



Project Portfolio Management

Practice-based Study of Strategic
Project Portfolio Management in
the UK Construction Sector

A UK Report for a Research Project examining main contractors in Australia and the UK
Conducted by UCL in a joint research project proposed by the University of Technology
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Executive Summary

Project Portfolio Management

Project portfolio management is the allocation of resources to select projects that align with the strategies of the firm, in particular the large-scale tier one main contractor.

At the level of project selection, project portfolio management is conducted with established routines for decision making and a governance process.

Portfolio resources for programme management that coordinates organizational capabilities and related inputs at the project level is frequently weak or absent, which constrains options for project selection and effective delivery.

The Strategic Context

Construction companies operate with strategies and business models that are transactional, financially based upon a return on capital employed and low investment, hence portfolio management is largely confined to project selection, resourcing and project governance.

Publicly quoted companies are under short-term pressures to declare dividends and contracting is squeezed between high operating costs and historically low margins. Privately owned companies and those trying to adapt their business model are constrained by this context. Despite these pressures strategic horizons are getting longer, which may now be necessary simply to survive.

The two case firms that formed part of this research are under private ownership. This yields some lessons for the sector, yet creates some tensions through market forces, especially tendering, the policy environment and ownership needs that limit transformation.

Differentiation is minimal among large tier one contractors. To the extent there is differentiation, it does not represent a shift in the failing business model that would contribute to the transformation of service quality, productivity and performance in construction. Potential differentiators are emerging internationally from within and outside the sector, especially organizations employing digital platforms. Investment is needed for the existing sector to shift its focus to a competitive and differentiated portfolio of operations.



Systems and Governance

Project portfolio management is layered. Client selection is the first layer. This layer takes on greater significance in the privately owned companies involved in this research and provides a lesson for other contractors. The project is the second layer. Here decisions on whether to bid are focused at group and business unit levels for large projects. Decisions are made at business unit level for smaller projects. The decision-making focuses upon size, risk and broader value to the business profile. Governance was sound within the confines of these systems and procedures.

The development of management capabilities and competencies was an area of weakness, despite development of such capabilities being an asset that appreciates with use, contrasting with tangible assets that depreciate with use. There was general acknowledgement of the need to develop management capabilities, yet change is slow and financially constrained in the current business model. This dimension feeds into the issue of weak programme management.

The level between portfolio and project management is programme management. Contractors tend to follow client programmes rather than develop their own programme management. Programme management is necessary to improve performance through efficiency and effectiveness, for example linking knowledge transfer and health and safety. Investment at the programme management level also offers a potential bridge to portfolio management from project portfolio management. It offers an option to transition from the transactional to a transformational business model, hence a shift from the return on capital employed to a return on investment.

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1. Background

This Report forms part of a joint research project conducted by UCL and the University of Technology Sydney.

Project portfolio management is prominent as organizations seek to align projects to achieve their strategies. Project-based industries that focus on product development and IT projects have led the strong body of research on project portfolio management, emphasizing the need for a portfolio perspective to guide strategic alignment and enhance success¹. There is little research on strategic alignment in construction, despite the 13% contribution to the world's GDP². Experience from other industries suggests project portfolio management may provide benefits to construction organizations, in particular large tier one main contractors.

Prior research highlights the importance of tailoring the approach to the environment³. This research aims to address the lack of research in the construction environment, asking:

How do construction firms align their project and programme portfolio with strategy?

In construction, the set of projects in the portfolio arises from successful tenders so the strategy for project selection aligns with functions and perspectives around business development, risk management and finance management. How this operates and where improvements can be made to enhance productivity and effective performance provides the research aim. Yet, portfolio resources for programme management that coordinate organizational capabilities and related inputs at the project level is frequently weak or absent, which might be expected to constrain options for project selection as well as effective delivery.

Covid-19 has posed considerable challenges for the industry. A number of those interviewed commented upon Covid and its impact. While the short run implications for operations and remote working are clear, the medium-to-long term implications at a project portfolio management level are less clear, except to say it will probably accelerate the adoption of digital technologies and software to enable analysis and judgements, hence data as management support for project selection. Therefore, the Covid dimension does not occupy a central position in this Report, except to make the comment that the UK's Construction Leadership Council's *Roadmap to Recovery*⁴ reproduces the same focus upon the project level, overlooking the importance of the firm level and investment to facilitate change from the portfolio level and for the programme management of projects within main contractors.

Securing interviews under Covid was itself a challenge. Compared with previous research, securing access to firms took longer than expected, especially as two in-depth case study organizations was built into the approved research before the pandemic was underway. Two companies were eventually identified. Sixteen interviews were conducted, eight in each, supplemented by four expert interviews, making twenty interviews in total (see Table 1). The two case companies have been labelled CC1 and CC2.

