Who is the customer? Maintaining a customer orientation in long-term service-focused projects

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Abstract: This paper considers the implications of the growing trend for engineer-to-order (ETO) companies to engage in projects that involve not just the design and manufacture of capital plant and equipment, but also responsibility for downstream aspects of the project such as operations, maintenance and service delivery. These types of long-term, service-focused projects introduce an added dimension of complexity to the project that stems from a proliferation of stakeholders and multiple ‘customers’ within the project. Drawing on three detailed case studies of projects with a long-term, service focus, the paper explores the problems facing ETO companies and their project managers in terms of identifying who the customer really is at any particular stage of the project and highlights some implications for the management of the design and innovation process in such ETO projects.

Keywords: Engineer-to-order; long-term projects; customers; clients; project management.

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1 Introduction

Engineered-to-order (ETO) capital products have become characterised by increasing technical complexity, often referred to as complex product systems [1], and increasingly complex types of project system within which they have to be delivered. One aspect of this is the growing trend towards projects that involve the ETO manufacturer in not just design and delivery of the product, but also the downstream service component or operations phase of the project.
One consequence of this growing complexity is the proliferation of multiple stakeholders within a network of project participants that creates a multitude of different demands on the ETO organisation and establishes multiple ‘customers’ within the project. A key problem for ETO organisations in this context is identifying which, at any given point in the project, is the critical customer.

ETO organisations are usually characterised as ‘project-based organisations’ [3]. In such organisations, the dominant mode of operation is through formalised project management under the control of a cadre of professional project managers. This mode of management is predicated on a hierarchical, top-down, approach to the decomposition of the project and the monitoring and control of individual work tasks within the overall project structure, overseen by a manager with responsibility for the delivery of the project as a whole for a clearly identifiable client [4]. Our intention in this paper is to argue that certain dimensions of increasing project complexity renders the latter assumption problematic.

We therefore consider the implications of growing project complexity for ETO organisations and those responsible for managing large-scale one-off projects with a strong focus on the service output demanded by the project’s client. We draw on in-depth case study research into three such long-term service-focused projects. Our findings have implications for the assumptions made about such projects and the appropriate ways to manage them.

In the following section of this paper we present some background to the phenomenon of long-term service-focused projects. The next section describes a research project in which we studied three such projects in some detail. The subsequent sections deal with the detailed description of these projects and demonstrate the ways in which ambiguity and uncertainty about who the customer was or should have been arose. Finally, we draw some conclusions and implications for ETO organisations and their project managers.

2 Background

Recent research [5] has identified the emergence of a new business model for organizations operating in the sphere of large-scale, complex, engineering and IT service projects. This model reflects a shift from the conventional design and supply of large products or technical systems on a project basis to the enhancement of these projects through the development of long-term service provision [6]. Typically, it involves contractors taking on responsibility for the operation and/or maintenance of the facility on the client’s behalf and reflects a more general trend towards the outsourcing of activities by many client organisations [7]. Examples may be found in many sectors, including railways, power generation, offshore oil, utilities, telecommunications and IT. Such projects have also emerged as a new development in the construction field, where a combination of public-private partnerships and (in the UK) the Government’s Private Finance Initiative have created a shift from a focus on asset delivery to one of service delivery [8].
Empirical evidence suggests there are three principal contexts in which this is happening. Firstly, faced with stagnating demand and a growing installed base of products, manufacturers are being prompted to move their activities downstream in terms of the value chain into product support and related service activities [9], where new kinds of customer demands and a greater proportion of customer expenditure is to be found. Secondly, companies such as engineering project organisations or IT ‘solution providers’ have sought to increase their scope of supply through the delivery of additional services to their clients, including the through-life operation or maintenance and support of their facilities in order to increase operating margins or market share. This is leading to the design and delivery of ‘integrated solutions’ [10] for clients, which provide an important new way of differentiating the product/service offering. In these two positions companies are responding to changing demands from their clients as they outsource more manufacturing and seek to concentrate on service provision to their own customers. The third context is that of organizations for which the internal delivery of ETO projects is a major part of their own business, such as utilities or chemical process companies, and where the complexity of the project creates the need for the internal capital delivery team to address operational and other downstream service issues in a more consistent manner.

