

THE NEW CONSTRUCTION INDUSTRY.

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Introduction

This chapter deals with the creation of the “new construction industry”, a part of the construction industry that is so different from conventional construction as to constitute a separate, totally new industry. The driving force behind the development of this new industry is the tendency of large firms to grow larger aided by globalisation and progress in communication technology. The result is a high technology oligopoly developing out of, but separate from the traditional construction industry. It consists of a small number of very large firms operating in the global market, competing with technology and products, offering a complete project from material to design, finance, construction and operation. In this chapter we will first look at why and how firms grow, how the environment in which the building industry is operating is changing and how construction firms are responding. Finally we will look at the theoretical and empirical implications of these responses in the form of the new construction industry.

Growth and the theory of the firm

Considering the importance of the growth of firms both for the continuing increases in the national income and the structure of industry, one would expect that this was a well developed area of theory, but nothing could be further from the truth. We know a little bit about what tends to happen. We can classify different apparent reasons and predict some outcomes. However, when we want to explain why it happens, there is a number of conflicting theories pointing, at best, to the inhibitors of growth, where they offer conflicting explanations.

There are a number of reasons why firms grow. They include increased profit, economies of scale, efficient utilisation of plant and machinery, access to finance, expanding markets, long run rather than short run profit maximisation or just “men’s (and women’s) animal spirit”. There are a number of constraints on growth as well. These include the size or rate of growth of the market (Downie, 1958), and the access to investment capital without diluting ownership (Marris, 1964). Management can both inhibit and stimulate growth (Penrose, 1959). Management inhibits, or rather restrict the rate of growth by the rate at which new management can become fully productive within the firm. Management may also stimulate growth as when there has been growth in the past. The new management employed to cope with this growth will eventually become fully productive. Because of this, there will then be surplus management. The surplus management has experience, not only in management

within the firm but in managing growth. They give the firm a potential for relatively painless growth at an accelerated rate.

Technological change, by creating new or better or cheaper products is an essential part of dynamic competition which Schumpeter (1942) referred to as “creative destruction”. It gives firms a competitive advantage when they introduce new technology and this enables them to grow. Sometimes the advantage allows a firm to perpetuate the advantage and grow into a dominant position, but sometimes the advantage is only temporary as competitors respond with their own innovations.

There are also different types of growth. The two most important are the creation of new capital and the acquisition of an existing firm through a take-over or merger (Runeson, 2000). Creating new capital normally requires the creation of a new or extended market with all the efforts that this involves. In contrast, acquiring an existing firm through a merger or take-over, means taking over an existing market as well. This reduces risks and saves resources and effort. A merger or take over of an existing firm is therefore in many respects a much more attractive proposition than other forms of expansion.

Growth, by whatever means, may be horizontal, producing more of the same product, vertical when the firm engages in earlier or later stages in the production of its current output, or diversified when the firm moves into an unrelated type of production.

Eventually, the most successful firms grow out of their regional or national markets and move into new markets. Until twenty years ago, this was the beginning of the multinational firm. It started producing in different countries to escape various barriers to trade such as quotas, tariffs or transport costs. By locating branches in different countries, it avoided these barriers. Even better, it gained protection by the barriers once it operated inside the national borders in the same way as a local firm would.

Now, however, when we have a global market where capital and goods and to some extent also people can move freely across national borders, we see a totally different type of firm, the global firm. It is not restricted by borders or barriers to trade. It can select freely the locations of the different functions of the firm on basis of the availability and costs of the factors of production, in particular labour and skills as national borders no longer matter.

The result is that most industries are dominated or in the process of becoming dominated by a small number of giant firms that satisfy a global market. In a conventional, comparative statics analysis, these firms represent allocative inefficiencies. However, in a dynamic setting, these firms are a strong force for progress as Schumpeter (1942) envisaged.

Construction and globalisation

What is happening in other industries is also happening now in the construction industry, but because of the special characteristics of construction, the outcome is a little bit different. Essentially, there are no economies of scale in construction. Rather,

there are diseconomies (Runeson, 2000). The sizes of firms are determined by the sizes of projects in the market. Effectively, the most competitive firm is the smallest firm that can muster the resources needed to carry out the job. Hence, there is little incentive for small or medium sized firm to grow, unless they attempt to move into different markets. The growth of the very large firm has been determined by the increase in the number of very large projects, or lately, by projects that require the provision of new services in addition to construction management, most often some form of vertical integration.