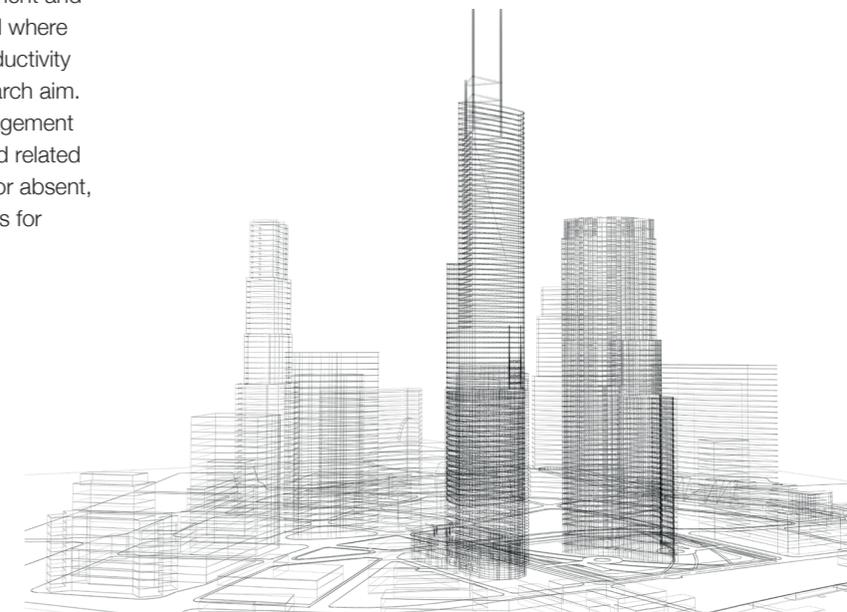


Table 1. Schedule of Organizations and Interviews

Organization	Interviewee Role	Subtotals	Totals
Government	Former Chief Construction Advisor to the UK Government	1	4
Institutional	Former Institute of Civil Engineers President and Tier 1 Contractor Chief Executive	1	
Construction	Former Chief Executive of the UK Division of a European Tier 1 Contractor	1	
Management Consultant Advising the Construction Industry	Co-founder of a Specialist Construction Management Consultant	1	
Main Contractor 1	Group Commercial Director, Case Company One (CC1)	1	8
	Group Chief Operating Officer, CC1	1	
	Managing Director of Construction Business Unit I, CC1	1	
	Managing Director of Construction Business Unit II, CC1	1	
	Managing Director, Off-Site Production, CC1	1	
	Construction Director, Off-Site Production, CC1	1	
	Construction Director, Technology Unit, CC1	1	
	Managing Director, Specialist Interiors Business Unit, CC1	1	
Main Contractor 2	Group Chief Executive Officer, Case Company Two (CC2)	1	8
	Group Chief Financial Officer, CC2	1	
	Operations Manager, Region I, CC2	1	
	Project Manager, Region I, CC2	1	
	Project Manager, Region II, CC2	1	
	Management Team Member, Region III, CC2	1	
	Civils Senior Leadership Team Member, CC2	1	
	Regional Managing Director, Civils, CC2	1	
Interviewee Total			20

2. Introduction

Construction companies operate with strategies and business models that are essentially transactional, focusing upon survival first rather than improvement as a source for profitability and growth. This is expressed financially in terms of pursuit of a return on capital employed through using trade credit, cash flow management and earning interest on surplus working capital at any one time and when interest rates allow. This contrasts with the model of return on investment in most other sectors. The current model requires the maintenance of low overheads and, from a portfolio perspective, minimal investment. Hence, the ability to improve is constrained and improvements in construction performance frequently arise from client drivers and reactive contractor response on the one hand and offsite improvements made by suppliers on the other hand. The line of argument set out in the industry report, *Castles in the Air?*⁵, states the current prevailing business model is failing as management has not fundamentally changed the model since the Second World War. In the UK, margins have fallen from 15% to less than 5% by 1978 and are currently 2% or lower, which coupled with a low interest rate environment is unsustainable. It will not maintain an acceptable return on capital employed. Without transformation clients and society are not receiving the facilities at the quality needed to meet economic and policy needs. Nor are they receiving the added value expected as a norm from other sectors⁶.

Portfolio management is defined in this report as the allocation and application of resources to the range of activities that seek to secure a return on investment. The current management strategies and transactional business model among contractors do not accommodate such an approach, even though it is in line with the repeated calls from governments and clients for a more transformational approach to construction. *Project portfolio management* is defined as the selection of projects and the subsequent allocation and application of resources from business development and bid management at the project front-end through to governance of those projects secured. The criteria for selection is alignment with the strategy and business model for the firms.

This research could therefore be reasonably expected to reflect degrees of efficiency and effectiveness of project portfolio management within the limits of the prevailing sector business model and management approach. This is the case yet goes further as there are some important lessons to the sector as a result. The reason is that the two case companies are rather different to the remainder of the sector. They are both under private ownership, which creates a tension between some scope to develop different models, yet market forces, especially during bidding, and the policy environment impose limits to transformation. There are also limits posed by the owners, who do not necessarily need to pursue growth to meet their needs. Together, this limits their ability to incrementally lead the rest of the sector into a more transformational sector, where portfolio management takes on a more significant role for the firms and sector.

The two case companies have developed portfolios with largely healthy margins and have strategies and financial management that includes strategic elements of a return on investment (ROI)⁷. At the level of project selection, project portfolio management is conducted with established routines for decision making and a governance process. Beyond these routines and governance a weaker picture is portrayed. As one senior manager reported, their company are not market shapers, but followers⁸. This underlies the weaker picture regarding portfolio management and project portfolio management in relation to the business model on the one hand, and the lack of transformational performance improvement on the other hand.