There is little contention that customers should be the key focus of any organisation. This view indeed plays a central role in the design and innovation process, and is deeply embedded in management thinking [11]. Such is the currency of the customer as a strategic focus for organisations that Du Gay and Salaman [12] have referred to it as a ‘cult of the customer’. The influence of this discourse is extremely powerful in the capital goods sectors like construction [13] and IT [14]. Capital goods production is defined in part by having a single commissioning client, while project success in capital goods production is most clearly measured in terms of client satisfaction. As Winch et al. [15] point out, perfectly well run projects, if they do not maintain a customer focus, are likely to fail by not actually producing facilities that meet the client’s needs. Clearly, when that requirement is specified in terms of service outputs rather than the capital facility itself, a successful delivery of a capital good may yet not satisfy the client in terms of the downstream services.

Winch et al. suggest that project organisations should actively focus on client requirements and develop quality management approaches to ensure that all actions reflect that focus. However, the trend in capital goods delivery noted above is beginning to complicate this ‘client focus’. As ETO manufacturers are being drawn into long term maintenance and facilities management contracts associated with the capital goods they produce, they find that their own maintenance and facilities management functions are also becoming their customers. Furthermore, the trend toward the outsourcing of expertise by clients introduces independent consultants into the project network, each acting as the ‘voice of the customer’. The result is that ‘the customer’ for different aspects of the project is becoming distributed across a plethora of different organisations. This makes it difficult for the ETO manufacturer to identify a single client, while at the same time fostering the need to actively
create internal clients that are capable of providing the project with the right focus, what we would term the critical customer. The problem arises then that, in contexts where design is itself distributed across a number of loosely connected suppliers and design teams, there may not even be agreement as to who the customer is.

This complexity creates a context in which understanding who the customer is at any particular stage of the project and in relation to specific design decisions that need to be taken can be problematic and can lead to unmet expectations and unsatisfied requirements later in the day, notably once the capital facility is commissioned and the project is into the operations phase. To illustrate these ideas and to identify how organisations are tackling this conundrum of complexity in long-term service-focused ETO projects, we draw on three detailed case studies of projects that fit this particular description.

3 The research

The research reported here involved the in-depth study of three projects identified a priori as long-term and service-focused [16]. The projects were: the refurbishment and operation of a port facility for an Argentinean steelworks by Clarke Chapman Ltd; ALSTOM Transport’s contract to design and maintain the Pendolino high-speed tilting train for Virgin Trains’ West Coast Main Line franchise in the UK and a Regional Sludge Treatment Centre (RSTC) commissioned and operated by Northumbrian Water Ltd (NWL) in the North East of England. These companies acted as co-sponsors and collaborators in the research.

The research methodology was essentially qualitative, involving in-depth interviews with key project participants in order to develop a deep understanding of the nature and conduct of the projects. In each case study the research mapped out the project network and identified all the key actors in the project. Interviewing commenced with the principal contact within each collaborating company and was extended to the collaborator’s project team, or representatives thereof when it was particularly large as in the case at Alstom. Subsequently, the principal supply chain and other organizations associated with the project were identified and contact was made with the assistance of the collaborating company as appropriate. Interviews were also held with the client, although for both logistical and cultural reasons this was not possible in
the Clarke Chapman case, and with other related institutions such as the regulators, consultancies and other third parties actively involved in the project.

The research involved 50 interview sessions with one or more respondents lasting between one and three hours; 21 for the Pendolino project, 15 for the port facilities project and 14 for the RSTC project. Interviews were triangulated through a process of cross-checking of stories with other accounts and sources, including secondary sources such as industry journals and project documents as appropriate. Additionally, a series of workshops were held with the collaborating companies, one of which specifically addressed the question ‘who is the customer’ and explored the implications for the participants of the developments in project complexity implied by the discussion in the previous section and reflected in their own projects.

4 The case studies

4.1 The Regional Sludge Treatment Centre

The Northumbria Water Limited (NWL) Regional Sludge Treatment Centre (RSTC), located at Bran Sands on the Tees estuary, was a £122m state-of-the-art sludge drying facility built between 1993 and 2002 to serve the UK’s Northeast region. The impetus for the plant was the banning of sea disposal as part of the EU Urban Waste Water Directive, requiring NWL to render the sludge inert, and thus safe to dispose of in other ways. Previously, NWL had collected sludge from primary treatment sites around the NE and disposed of it directly into the North Sea.