For at least the last 80 years, there have been continuous calls to the construction industry to improve productivity in all sorts of inquests or reports (egg Cole, 1920). There is little evidence that any of these calls has had any effect. The changes in the building and construction industry have not, and will most likely not depend on attempts from outside to influence the industry to become more innovative and more technologically advanced. Projects like the Latham (1994) and Egan (1998) inquiries and similarly motivated projects in other countries are interesting mostly because they are such curious anachronisms in their calls for government involvement while we are living through an almost extreme shift to the right in all other areas of politics and economics. Rather, the future of the industry will depend on how the firms, and particularly the large firms in the industry respond to changes in their environment. Some of these changes may be Government initiated, others are technological, social or economic.

In this context, it is worthwhile looking at the term “industry”. In the absence of a special definition, the term is at the same time too broad and too narrow to serve a discussion of the future of construction. SIC-based definitions put multinational firms and self-employed craftsmen in the same industry, but exclude manufacturers of prefabricated building elements, architects or consulting engineers. To avoid confusion, for the rest of this chapter, we’ll use the term “construction industry” when talking about the conventional industry and “construction” to refer to all activities involved in a construction project, from the production of building material to design, finance, construction and possibly also operation, maintenance and demolition. However, before dealing with the response from the industry, we will look at how the environment of the industry is changing, starting with the activities of the government.

Governments govern firstly by general social and economic policies to stabilise the level of economic activity, to ensure that markets work without impediments and to protect health, welfare and property rights. Secondly, they may promote or protect a specific industry. While the first is desirable, especially for an industry like construction, where economic disturbances are so destructive and has such a large multiplier effect, the second is generally considered detrimental to good economic policy. The argument against is that if an industry or firm can’t survive without assistance, it is not making a reasonable contribution to the economy, and should be allowed to die in peace, so that the resources can be utilised where they give a higher return.

The idea, for instance, of a government sponsored industry strategy to adopt innovations to be more productive or more like other industries, as often suggested, is based on an idea of the world so far from reality that the most basic economic aspects

are ignored. Innovations and changes are introduced if, but only if, they add to profit. Much of the current discussions on innovation in construction have two things in common, they ignore nearly a hundred years of economic research into the “whys and hows” of innovation and there is no appreciation of the role of profit. Instead, they are based on the premises that if the technology is there, it should be adopted. Failure to adopt innovation is seen as resistance to change.

Innovations may be classified as product and production process related. Profitability of product innovations require control over design so that the innovation can be put to use in the market, protection so that it can't be used by firms that have not contributed to the development and market power so that the investments can be recovered. In the construction industry, where there is no control over design, and no market power, the only innovations we will ever get are process innovations, mostly embodied in capital and therefore dependent on growth of the industry. There is rarely any competition to be the first to adopt process innovations based on common know-ledge and pay the development costs. Firms adopt new technology after others have paid for the cost of developing them and mostly to defend existing profit rather than create new. Product innovations, if there are any, must be driven by the clients, who by and large are not interested. This has basically been the situation in the construction industry up until the last ten to fifteen years, but it is beginning to change. I'll use Australian firms as examples, but similar developments are evident across the global market.

Despite the public perception and without government sponsored strategies, there has been continuous progress in the industry, in a number of areas. These changes are driven at least primarily by globalisation that is affecting construction everywhere. Individually, the changes are hardly noticeable, but together, they have the potential to change fundamentally, both the industry and the way we look at construction, and we will hopefully justify this statement after briefly describing some of the new trends.

Like all major changes, economic, social or political, these changes have started a complex process of responses. It is not possible to cover every aspect of the ongoing development in one short chapter like this. Rather, the aim here is to describe the process in broad terms, indicating the reactions to the changes and their logical conclusions, with a case study illustrating the creation of the “new construction industry”.

Parts of the preconditions that were brought into existence in Australia were the result of policies by the state and federal Governments, as they, like the governments in many other countries, worked to remove any impediments to trade across the economy. This was necessary to derive the full benefits from the emerging global market. The construction industry in particular has benefited from this. Two state Royal Commissions and federal Industrial Relations reforms have helped to clean up the industry that was riddled by crime and corruption, facilitated by a chaotic industrial relations system over-due for change. The new industrial relations policy has created a new relationship between unions and employers and largely removed excesses on both sides. In this new system individual contracts or enterprise bargaining take the place of awards imposed by quasi-legal tribunals.