One characteristic of construction firms is the way they are structured. Structures embed resources. The structuring keeps overheads and management costs down. Unless restructuring occurs, the resource allocation is fixed and requires no subsequent portfolio management. There are several reasons that reinforce the high level of structuring. First is the geographical spread of projects that may require regional and international offices and divisions. This spread contrasts with other sectors where the production location is largely chosen by the firm. Second is the types of

work selected, for example a business unit or division for infrastructure or types of contract. This structuring helps keep management costs to a low level whereby processes can become more formally and informally routinized within the unit or division⁹. For example, this structuring can result in taking some business development decisions out of contractor control during the sales process with clients determining a larger part of the solution or choice of procurement route without contractor influence¹⁰. The structuring that occurs within business units to keep overheads and management costs down, frequently results in silos and a silo mentality that constrains effective communication and integration, hence performance¹¹.

Some restructuring does occur and one of the case companies has recently reduced the number of regional offices. This was part of a strategic review undertaken by consultants covering markets, sectors, competitors, and money flow. The emanating strategic aim is to secure 80% of turnover in existing markets and pursue new infrastructure. It included a management restructure with the owners collectively standing back from the business, in essence the company becoming part of their investment portfolio rather than directly part of their operational activity¹². Restructuring streamlines management and can reduce the portfolio risk by improving project selection and governance of projects¹³.

This provides the background against which project portfolio management takes place in tier one construction contractors.

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3. Portfolio Strategy and Allocation

Interviewees were asked to rate nine factors around issues of competitiveness, number of projects, value of projects, balance between projects, alignment to the strategy and business model, use of existing technologies and competencies, applying new technologies to projects, and developing new management capabilities through their projects. There was consistency of response between senior management at the firm level and management responsible for operations. There was also consistency across almost all the factors, the average score being nearly 3.9 on a scale of 1 to 5 with five being very good. There was one area of considerable strength, which was the alignment of the projects undertaken to the business strategy and model, hence the effectiveness of project portfolio management in these firms in terms of selecting the best projects to bid for and their effective delivery on that basis.

There was one area that was weaker, which was the adoption and development of new management capabilities and competencies. This factor scored an average of marginally over 3.5. It is suspected that this interviewee perception reflects the accepted norms of the industry on a business-as-usual basis rather than consideration of fundamental transformation. On this basis, the lower score probably shows an optimistic perception and the comparative position with other sectors would be less favourable. Therefore, the position on developing new management capabilities was poorly managed. In addition, operational management merely perceived new digital technologies as the adoption of hardware/software in the operation rather than seeing the need for systematic approaches, leading to an over-optimistic view. The ratings line up with the prevailing transactional business model of low investment and minimal improvements to management¹⁴.

3.1 Competition

Strategy has become more significant for most large contractors in recent decades. The durability of many strategies as a means to guide management decisions is variable between firms. In all cases, the scope of strategy tends to be quite narrow and this was confirmed in this research. The general pattern was that interviewees focused almost immediately or exclusively at the project level. The firm is therefore perceived by many as a bundle of projects. This is a partial view; the firm as a bundle of projects is in line with project portfolio management, where the selection of projects and allocation of resources to them is central to the strategy. The wider firm perspective of developing functions and capabilities is largely overlooked.

The management of construction is an operational issue, yet holds strategic importance in construction from the front end of the project where business development takes place, through execution and delivery, to the growing focus on the back or tail end of projects. This would be seen as tactical in most sectors. It helps distinguish the difference between portfolio and project portfolio management, and the more strategic importance given to project portfolio management in construction.

While interviewees did not report on why strategy had become more significant, three important reasons are:

1. Increased focus upon financial management since the late 1970s as profit margins fell to around 5%,
2. Appreciation of repeat business as it grew from around 20% to 60% or above between the 1980s and the Financial Crisis,
3. Growing demands of procurement and funding regimes, particularly in the wake of the Private Finance Initiative and Public Private Partnerships (PFI and PPP projects) in the late 1990s onwards.

There have also been several functional issues of influence, for example the increased attention given to occupational health, safety and more recently wellbeing. This has been largely driven by legislation, industry standards and client demands. Current drivers that are being imported into strategy are off-site manufacturing or modern methods of construction, environmental sustainability, especially the carbon footprint of construction activity, and the adoption of digital technologies and digitalization. Off-site manufacturing and carbon matters were repeatedly cited in the interviews¹⁵. Covid-19 was also cited as a considerable strategic influence for the future, yet for this research few pointers were provided beyond the comments recorded in the Background section.

Strategy and planning commence with the business model and associated templates¹⁶. Investor time horizons tend to be short-term among UK publicly quoted contractors, based on share price movements and dividend payments served by the transactional business model¹⁷. One commentator stated:

In other businesses, they can make much better margins and they need to attract more investment. Construction doesn't attract capital investment, so it's different to an industry that's trying to raise money, and therefore the consequence is everything else that comes out of it¹⁸.

Despite the short-termism, strategic time horizons tend to be getting longer, typically 5-years minimum¹⁹ with strategic goals set over much longer periods up to 25 years, which is more in line with strategies of many Japanese companies²⁰. The Chief Executive Officer (CEO) of one company introduced 531: 5-year strategy, 3-year plans and 1-year budgets²¹. A longer strategic timeframe is now needed simply to survive and attract shareholders in the prevailing markets.