The completed project now forms the hub of a number of primary treatment sites across the region. Once collected by these local plants the sewage sludge is transferred by ship and road for final treatment at Bran Sands on Teesside. Sludge produced at the Bran Sands Effluent Treatment Works, a separate industrial effluent plant on the same site and built at the same time as the RSTC, is transferred to the RSTC direct by pipeline. The RSTC converts both
sets of sludge into inert low-volume pellets with a variety of possible downstream uses in agriculture, horticulture, land reclamation, or as a fuel. NWL made extensive use of consultants and specialist engineering suppliers in the design and construction of the RSTC, but operates the plant itself. The project is regarded by NWL to have been a great success and has attracted worldwide attention (including a Stockholm Industry Water award).

NWL was formed in 1974 as a publicly owned utility but in 1988, due to rising debt and a falling profit stream, began to transform itself into a ‘profit centre’ ahead of privatisation in 1989. In the process of privatisation NWL restructured and eliminated non-essential functions, including its engineering arm, which subsequently became Environmental Technology (Entec), one of NWL’s key consultants on the RSTC project.

The technology needed to dry the sludge was new to NWL, making it heavily reliant on the knowledge of consultants and specialist suppliers. Design, it was noted by the NWL project manager, had increasingly moved out to consultants for strategic reasons and, as a consequence, NWL managed at a fairly high level with less involvement in the detail of technical designs. The NWL project manager’s role was to ensure that NWL received value for money, understood what it was getting from the project and that it obtained what it expected: something it could feel “comfortable with operating for the next twenty years or so”. After an initial scoping study, Entec acted as a second tier of control responsible for the day-to-day management of the project. Nevertheless, NWL project managers still tried to attend progress meetings. As the same project manager put it, “contractors do like to see the face of the client, it gives confidence to the contractors that the client is involved and is happy”.

4.1.1 Making operations the customer

NWL, as both joint project manager for the project and client for it, recognised that it needed to ensure that its project delivery team would deliver something which not just fulfilled a specification, but which fulfilled the more difficult to articulate requirements of the plant operators who would actually run the plant. NWL, we were told by the Investment Delivery team manager (NWL’s own project team), had been disappointed in the past by the failure of project outcomes to actually meet business needs. It was felt that technical staff in lead positions on project teams often took a very engineering-focused view and that not enough attention was paid to the implications of design choices for downstream operations. Put another way, the Investment Delivery team was the wrong customer focus for the RSTC project because of their emphasis on meeting hard delivery targets rather than operational needs. There had traditionally been a clear responsibility split between plant construction and operations, so that only those aspects of the project which had been commissioned became the operational manager's responsibility, leaving the project entirely under the control of the Investment Delivery function right up until plant start-up. In the case of the RSTC, NWL had the added problem of dealing with a technology that was unfamiliar to both management and operations staff, in so much as it comprised a continuous sludge drying
process rather than the civil engineering-based works (i.e. settlement tanks and ‘pipe work’) that they were familiar with.

Senior management at NWL thus recognised the need to draw operations in as the critical customer. In seeking to bring together the imperatives of the project delivery team (time and cost) and the needs of operations, NWL created a specific Project Sponsor (PS) role. The PS in effect acted as the internal customer for the project. The RSTC project was one of the first NWL projects in which a PS of this type was used. Having identified a need brought on by regulatory changes, the PS was appointed and tasked to translate this need into a project that delivered in accordance with the organisation’s business requirements. This involved the PS overseeing the project from feasibility through to completion. In this instance the PS was appointed from an operations background in order to bring an ‘operator’s eye’ to the project. Ultimately, just like a customer, the Project Sponsor, rather than the Project Manager, had final responsibility for accepting the project at the evaluation stage.

At the time of the RSTC project, NWL had also determined that its Investment Delivery teams should also report to an Acceptance Management Team. Again these were specialist engineers whose role was to ensure that Investment Delivery’s design management reflected operational needs. Procedures were specified in the investment delivery handbook dedicated to acceptance management, which promoted thinking about operational issues early in the project.

4.1.2 Creating a customer for the end product

The business requirement for a commercially useful end product meant that the commercial arm of the business was also an internal customer for the project. The need to create customers directly influenced the design. For example, pre-digesters were not used to process the sludge prior to drying so as to maximise the calorific value of the dried pellets which formed the end product. This increased the number of uses to which it could be put.

