Managing cooperation control problems in inter-organisational research and development exchanges

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Certificate of original authorship

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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ABARES	Australian Bureau of Agricultural & Resource Economics & Sciences
ACGRA	Australian Cotton Growers Association
ACRI	Australian Cotton Research Institute
BMP	Best Practices Management (program)
CA	Cotton Australia
CEO	Chief Executive Officer
CMT	Company management team
COO	Chief Operating Officer
Cotton CRC	Cotton Cooperative Research Centre
CRDC	Cotton Research and Development Corporation
CSD	Cotton Seed Distributors
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAFF	Department of Agriculture, Forestry and Fisheries
DIISR	The Department of Innovation, Industry, Science and Research
FRP	Full research proposal
KPIs	Key performance indicators
M&E	Monitoring and evaluation (program)
MCS	Management control systems
NSWDPI	New South Wales Department of Primary Industries
OECD	Organisation for Economic Co-operation and Development
PIERD Act	Primary Industries and Energy Research and Development Act 1989
PRP	Preliminary research proposal
QDAFF	Queensland Department of Agriculture, Fisheries and Forestry
R&D	Research and development
RAG	Red Amber Green (report)
RDC	Rural Development Corporation
TCE	Transaction cost economics

Abstract

Most scholarly knowledge about the management control of research and development (R&D) is premised on a vertical integration model of R&D management; however, in practice, R&D is increasingly being externally contracted through inter-organisational arrangements. Within this context, the aim of this thesis is to examine how cooperation control problems, which arise in inter-organisational R&D exchanges, are addressed by alternative hybrid structures and embedded management control systems (MCS)? To explore this question I investigate two inter-organisational R&D arrangements – a flexible subcontracting arrangement and a limited life equity alliance – within the Australian cotton industry.

First, I use theory from transaction cost economics (TCE) to demonstrate the relevance of cooperation control problems in inter-organisational R&D exchanges. Furthermore, by decomposing the cooperation category I show how the risk of different forms of opportunism gives rise to three types of cooperation control problems at successive contractual phases. These are: costly (ex ante) negotiation of mutually agreeable projects contracts; suboptimal investment decisions based on misrepresented information (at the point of contract); and the difficulty in monitoring and enforcing (ex post) contract compliance.

Second, I explain how cooperation control problems are addressed by inter-dependent combinations of hybrid structure and embedded MCS. This demonstrates that hybrid governance is not simply the generic inter-organisational context where control occurs; instead, alternative hybrid structures – characterised by varying degrees of formalisation, centralisation and relational governance – have different 'control solving capacities'. In addition, each hybrid structure's unique control capacity influences the design and operation of embedded MCS. This is because some MCS – particularly more structure-wide mechanisms – are used to complement the strengths of each hybrid structure; whereas other MCS – typically project-level mechanisms – are used to compensate for deficiencies of each hybrid structure in relation to certain control problems or transactions.

Finally, I explore how control problems and control solutions relate. Based on my empirical results, I propose that each successive control solution choice is determined by a 'residual control problem potential', which is shaped by the adequacy of previous control solution choices. In addition, I predict when the relation between control problems and solutions will not hold. I propose that managers will trade-off transaction-level misalignment to avoid portfolio-level negative effects in terms of cost efficiency, internal congruence and perceived equity.