It was reported in one case company that the strategic objective of one set of owners is to secure:

...a business that's high value, very, very focused and consistent in what it does... a business that consistently generates good margins and cash because that cash they can use in their other investments to give them a much better return²².

The healthier bid margins of these privately owned contractors are embodied here, yet this contractor remains the cash generator for a larger family investment portfolio, hence retains at its heart the current sector business model and hence resource allocation.

The client is the first layer of project portfolio management with the project as the second layer that is arguably of less strategic significance in these two firms in contrast to competitors. One interviewee at middle management level recognised the strategic significance by commenting:

...we're very focused around customers and choosing the right customer to work for rather than chasing the big, high value project, which might have a risk of funding or a risk of planning or a risk of actual client²³.

This layer of selectivity by both organizations is the key strategic means to:

- a. Secure sufficient work to sustain survival, although not necessarily growth²⁴,
- b. Secure high profile projects and above average profit margins compared to the competition,
- c. Incorporate an element of investment, hence a return on the capital employed.

The first two points are apparent and addressed by the management. The last two points are inter-related, although the final point was indirectly perceived at best. It was not seen to be a central strategic element that potentially contributes to transformative action on a broader scale. Transformation is most easily pursued through the development of management capabilities at portfolio and programme management levels as they are cheaper and mutually appreciative as opposed to investment in capital assets and technologies that depreciate with use²⁵. Such transformation was not being pursued.

3.2 Differentiation

There are nuanced differences between large-scale tier one contractors, the two companies involved in this research being examples. However, compared with most other sectors differentiation is low²⁶, especially in terms of service quality, which is what the main contractor as a systems integrator essentially is²⁷. Ownership is an important differentiator because it provides greater flexibility in resource deployment. There are several leading UK contractors in this category²⁸.

There is no substantial or strategic differentiation of the offers within the chosen markets between contractors. Strategic change at project level may simply focus upon switching sectors rather than substantive capability development. Contractors shift the sectors in which they seek work periodically, for example one of the case companies has re-entered civil engineering and infrastructure in a substantial way to balance the clients and contracts in their portfolio²⁹. Certain contractors located further up the food chain are more focused upon client management, which is the case for the companies concerned in this report. One interviewee described this in terms of being "at the top table" with clients. The other company is also trying to move up the chain by offering a specialist design service into a greater consultant-type role³¹. One of the two case companies has been moving towards a greater presence in traditional contracting³², whether it is for negotiated or two-stage tender construction work³³, and this may constrain its scope for differentiation.

Some firms are investing in innovation on a selective basis³⁴. One of the case companies has also placed an emphasis upon innovation. This represents a mixed picture. On the one hand there is a substantive innovation and problem solving capability. On the other hand, staff allocate time to operational problem solving outside project budgets, which has the effect of improving project margins and inducing some opportunities for tax relief based upon innovation practices³⁵. Consultancy and innovation activities can lend brand recognition to firms³⁶, even at marginal levels of activity because differentiation in the sector is low.

Some level of differentiation is important to certain clients and makes a contribution to the range and quality of offers or value propositions in the marketplace. However, the current sum total of differentiation does not represent a shift in the failing business model that will contribute to the transformation of service quality, productivity and performance in construction³⁷. A challenge is arising within the sector as consultants are taking on the systems integrator role. One example is project management services. Further, technology adoption among contractors lacks the systematic approach for embedding the technology. The same issue arises in analysing and using available data. BIM is a case in point where contractors graft it onto existing systems rather than design the systems to optimise the technology. In addition, substantial differentiation is currently arising from outside the current sector, for example among Chinese digital companies and organizations such as Kattera in the US³⁸.

“Consultancy and innovation activities can lend brand recognition to firms, even at marginal levels of activity because differentiation in the sector is low.”

4. Project Resource Allocation

4.1 Resources for Projects

Resources are for projects, yet not all resources are allocated directly to projects for efficient and effective performance. Capabilities and technologies that are allocated across the firm and at programme management level are also vital for project performance.

Business units can underperform or fail. Insufficient resources can be one reason. For example it was commented:

There's been huge underinvestment in the organization for quite a considerable period of time... in our people, this is back to competence and capability. It is people, their competence and the supply chain that pose the greatest project risks³⁹.

Another reason in project environments is when the profile of projects selected or those coming forward in the market require competencies that do not align with the existing staff profile. This can lead to redundancies and hiring new personnel⁴⁰. A dramatic change in profile effectively reshapes the profile of the business unit⁴¹. Contractor business models do not differ substantially and therefore new staff can be absorbed relatively easily without the unit or group being fundamentally affected. Further, the level of training is low in the sector, an issue that it increasingly recognized:

...it's proving more difficult to get that training down to the less experienced and younger managers, which we're trying to do. But I think we need to be better⁴².

Investing in training for senior management is undertaken, but those in middle management and operations are more numerous, more mobile and it is costly to train them.

One case company has placed resources into an off-site manufacturing capability. Offsite manufacturing does not pay for most contractors as the size of the market is too small and capital costs cannot be repaid quickly enough on a cost per unit basis under the prevailing transactional business model⁴³. It needs to operate on the basis of a return on investment, therefore, the business model is in conflict with the model based upon the return on capital employed among main contractors. The firm in question adopted the process and know-how from an overseas operator and has essentially set up a plant from which it buys in supply on an arm's length basis. This is potentially more sustainable, yet cost remains an issue and affects profit, even where there is above average use of standard modules, for example high rise residential development. However, it does help satisfy other strategic drivers, especially reduction of the carbon footprint⁴⁴.