In the upper end of the industry, the top half per cent or so of firms, but accounting for more than 30 per cent of all work, this has led to a new appreciation of the employees as the ultimate resource of the contractors. Bonus schemes that give employees a share of the profit are lowering labour turn-over at all levels, and help create conditions where employers are starting to invest in the training of their employees. This leads not only to a more skilled and flexible labour force but also to a softer management hierarchy, where decision-making can be decentralised. Overall, there is a serious skills shortage in Australia, but a gap is opening up between the top end of the industry and the rest.

The state Governments have also cleaned up the system of payments in the industry with “security of payments acts”. The new acts regulate payments within strict time limits that cannot be negotiated away in a contract, and the cash flow throughout the industry has improved. Before the acts payments were withheld regularly by contractors that could double their profit on a job by managing its cash flow. When such a contractor ran into trouble and went bankrupt, he could bring down with him 400 or 500 sub-contractors, simply by the consequences of having withheld their payments. Now, any irregularities in payments will send out early warning signals that a contractor is no longer liquid.

Since the excesses associated with the financial deregulation more than 20 years ago, and the hard landing that followed interest rates at 22 per cent, there has been a reasonably steady economic growth with only a few minor hick-ups. In the main, as we have seen, the government has changed the industry by removing obstacles to the efficient workings across all markets. They have also, for purely selfish reasons, done one more thing that has been instrumental in bringing about real change in the industry and that may in the long run be crucial to the development of the new construction industry. Both the federal and the state governments have participated in the world-wide trend towards the private supply of public projects (PPP). In such arrangements the finance, design, construction and operation are supplied by what is in effect a single supplier.

It is difficult to overestimate the differences between the roles of the contractor in a conventional project and a PPP. In a conventional project, the contractor provides a service. He/she competes on price to provide the management services required to construct a project designed by an agent for the client, financed by the client and handed over to the client on completion.

A PPP, on the other hand may be initiated by a client or a contracting organisation – normally a syndicate - that can serve the functions of financier, designer, developer, contractor and facility manager. The organisation competes on design, technology and value for money and designs, finances, constructs and operates the facility for anything up to thirty years. Rather than a fairly simplistic construction management service the PPP contractor provides a sophisticated, differentiated product. Because of the product differentiation the contractor gains the market power and with that, the control necessary for recuperating investments into the development of new technology and new products.

The major client for PPPs so far, has been the public sector but private organisations are starting to follow their example. The benefits to the private sector are the same as

for the public sector, but in addition, clients can utilise the experience of the contractor. Firms with experience and skills in things such as leisure facilities, retirement villages, health care or sustainable building have a competitive advantage. They can draw on these skills to create additional value for the client. They can deliver to a market that increasingly expects more services, higher quality and lower costs combined with environmental sensitivity.

While there may be diseconomies of scale in simple construction, for the kind of work we discuss here where the organisation serves all of these added functions, there are definite economies of scale and if we add R&D, it is likely that the economies of scale extend well beyond the size of any current firm. This provides a powerful incentive for the large firm to grow into a giant firm and to do this by diversifying around a core of construction activities. The easiest way to grow is through mergers and acquisitions and to become an international firm.

It is therefore not surprising that there has been a considerable consolidation in the top end of the industry, with mergers and acquisitions. Most, if not all of the large firms in any country now have an international connection and see themselves operating in a global market. There are more and more close links both up and down the production chain. The large and successful firms are diversifying both vertically and horizontally. Overall, the large firms are getting larger and the small firms smaller. Some medium sized firms create niches for themselves while others are taken over or merge with large organisations. We'll see how this works in practice later in this chapter.

What we have described here is really a series of quite unremarkable changes, yet they are all part of, and together point to a single, quite remarkable - almost revolutionary - change, and we will look at what that implies.

Fifteen years ago, David Hawk (1992) interviewed the managers of the world's largest firms involved in construction about their strategies and aims for the future. From these interviews, he identified a set of trends, which he referred to as the "conditions of success". These "conditions of success" overlap almost completely the trends we have outlined here. Together they point to a future with a small number of leading firms in the industry developing in the same direction. They may come from very different aspects of construction. They may have started as contractors, architects, material producers, subcontractors, consultants, developers or financiers, but they are now merging, acquiring each other and integrating vertically until they cover several, maybe all, stages from design and material production to operating or demolishing the building at the end of its service life (see also de Haan, Voordijk and Joosten, 2002). At the same time, they are growing horizontally through the same means to acquire a market that can support all these functions. Very often, the mergers or takeovers are international to further extend the market. In this process, the number of firms involved has decreased drastically. This is demonstrated very clearly in Hawk's (2006) recent follow-up study. Of the sixty firms investigated 15 years ago, only 25 were still there as independent entities (see also Seaden et al, 2003).