4.1.3 To be or not to be the customer

Specialist suppliers formed a key part of the project and, because failure to procure the right technology might ultimately mean the failure of the project, the choices made here formed a key source of risk. To control this risk NWL decided that, with the support of its consultant Entec, it would act as the direct customer for the supply of the technology. The alternative was to contract the whole package out to a contractor (drying technology plus buildings, pipelines, storage tanks and so on), but it was feared that the contractor would build its own preferred solution (i.e. it would become the customer for the technology) and NWL was not yet sufficiently clear about the sort of solution that would suit its needs best. The choice to be a hands-on customer, therefore, appears to be related to the perceived risks associated with those decisions. NWL and Entec organised a design competition between four main suppliers of sludge drying technology.
Phase two of the RSTC was essentially a repeat of phase one (about 95% of the plant was identical) so experience gained in constructing phase one was directly applicable to phase two. One of the key mechanisms for getting feedback into the design was the Design Operators Group (or the DOG). This group monitored the operation of the plant in order to identify operational problems (excessive wear, clogging filters, break-downs), which could be resolved through post-hoc design work. The DOG involved operators, members of Investment Delivery, Andritz and, where appropriate, other members of the supply chain. Meetings of the DOG were held monthly and faults reported. The meetings were aimed at identifying solutions or at setting in motion the means to do so. This group effectively formed another customer for the technology supplier, Andritz, from which it received observations about the operation of the plant. From Andritz’s perspective, this shifted the perceived customer from being the Investment Delivery team and PS to being an operator’s group.

4.1.4 Summary

What this project shows is that in long-term customer-focused projects the client’s project team is not necessarily the best customer focus for external suppliers, particularly when the key concern is delivering the right product for operations (as opposed to, say, a least-cost solution). NWL solved this issue by re-constructing their Investment Delivery team as part of the supply side and then constructing the PS (effectively a representative of operations) as the customer. After delivery, Operations together with Investment Delivery formed yet another customer for the technology supplier Andritz in order to re-focus on learning from ongoing operational issues. The case study also shows that clients may choose to foreground themselves as customers at points in the project where they perceive the risks to be high.

4.2 The Pendolino for Virgin Trains’ West Coast Main Line Franchise

The West Coast Main Line Pendolino project stemmed from a similar context to that of the RSTC, one of privatisation and the subsequent dispersal of expertise for producing capital goods. Virgin Trains is one of a new breed of Train Operating Companies that emerged out of the privatisation of British Rail. Virgin’s focus shaped the project from the ground up. It viewed the project as needing primarily to reflect its business case for upgrading the rolling stock on the WCML, such that it would be able to attract travellers away from both road and air. The business strategy for doing so was premised on dramatically shortened travel times (via 140mph running and good acceleration) and more frequent services. A critical part of Virgin’s vision was for a re-definition of the passenger experience of train travel as something more akin to air travel, and hence the interior design of the train assumed greater significance than was usually the case in such a rail industry project.

From Alstom’s perspective as the train manufacturer, the key aspect of the contract was that Virgin wanted neither to own nor maintain the trains it was
to operate. Alstom’s contract with Virgin trains was not for a certain number of train sets, but for the availability of 140 mph ‘tilting trains’ to fulfil the journey diagram requirements of their 15 year (12 when the build time was subtracted) franchise on the UK West Coast main-line. Critically, Alstom would retain responsibility for maintaining the trains and delivering them to the platform, every morning of the year for the remainder of the franchise.

The long-term service provision aspect of the contract, it was somewhat understatedly suggested by the Project Director: “...made things a little bit different in terms of the approach to design and development”. Alstom needed to produce a train that it could profitably maintain over the life of Virgin’s franchise, not least because the Virgin contract determined a regime in which there were bonuses/penalties against performance criteria over the length of the franchise. In terms of maintenance, Alstom was, in effect, to become both producer and customer for the train.

4.2.1 Creating internal customers - West Coast Traincare

Like NWL, Alstom was aware that engineers typically focus on shorter term issues: “We have to pull them back sometimes and get them to design trade-offs for the long-term” (Alstom Project Director). Alstom’s key action to ensure that long-term maintenance considerations were at the heart of the project was to make their maintenance operation, West Coast Traincare, the contract holder with Virgin. In this way WCTc became a key actor in the project and the manufacturing teams’ effective customer with respect to maintenance issues. To support this input into the design process, WCTc created the Reliability and Maintainability group, which drove the interaction with suppliers over these issues through ‘reliability seminars’ involving both designers and suppliers.