4.2 Origination of Projects

Selecting the projects to build up a balanced portfolio commences with the business development function, whoever is contributing to that activity. Business development as a function has improved in construction over recent decades, although there remains considerable scope for further improvements⁴⁵.

Targeting sectors, clients and projects form the main strategic elements of business development. Extensive external sources of information about the market are not needed for two main reasons. First is the approach of securing business high up the food chain or client network where information from external sources is scarce. In both case companies, this is higher than many main contractors. Second is that investment is kept low and offers can only be varied at tactical levels and detailed information around particular service and content provision is largely irrelevant.

In this research it was found that primary emphasis was placed upon the selection and nurturing of clients. While the case companies do have some business

development managers, it is senior management figures that play prominent roles in developing the client base and all management levels that help nurture the clients, in order to maximise repeat business opportunities of the type sectors and projects strategically targeted⁴⁶. One business unit did not employ business development managers⁴⁷. These two companies have moved the prime focus of business development high up the food chain of decision making in the client networks and broader ecosystem as possible, which in the case of one of the companies is undertaken at family ownership level and at the policy level of government.

Pipelines are monitored in relation to client programmes and gross development value. They are monitored weekly for progress towards the bid stage⁴⁸. At bid stage, the profit margin on individual submissions can relate to the position in the annual cycle – whether annual overheads have been covered as well as the strategic alignment of the project to the portfolio in relation to the competition at any one time⁴⁹. Structuring the contract is a further factor as the stage payments affect cash flow management and covering overheads⁵⁰. Value engineering and developing alternative options is commonplace during bidding where there is early contractor involvement, and especially for negotiated work⁵¹. Regional business units find it more challenging to secure repeat business and competition tends to be more intensive, hence lowering the strike rate to secure projects⁵².

Strike rates vary across the industry. During economic downturns, a more transactional approach intensifies and lowers the strike rate. One case company aims at a one in three ratio⁵³. Securing projects is a challenge for the two case companies where lowest price bidding does not align with securing reasonable margins:

...we always have a challenge to continually showcase our value to our clients because you always have a cheaper alternative so it's... You know, that's our constant battle because we are a tier one and people question, 'Why would you have such a high reputation company do this for you? Surely you're paying a premium for that.' We're constantly having that battle⁵⁴.



4.3 Project Selection

Project portfolio management has operations as a focus. While the selection of clients and projects must align with the firm strategy, the decision making moves quickly to the project strategy, and thus is conducted on a project-by-project basis⁵⁵. The strategy at the front end of the project is a key element to success during delivery⁵⁶. The case companies moved quickly to the strategy on a project-by-project basis, partly because there had been prior qualification of most opportunities through client selection.

Allocating resources to the project opportunities can be fine judgements. The case companies assess their capabilities as good, resulting in a balance of projects that aligns with strategic project portfolio management. This does not mean that market and project uncertainties do not pose challenges to making selections, which one interviewee described being “knife edge” judgements on occasions⁵⁷.

There will be group or central control, yet the power of regional or divisional management to act autonomously varies between companies⁵⁸. Decision making is layered for resource allocation. For example one case firm employs thresholds where the group decides whether to pursue the opportunity for large client programmes and projects, the business unit can decide on projects up to £30m and then need group sanction, while small projects up to £10m are decided solely at business unit level, involving three to four people⁵⁹. The other case employs thresholds of £50m and above⁶⁰. In some cases, clients in effect decide because some projects, including very small ones taken on, not because they are necessarily a good fit, but because they are a key client; preserving the relationship for repeat business on large projects is a strategic consideration⁶¹.

There is resource commitment to joint ventures for many large projects and megaprojects. The prevailing business model in the sector constrains firm growth with the consequence that there are few or no contractors large enough or with the scope of capabilities to shoulder the risk to bid and undertake all the work. For project selection, importing capabilities and reducing risk is necessary for bidding. Joint ventures carry their own risk at operational level and need careful management, even where strong teams are carefully selected⁶².

The profit margin was the next layer down in project selection. As was commented:

We are not the cheapest contractor in the market. When we see certain competitors we know that if the client is looking for 100% cost driven projects, actually on a face value, a like-for-like cost we probably can't compete with them. But, if we got an opportunity to engineer a solution and get best value for the client we can deliver for engineering⁶³.

The discipline arises from each business unit being responsible for its annual profit and loss account in line with targets set by the group⁶⁴.



5. Governance

At project level, allocating adequate resources to governance has been highlighted, not only to manage firm and project risk for the contractor, but also because more clients are seeking low risk profiles for their projects. For the case companies involved in this research it means greater selectivity of projects, in particular cost reimbursable contracts in public sector work and negotiated or two stage tender private sector work⁶⁵. This is highlighted further because management costs have risen, even though profits have been squeezed. Supervision costs are thought to have been around 7% of project costs in the 1970s and are probably over 15% and above today, sometimes reaching 25%⁶⁶.