The conditions for success imply a new kind of management that reflect the need to manage change and flexibility. Formal and informal training of a stable work force become more and more important and so does technology. Most importantly, while all

firms started from a strong domestic position, they have now grown out of the domestic market and operate internationally, aiming for a global market.

The new construction industry

As we have discussed here, this pointed to radical changes in how these firms functioned. The changes are so radical that in his paper, Hawk referred to it as the development of a new industry, the new international construction industry.

Some of the trends Hawk saw have been slow to develop. The development in prefabrication has for instance been patchy. On the other hand, in Australia the employer-employee/relationship has changed radically over the last 15 years, so much so that it is now an asset rather than something holding back development. Similarly, the use of PPPs and other innovative procurement methods has accelerated, we think, well beyond the expectations at the time and mergers and acquisitions have been very frequent. We are moving, it seems, with a sense of inevitability, and without government involvement or any industry strategy, towards the development of this new industry. So, what will it be like and how will it be different from the “old” industry?

This new industry, the logical conclusion of the changes we have listed here, would consist of a small number of giant firms, producing, not a service as the rest of the industry but a product in a business model that owes more to conventional manufacturing than to traditional building and construction. The consolidation will be ongoing. The firms will compete on value for money on procurement contracts similar to current PPPs. The CEOs would be on a fixed term contracts with remunerations determined by performance as measured by share prices and return on capital and most of the employees will be on some form of incentive payments. The firms will attempt to retain their competitive advantage through research and development and develop global models of governance that maximise the advantages of the size and diversity of the firm.

The new industry is, to all intent and purposes a modern, global manufacturing oligopoly, where a small number of large firms compete with their products in a global market. The products are packages, complete buildings, designed, financed, built, maintained, operated and possibly also demolished, as increasingly demanded by the clients, or rather customers.

The new construction industry is not going to compete with the main body of the traditional, very fragmented building industry that we know now. That part of the industry will continue to provide, largely undifferentiated management services, allocated on price alone, to erect buildings designed and financed by the client, in a local or regional, or possibly, sometimes, even national market. It will continue as a low technology industry in an environment where new technology is restricted to the process itself, and where product technology has to be financed and driven by the

clients. The old and the new industries will be so far apart that it is possible there will not even be any technological spillover effects from the new industry.

The firms in the new industry are likely to continue to grow to exploit economies of scale and any new technologies they have developed. Partly, that growth will be in turnover, partly in geographical coverage and partly into new services and products as demanded by the market. Mergers and acquisitions are likely to continue to be a major strategy for generating this growth.

With a higher technology, the skills of the workforce will become more important. Firms in the new construction industry will be more interested in and take a much more active role in developing new skills. Having developed new skills, they will develop reward systems to make sure that labour turnover is reduced and skills retained within the firm. Experience with particular types of projects will become an important asset to the firm as the clients look to the producer to add extra value on specialised facilities such as those for sports, recreation, health or education.

One of the effects of changing attitudes between employers and employees is the softening of the hard management hierarchies that predominate in building which has already started to increase efficiency. A more decentralised decision making will increase flexibility and reduce the intensity of management and so reduce any remaining diseconomies of scale.

In the traditional industry, the contractor just constructs what someone else has designed. With more influence over the product, the new industry will have to demonstrate a more socially responsible attitude, for health and safety on site, and especially for the environment. Construction and buildings now generate some 30 – 50 per cent of all greenhouse gasses. If we envisage a world where everyone lives on the same standard of living as USA, or for that matter Australia, our total emissions have to be reduced, not by 5 or 10 % as in the Kyoto agreement, or the 25 – 40 per cent agreed on in Bali, but by 90 – 95% and it is obvious that construction will have to play a major role. Ecological sustainability can no longer be ignored, nor can it be seen as an ethical issue only, that can be off-loaded onto others. It is more and more an area of new business opportunities and profit to firms that diversify into environmental services and demonstrate responsibility by develop environmentally sensitive solutions. This is strongly reflected in the way many, if not all of the global construction firms now promote environmental responsibility through their mission statements.