To facilitate this interaction, and that of others in the project, Alstom also created a large single room design studio where multi-functional teams responsible for the design of the different aspects of the train were co-located. Meetings with suppliers, Virgin and its consultants were held in the same space, meaning that it was easy for them to interact directly with the various design teams. Success in fostering maintenance input was variable, however. As one senior manager put it:

“We have had a team of ten maintenance engineers in the design studio from day one. You would have thought that if they had done their job properly their input to the design would mean that they wouldn’t complain about how difficult the train is to maintain, but that’s exactly what they did on the ‘glass case train’ on Friday!”

Having said this, there was also no doubt that engineers could themselves be resistant to input from maintenance. As the project director revealed: “It is difficult to get the ideas in place when people are working flat out to get the train built... [moreover] Engineers don’t always like taking advice from other people, from outsiders as it were”.
4.2.2 Alstom Paris

Another factor here was that Alstom’s Head Office in Paris was quite clear in its expectation that the Washwood Heath assembly plant in Birmingham should make a profit from the build and not just the maintenance contract, as had been the case on a previous contract to supply and maintain rolling stock to the London Underground for its Northern Line. In some senses, Paris acted as a further customer – creating a further set of demands that attempted to shape outputs in particular ways – requiring a certain level of return on the capital build phase of the project.

4.2.3 Virgin Trains

Virgin’s role as the client is interesting in that it reflected similar dilemmas to those faced by NWL; the varying degrees to which it should become involved in shaping different components of the design. Virgin’s primary interest was in the appearance and interior design of the train. Maintenance issues in the design did not concern it, because that had been outsourced to the manufacturer, but it was very concerned about aspects of the train that would directly affect its ability to encourage passengers onto the trains. That is to say, it needed to act as the customer for some aspects of the design but not others.

Virgin became involved in the design process directly. According to the Procurement Director, Virgin and its design consultants had spent “vast amounts of time involving themselves in the design and re-design of the lighting inside the new carriages” and had aspirations for the design that pushed Alstom beyond its previous capabilities. Customer interaction with the design created the need for around 70 different mock-ups before the design was stabilised.

4.2.4 Angel Trains

As already noted, Virgin and WCTc were not the only customers in this project. Indeed, Angel Train’s appearance in this project, as a customer with a specific and further set of requirements, is symptomatic of an emerging trend in projects for external funding and dispersed ownership – where the owner is not actually the user/operator of the capital good produced. In this case, the train was to be owned by Angel Trains, an arm of the Royal Bank of Scotland. Angel, unlike Virgin, demanded that its investment should be durable enough to possess a residual value long after Virgin’s franchise had ended (trains can last to 35 years and beyond). Although a key part of Virgin’s contract with Angel involved Virgin taking responsibility for the train’s durability, Angel recognised that its perspective of the train as an asset with long-term residual value was not quite the same as Virgin’s understanding of it as part of a 12 year revenue generating service. As Angel’s project manager noted:

“We recognised that Angel and Virgin’s interest were about 90% aligned. Their interests are the initial term, ours the very long-term. We agreed that Virgin would be the project manager as Angel’s managing agents. They do the
day-to-day oversight of the build of the train; I oversee what Virgin do from a long-term perspective.”

For example:

“If they [Virgin] take too short-term a view I get them to check things out or arrange changes through Alstom. As an example, there are some attachments to the under frame that Virgin had accepted but we refused. Only six bolts were to be fitted that will corrode and fatigue. The equipment could come off a train travelling at 140mph – this is not acceptable – it will need to be re-engineered before we will accept the train and our next stage payment to Alstom will depend on its resolution”.

Angel thus also played a direct role in vetting key technologies and demanding changes.

4.2.5 Summary

In this project there is a plethora of customers, all with claims on the design. Alstom’s own maintenance operations were defined as the customer by Alstom as a way of focusing its design teams on maintenance issues. Virgin was a critical customer, but only for certain aspects of the design (primarily interiors). Virgin also acted as the customer on behalf of Angel. While Angel, recognising that its interests were not completely aligned with Virgin, took on a monitoring role, rather than field the sort of project team that would warrant its recognition as a critical customer by Alstom’s project team.

4.3 The port facility for an Argentinean Steelworks

The project described here was for the supply, refurbishment and operation of dockside materials handling equipment for Siderar, Argentina’s largest steel producer, by Clarke Chapman Ltd (CCL), at that time a part of the materials handling division of Rolls-Royce (RRMH). Following privatisation, Siderar had decided to concentrate its efforts and investment on its core business of steel production and to outsource the operation of its port facility on the Rio Parana, upstream of Buenos Aires, through which it imported bulk iron ore, coal and limestone and exported finished steel products. The bulk handling facility had been built in the 1950s with some subsequent modifications, but by the mid 1990s the port had become costly for Siderar to operate owing to ageing machinery, poor maintenance routines and inefficient management practices.