A key element of governance is processing projects through each gateway. This is critical and starts at the project front-end. One chief executive stated 25% of time was spent engaging with the work winning stages⁶⁷. The majority of projects have no particular issues at the gate one meeting because the regional managing directors and their teams have already filtered out the problematic ones. The offer and its submission is built up over the subsequent gates at the front-end. The remaining gates focus on delivery, for which governance is less formal⁶⁸. For one case company, there are four gates at the front end, three during delivery, for which there is a master spread sheet to monitor financial performance, especially resource alignment and costs⁶⁹.

Design can pose a particular risk, especially for off-site manufacturing⁷⁰. During delivery risk management is a key element. However, delivering against commitments made to clients was not explicitly mentioned, although regular contact is kept with clients throughout on a weekly basis. Therefore, part of the governance includes a client management plan component because there is a requirement to *have to focus on the client because we want repeat business, we want to satisfy the client's needs so that the client can't do without us*⁷¹. This seems to operate as a behavioural norm and is more informal, though thorough, in both the case companies.

Systems are in place for other elements, including safety, sustainability, which are claimed in one case company to be integrated rather than confined to the function that reports to senior management⁷². One case company claimed to be “rich in process”⁷³, although in both cases informal routines and practices appeared to be dominant. The commercial directors carry detailed responsibility for resource allocation and cost control, working with the project and construction managers who carry responsibility for delivery. Many of the informal routines involved were described in the comment, *there's a commercial manager that will sit alongside the project manager*⁷⁴. The information available will be reviewed on a monthly basis for each project. For example, the project value per person was described as an important yet crude measure for performance⁷⁵. The extensive adoption of digitization and analytics in support of governance has yet to occur⁷⁶.

“One case company claimed to be “rich in process”, although in both cases informal routines and practices appeared to be dominant.”

6. Balance of Resources on Projects

According to one case company, it tries to keep the same teams together for repeat business opportunities, but they have to redeploy staff too at times. A few key clients insist on the same teams⁷⁷. Even where there is a strong drive to align teams to client needs, managing internal alignment has to be accommodated. The changing profile of work, requires staff changes at times, especially when resources are switched to new market sectors or segments where specialist competencies and expertise are required⁷⁸. Concerning staff progression, one case company has adopted a process embracing communication, training and identifying career pathways⁷⁹.

A few interviewees volunteered and most were asked about resources and activities for programme management. The general perception was that the firms followed the programmes of their key clients through informal means, being part of their panels or as part of a strategic framework⁸⁰. Few addressed internal programme management around the functions and activities that support all projects, even though poor communication and a lack of interdependent communications between project teams was recognized⁸¹. Implicitly, client management or key account management (KAM) was managed as part of the business development function. Other functions at programme management level were hardly referred to or overlooked entirely. Health and safety (H&S) was hardly mentioned, which is significant given that when explicitly asked about H&S management the industry will always refer to it as a top priority. Yet, allocating resources as part of project portfolio management and managing at pan-project or programme management level appeared not to be a strategic issue and certainly at the forefront of the minds of those interviewed. However, “reinventing the wheel”, undertaking learning where investment embeds it into the firm, and the lack of effective knowledge transfer was raised and more extensively commented upon. Knowledge transfer requires programme management to ensure effectiveness and was perceived to be largely very weak or absent. One person reported:

We’re usually two or three years together, then we blow it all apart, don’t we, and we put it all back together again⁸².

Another interviewee described knowledge transfer as “appalling”⁸³, and it was certainly minimal or absent in the two cases, reflecting the general picture in construction⁸⁴.

Project teams tend to be put together that are “pretty autonomous”, which helps keeping management costs low. They cannot have the resource built into the bid price in order to be successful, so this has to be funded at programme management level. This raises an important issue for project portfolio management. Programme management can be perceived by top management as part of portfolio management rather than project portfolio management, however, for firms to improve performance through efficiency and effectiveness it is part of project portfolio management too. Therefore, some programme management is required to sustain current activities long term. Further, investment at the programme management level offers a bridge to portfolio management from project portfolio management. It potentially offers an option to transition from the transactional to the transformational business model, hence a shift from the return on capital employed to a return on investment.

7. Capabilities and Capability Development

The case companies claimed to be good at employing existing technologies and adopting new ones. For example, one company has been streamlining their systems through renewing many software packages and investigating the employment of new integrating management technologies; there is awareness that oil and gas are ahead on data analytics and such practices can be adopted in construction⁸⁵. However, it was reported that the development of management capabilities and competencies is an area of weakness. This is despite the fact that the development of such capabilities is an asset that appreciates with use, whereas fixed capital investment and assets depreciate with use. This is an area for future focus, especially as there was a general perception of the importance of management for operational success. Technical competence helps prequalification at the stage of selecting projects to pursue. For operations, behavioural competences are most important⁸⁶, which need to be managed.

One case company used the opportunity of a redundancy programme to rebalance the skills and capabilities: *We’ve now got a real focus upon competence⁸⁷*. The staff profile can quickly become misaligned as new projects lead to hiring new staff who are available yet may not be an ideal fit⁸⁸.

This was an area of considerable weakness, especially regarding management capability development. It was evident below senior management down the hierarchy, and especially at programme management level.