From a small scale Australian contractor to a global giant, some illustrations

Australia offers a good illustration to the thesis proposed in the first part of the chapter: that there is an ongoing process of mergers and acquisitions which is moving part of the industry towards being part of a small number of giant global diversified construction firms. Of the ten largest firms at the time when Hawke wrote his paper, only one has not been acquired by what is ultimately an international construction firm. The exception is Lend Lease Corporation¹, which instead has acquired, among

¹ The sources for this section are, unless otherwise stated, the websites of the respective firms.

other firms, the Bovis group, making it the world's largest construction management contractor with an established presence in the Americas, Europe as well as in Asia Pacific. With experience in areas such as master planning, concept design, value management, sustainable development, authority management and town planning, it is well on its way to become a diversified global giant.

Possibly more typical for the Australian industry, and equally conforming to the discussion above, is Leighton Contractors Pty Ltd, which is now part of Leighton Holdings Ltd.

Leighton Contractors, which was funded in 1949 together with Theiss Pty Ltd (since 1983) formed the Leighton Group, one of the top ten firms in Australia. In the 1970s, it expanded into the Middle East. South, South East and East Asia through Leighton Asia Ltd and Leighton International Ltd. Both subsidiaries were established in 1975, but the current names date back only to 2007 after a restructuring in response to an increased interest in the Middle East. Leighton Properties Pty Ltd (1972) was established at the same time to cater for a diversification into property and development. The Leighton Group is also operating in Papua-New Guinea, New Zealand and recently also in South America.

Despite continuous growth, domestically and globally, there were some minor setbacks associated with falls in demand in the industry. So did, for instance, an attempt to join the American market come to an end when, in 1993, Leighton Holdings sold the recently acquired Green Holdings, terminating its presence in USA. However, this was a temporary set-back only and Leighton Holdings continued to diversify, not only geographically, but in terms of activities. In 1996 it became a major player in Australia's telecommunications market with its purchase of Visionstream, and in 2006 the acquisition of the Australian-New Zealand contract mining assets of Henry Walker Eltin Group Limited further strengthened its position in the contract mining market.

In 2000 Leighton Holdings took a controlling interest in John Holland Group Pty Ltd, another top ten firm and over the next four years it increased its stake to 99 per cent. While this was happening, John Holland added to its already broad contracting capability by acquiring Transfield Construction.

Recently Leighton Holdings has further expanded its presence in the middle East joining forces with Dubai-based Al Habtoor Engineering, a major construction firm which has more than 25,000 employees. Together they will form a new entity that will be called Al Habtoor Leighton which will certainly increase Leighton's activities in the Middle East but may also extend them into new areas such as North Africa.

The acquisitions, mergers and internal growth means that Leighton Holdings is no longer solely a construction company. While construction remains its core activity it has active interests in engineering infrastructure, mining and resources, telecommunications, property, and environmental services, and the type of jobs it aims for are projects where it can compete with value for money rather than price alone.

While this was happening in Australia, the ownership of the Leighton Group also changed. After some 20 years of having been the major shareholder of the Leighton Group, Leighton was acquired by the German construction firm Hochtief AG in 2001. At that time, Hochtief had recently expanded also into USA by purchasing Turner (1999). Together the two acquisitions provided Hochtief with a broad presence in North America, Australia and Asia as well as Europe and it is now ranked number three in Europe. Hochtief at the time it acquired Leighton Holdings was controlled by RWE AG which was primarily involved in electricity supply and environmental services on an international scale, although it also had some interests in construction in addition to Hochtief. However, in 2004 it sold its shareholdings in Hochtief, more than 56 per cent, to institutional investors. After a period with no major shareholder, ACS (Actividades de Construcción y Servicios, S.A), emerged in 2007 with a holding of just over 25 per cent, a controlling if not majority holding. ACS is a Spanish construction firm, similar in size to Hochtief but so diversified that less than half of its revenue is derived from construction.

Hochtief was the largest in a series of mergers and investments that had created the ACS Group, which is another example of rapid growth through mergers and acquisitions. It began operating in 1983 when a group of engineers acquired and restructured Construcciones Padrós, a medium-sized construction company with financial problems. The strategy was repeated with the acquisition of OCISA (1986), another construction company before ACS's first move towards diversification through the acquisition in 1988 of SEMI and the following year Cobra (electric and telecommunications companies).

