understand it could be a really great journey in the sense, because, if you work in an ecosystem, we then approached the involved people: other companies, the authorities, more of the civil society associations...[to ask what] could be the better way to multiply or amplify your collective impact?”	D
“I think a lot of the innovation in the sector in the last decade has been driven by people who’ve come from the sector and therefore you see [‘closed’] walled gardens	E

<p>and want to make walled gardens prettier...or want to build a bigger wall. ...A lot of it was supported by the incumbents because they wanted to hear that...because they could understand it. Because it...sounded like the answer to the problem they felt they had. ...We don't want to be a potted plant in the walled garden, that's not us. It doesn't mean it's necessarily been easy, but that was a deliberate strategic choice"</p>	
<p>I would really like to see us more as a collaborator with community groups and not a competitor. It seems like we're playing on the same team in terms of trying to achieve an impact. I think many of our shareholders are also shareholders or members of various co-operatives. I never see us as competitor. ...The energy and the renewables space...attracts companies and people that share a lot of that ethos and, you know, whenever you go to industry fairs, it just feels like it's just really buzzing with very similarly minded organizations...so we don't have that many [competitive] conflicts"</p>	F

Source: Case study interviews.