8. Next steps

There are a number of key recommendations to consider and actions for implementation:

- Address the firm strategy and business model to develop project portfolio management and potentially incrementally build towards portfolio management based upon a return on investment.
- Address project portfolio management to develop its functions beyond project selection and governance.
- Develop programme management to support projects, such as knowledge management, and both link and integrate functions, such as client management and health and safety with knowledge management.
- Invest in developing management capabilities in general and in particular for effective programme management.
- Adopt digital technologies and data analytics in general and for project portfolio management, designing the organizational systems ahead of adoption to align with optimising the digital capabilities.

References

1. For example see Kaiser, M.G., Arbi, F.E. and Ahlemann, F. (2015) Successful project portfolio management beyond project selection techniques: understanding the role of structure alignment, *International Journal of Project Management*, 33(1): 126-139; Martinsuo, M. and Killen, C.P. (2014) Value management in project portfolios: identifying and assessing strategic value, *Project Management Journal*, 45(5): 56-70.
2. McKinsey (2017) Reinventing Construction through a Productivity Revolution, <https://www.mckinsey.com/business-functions/operations/our-insights/reinventing-construction-through-a-productivity-revolution>, accessed Thursday 18th March 2021.
3. Teller, J., Kock, A. and Gemeünden, H.G. (2014) Risk management in project portfolios is more than managing project risks: a contingency perspective on risk management, *Project Management Journal*, 45(4): 67-80; Müller, R., Martinsuo, M. and Blomquist, T. (2008) Project portfolio control and portfolio management performance in different contexts, *Project Management Journal*, 39(3): 28-42.
4. Construction Leadership Council (2020) *Roadmap to Recovery: an industry recovery plan for the UK construction sector*, <https://www.constructionleadershipcouncil.co.uk/wp-content/uploads/2020/06/CLC-Roadmap-to-Recovery-01.06.20.pdf>, accessed Thursday 18th March 2021.
5. Smyth, H.J. (2018) *Castles in the Air? The Evolution of British Main Contractors*, www.ucl.ac.uk/bartlett/construction/castles-in-the-air.
6. Ibid..
7. For example, an interview with the Group Chief Operating Officer, Case Company One (CC1).
8. Interview with the Group Chief Financial Officer, Case Company Two (CC2).
9. It was also reported that Covid-19 was used as an opportunity to reevaluate the cost base, restructure and delay the organization beyond any necessary response to Covid (Interview with the Group Chief Operating Officer, CC1).
10. See for example Smyth, H.J. (2015) *Market Management and Project Business Development*, Routledge, Abingdon; Smyth, H.J. (2000) *Marketing and Selling Construction Services*, Blackwell Science, Oxford.
11. The silo issues was mentioned in several contexts, typically in terms of communication rather than coordination and integration of service provision (Interview with the Managing Director of Construction Business Unit I, CC1), but the implication is clearly present.
12. Interview with the Group Chief Executive Officer, CC2, and the Group Chief Financial Officer, CC2.
13. Interview with the Group Chief Executive Officer, CC2.
14. cf. Smyth (2018) op cit..
15. For example Interview with the Managing Director of Construction Business Unit II, CC1, and the *Carbon Strategy* for one case company.
16. Interview with the Group Commercial Director, CC1.
17. Interview with Former Chief Construction Advisor to the UK Government); Interview with Former Chief Executive of the UK Division of a European Tier 1 Contractor; see also Smyth (2018) op. cit..
18. Interview with Former Chief Executive of the UK Division of a European Tier 1 Contractor.
19. Interview with the Group Commercial Director, CC1.
20. Interview with the Operations Manager, Region I.
21. Interview with a Regional Managing Director, Civils, CC2.