The first in a series of large mergers took place in 1993 with the creation of OCP, which became one of the leading groups of the construction sector in Spain. The second large merger took place in 1997, with the creation of ACS as a result of OCP's mergers with Auxini and Gines Navarro. The group also diversified into its current services areas through acquisitions of Continental Auto (passenger transport), Onyx (environmental services), Imes, (public lighting services, integral maintenance and control services), and Vertresa, the largest waste treatment plant in Madrid. The turn of the century started with the integration of the Dragados Group, making the ACS Group the most important construction group in Spain. Parallel to this the ACS Group made strategic investments in Abertis (construction), Urbis, Unión Fenosa and Iberdrola (energy) as well as Hochtief..

Despite ACS's leading role in Spain, it has little experience in international contracting, but the acquisition of Hochtief will contribute to make it a major global construction firm. The combined revenue of the two firms as well as their combined construction revenue would make them number one in Europe. It also has the technology, the geographical and service diversification that will place them among the new global construction industry.

Despite the success of the Leighton Holdings, mergers and acquisitions are not always a guarantee for a long and successful life in the global industry as the case of the Australian Concrete Construction illustrates. Taken over by Walter Bau-AG in 1995, it was placed in receivership in 2003 and the parent company followed it into liquidation in 2005. Although the German operation was later acquired by Bau

Holding Strabag SE, Austria's largest construction group, there was little interest in the Australian operations, which was allowed to disappear, more or less without any trace.

Baulderstone Hornibrook is another typical example of an acquisition by what was to become a giant global operator. It was formed by the merger of A W Baulderstone Pty. Ltd and M R Hornibrook Ltd and acquired in 1993 by Belfinger Berger AG another German firm. While Bolderstone Hornibrook was one of Belfinger Berger's first major acquisitions, it certainly was not the last, and over the last 15 years, Bilfinger Berger AG has acquired or founded more than 25 major firms, including the Australian Abigroup, itself a result of several acquisitions of medium sized contractors, including Enacon Limited, the Graham Evans Group, Robert Salzer Constructions, Hughes Bros Pty Limited and Simon Engineering.

Bilfinger Berger AG is now one of the top ten construction firms in Europe. It is not controlled by any individual major shareholder as the major parts of its shares are held by a wide range of institutional investors. As a result of its acquisitions, it is quite diversified. Its principal activity is structural and civil engineering including construction of railways, gas pipelines, bridges, roads, subways and tunnels, hydraulic engineering and offshore construction and the construction of prefabricated units, but also the construction and finances of residential and commercial property, water drainage, sewerage treatment and town planning.. In terms of both the nature of the projects it undertakes and its size, it also belongs to the new construction industry.

While it is difficult to find accurate and meaningful figures, the projects listed as examples of the activities of these and other global firms, demonstrate that what we have called a product, a project that combines several different services, is a significant factor in the development of the new industry. With the increased use of non-traditional procurement methods - different versions of design and build and/operate - that combines design, construction and other services into a single entity firms can appropriate the benefits of diversification, innovation, scale and research.

In construction the methods used for tendering and procurement of projects are important determinants of the level and form of competition in the industry. The emergence of the one stop supplier, the global firm, for large private and public projects, with their demand for capacity, technical capability and capital, has placed these projects out of reach of the conventional contractors, (see also Ezulike et. al. 1997).The result is a 'two-tier' market. There is the market for the traditional, fragmented, low technology construction services supplied by the traditional construction industry and the market for high technology products supplied by the new global industry.

Conclusion

In summary, the development of the new building industry, as we have envisaged it here, is facilitated by a changing environment. The most important forces behind the change are globalisation of the market for construction and technological progress in communication technology. Mostly, however, it is internal to the firms, the result of

attitude and preparations that enables firms to grasp the opportunities when they come and the vision to see where it leads them.

The new construction industry is an oligopolistic industry where a small number of very large firms selling a differentiated product in a global market, competing with value for money. Because the product is differentiated, the firms will compete by technology, quality, design as well as production costs. The difference between a differentiated product and an undifferentiated service which the rest of the construction industry provides, is far-reaching. Firms will have control over the design to ensure the use of product technologies and the market power to ensure the return on investments into the development of such technologies. By continually growing, the firms can exploit economies of scale and by being diversified they can not only provide more services for their clients but they can also apply new technologies over a range of new products, stimulating investments in R&D as they move into medium or high technology.

The result of this will be what is effectively a new construction industry that owes more to modern manufacturing than to the traditional, fragmented, small scale and low technology construction industry. The new industry will be a global oligopoly competing on value for money rather than price. It will be so different from the traditional industry that they will not compete with each other.

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