22. Interview with the Group Chief Executive Officer, CC2.
23. Interview with the Managing Director of Construction Business Unit II, CC1.
24. Interview with the Group Chief Executive Officer, CC2.
25. Smyth (2018) op cit..
26. Interview with Co-founder of a Specialist Construction Management Consultant.
27. Davies, A., Brady, T., Hobday, M. (2007) Organizing for solutions: systems seller vs. systems integrator, *Industrial Marketing Management*, 36, 183-193.
28. Interview with Former Chief Construction Advisor to the UK Government.
29. Interviews with a Regional Managing Director, Civils, CC2, and the Civils Senior Leadership Team Member, CC2.
30. Interview with the Group Chief Operating Officer, CC1.
31. Interviews with a Regional Managing Director, Civils, and Civils Senior Leadership Team Member, CC2; cf. interview with the Former Chief Construction Advisor to the UK Government.
32. It was reported that the split is now 80% construction and 20% construction management and consultancy (Interview with the Managing Director, Off-Site Production, CC1), and for one of the six business units 70-80% design and build and fixed price contracts (Interview with the Managing Director of Construction Business Unit II, CC1).
33. Interviews with Former Chief Construction Advisor to the UK Government, and the Co-founder of a Specialist Construction Management Consultant.
34. Interview with Former Chief Construction Advisor to the UK Government.
35. Interviews with the Co-founder of a Specialist Construction Management Consultant, and the Group Chief Operating Officer, CC1.
36. For example, interviews with the Group Chief Operating Officer, CC1, the Managing Director of Construction Business Unit I, CC1.
37. cf. Smyth (2018) op cit..
38. Interview with Co-founder of a Specialist Construction Management Consultant; Smyth, H.J. (forthcoming) Transforming the Construction Firm? In Best, R. and Meikle, J. *Describing Construction*; Bartlett, K., Blanco, J.L., Rockhill, D. Strube, G. (2019) Breaking the mold: the construction players of the future, *Voices*, September, McKinsey & Co..
39. Interview with the Group Chief Executive Officer, CC2.
40. In one case company, 300-400 new staff are needed to align with the new profile of work, and it also provides an opportunity to increase staff diversity, age, gender and disability being singled out as examples (Interview with the Group Chief Executive Officer, CC2; see also the *2026 Business Strategy* for one of the case companies). The post-Brexit environment was mentioned as posing recruitment problems, for example with 30-40% of construction labour on site comprising foreign nationals (Interview with the Group Chief Operating Officer, CC1). Staff from the Indian subcontinent (Interview with the Managing Director of Construction Business Unit II, CC1) and Chinese sourced labour through the appointment of Chinese contractors are future options for contractors and clients in particular.
41. Interview with the Managing Director, Specialist Interiors Business Unit, CC1.
42. Interview with the Operations Manager, Region I, CC2.
43. Interview with the Construction Director, Technology Unit, CC1.
44. Interviews with the Construction Director, Technology Unit M8, the Group Chief Operating Officer M6, and with the Operations Manager, Region I, CC2, and a Project Manager, Region I, CC2.
45. Smyth (2015) op. cit.; Smyth (2000) op. cit..
46. One business unit has 80% of turnover as repeat business (Interview with the Managing Director of Construction Business Unit II, CC1), and another director stated, *...repeat work is the most important factor in anything we do* (Interview with the Construction Director, Off-Site Production, CC1).
47. Interview with a Regional Managing Director, Civils, CC2.
48. Interview with the Managing Director of Construction Business Unit II, CC1.
49. Interview with the Managing Director of Construction Business Unit I, CC1.
50. Interview with Former Chief Executive of the UK Division of a European Tier 1 Contractor.
51. Interview with a Project Manager, Region I, CC2.
52. Interview with a Project Manager, Region I, CC2.
53. Interview with the Managing Director of Construction Business Unit II, CC1.
54. Interview with the Civils Senior Leadership Team Member, CC2.
55. Interview with the Managing Director of Construction Business Unit II, CC1; Interview with Former Chief Construction Advisor to the UK Government.
56. Morris, P.W.G. (2013) *The Reconstruction of Project Management*, Wiley-Blackwell, Chichester.
57. Interview with the Managing Director of Construction Business Unit II, CC1.
58. For example Interviews with the Former Chief Executive of the UK Division of a European Tier 1 Contractor, the Managing Director of Construction Business Unit II, CC1, and the Operations Manager, Region I, CC2.
59. Interviews with the Group Commercial Director, CC1, and the Managing Director, Specialist Interiors Business Unit, CC1.
60. Interviews with the Operations Manager, Region I, CC2, the Civils Senior Leadership Team Member, CC2 and a Project Manager, Region I, CC2.
61. Group Chief Operating Officer, CC1.
62. Interview with Former Chief Construction Advisor to the UK Government.
63. Interview with the Construction Director, Off-Site Production, CC1.
64. Interview with the Managing Director of Construction Business Unit I, CC1.
65. For example, the interview with the Group Chief Financial Officer, CC2.
66. Interview with Former Chief Executive of the UK Division of a European Tier 1 Contractor.
67. Interview with Former Institute of Civil Engineers President and Tier 1 Contractor Chief Executive.
68. Interview with a Project Manager, Region I, CC2.
69. Interview with the Group Chief Executive Officer, CC2.
70. Interview with the Managing Director, Off-Site Production, CC1.
71. Interview with the Civils Senior Leadership Team Member, CC2.
72. Interviews with the Group Chief Executive Officer, CC2, and the Operations Manager, Region I, CC2.
73. Interview with the Group Chief Operating Officer, CC1.
74. Interview with a Project Manager, Region II, CC2.
75. Interview with the Managing Director of Construction Business Unit II, CC1.
76. Interview with the Civils Senior Leadership Team Member, CC2.
77. Certain repeat business US clients in the 1980s started to question the lack of service consistency provided by the same contracting organizations and decided to manage this dimension by insisting on the same teams, a practice which has become more common place where contractors do not place key project team members on the bench between projects and use them to develop other capabilities for the firm in their project down time.

78. For example, an interview with a Project Manager, Region I, CC2.
79. Interview with the Operations Manager, Region I, CC2.
80. Interview with Former Chief Construction Advisor to the UK Government.
81. Interview with the Managing Director of Construction Business Unit II, CC1.
82. Interview with the Managing Director of Construction Business Unit II, CC1.
83. For example the interview with a Project Manager, Region I, CC2.
84. See for example Duryan, M. and Smyth, H.J. (2019) Service design and knowledge management in the construction supply chain for an infrastructure programme, *Built Environment Project and Asset Management*, 9, (10), 118-137.
85. Interviews with the Group Chief Executive Officer, CC2, and a Management Team Member, Region III, CC2.
86. Interview with a Regional Managing Director, Civils, CC2; see also the *2026 Business Strategy* for one of the case companies.
87. Interview with the Group Chief Executive Officer, CC2.
88. Interview with a Management Team Member, Region III, CC2.

“Programme management can be perceived by top management as part of portfolio management rather than project portfolio management, however, for firms to improve performance through efficiency and effectiveness it is part of project portfolio management too.”