In order to participate in this project, CCL formed a joint venture with Portia, the consultancy arm of the Mersey Docks and Harbour Company, a long standing customer of the company. The key to this project was a long-term concession to refurbish, operate and manage the complete port facility for Siderar. The joint venture established a company in Argentina, SOM SA, to manage the project on site.
Engineers at Siderar had many of their own ideas and communicated these to the SOM SA team. For instance, the plant had an intermediary stockyard where the ore was stored after being unloaded and the Siderar engineers wanted to eliminate this. The specification that came from Siderar, however, was primarily based around how it wanted throughput to increase over time. Although it wanted to know what equipment would be needed and when it would be installed over the 12 year concession, and although it suggested ways to achieve their own goals, ultimately CCL had the right to apply its own solutions. Having said this, the contract with Siderar was such that if for any reason SOM SA was unable to deliver goods or materials under the agreed tonnage then it was to provide an alternative supply or service at its own expense. CCL’s position was, thus, very similar to that of Alstom’s in that it was contracted to take long-term responsibility for the capital goods delivered. Within the joint venture, CCL was responsible for maintenance and Portia was responsible for operations.

4.3.1 Internal versus external customers

SOM SA, rather than Siderar, therefore became the effective customer for the equipment supplied in the project. SOM SA placed orders through CCL to various RRMH subsidiaries and other external suppliers to design and/or build new equipment for the port. Equipment was designed in the UK or France, built in Hungary, shipped from Croatia and finally installed and commissioned in Argentina. Refurbishment of existing plant and equipment, receipt of new equipment and assistance with its assembly in Argentina was ‘contracted’ to Rolls-Royce Industrial Power Overseas Projects (RRIPOP). Each European-based CCL/RRMH unit involved in the project managed its own contribution and its own supply chain. As a result of this, and because at the time there was no common supply chain management system in place, the equipment delivery side of the project was fragmented. As one senior manager in CCL commented, “…certainly we were not integrated into a common purpose”.

For example, one internal supplier, despite having designed to the specification provided by CCL, had not designed the equipment ‘in the spirit’ of the contract (i.e. with maintainability in mind). In particular the robustness of some of the equipment delivered, such as a grab ship unloader, in relation to the long-term project requirements was questioned. For example, on the grab ship unloader there were 10 motors dependent upon one drive, which was a problem for reliability should this single drive fail for any reason and, therefore, of potential financial consequence for SOM SA and, therein, CCL. A philosophy of ongoing value engineering also meant that incremental cost savings were sought through minor changes to the calculations for each new piece of equipment. Each time a new but similar machine was developed existing designs were modified “…little bit by little bit on different jobs” (CCL Engineering Manager). This is a straightforwardly ‘first cost’ philosophy which, while embedded in the organisation, was at odds with SOM SA’s requirements for equipment that was durable and reliable over the long-term. CCL staff working on the Siderar project were quick to point out the flaws in this approach.
Ultimately, because the internal suppliers were managed as individual business units with their own balance sheets, they were naturally more interested in the price they could charge SOM SA for the equipment being supplied. They effectively viewed SOM SA as an external customer. As one respondent put it:

“My job is to get the machine out of the door on time ... business units are measured on performance individually ... We [internal supply company] are operating as if we were outside [the organisation]” (Internal Supply Manager).

The internal supplier also benefited from any spare parts required by the customer post delivery, either because the equipment had broken down or as part of regular maintenance requirements. Indeed, this was treated as an important source of revenue. The fact that the parent company itself was incurring the cost through its involvement in SOM SA was not acknowledged and perceived to be of little practical consequence.

“Nothing would please me more – and I will probably thump them as hard as I can ... that’s the way my performance is measured.” (Internal Supplier Manager).

Although, as we have noted, facilities management provision was becoming more important than the capital products in the portfolio of CCL, it was the engineered product rather than long-term facilities management that was at the core of the company’s culture. Internal suppliers had not recognised that the parent company had become the customer of the product. As one senior manager put it to us, referring to the engineers within the company, they were inclined to “produce a beautiful crane and then stand back as and say ‘go on, pay for it’”.

4.3.2 Summary

Although ultimately very successful, it is clear that the CCL project was handicapped by a fragmented internal supply system over which SOM SA was unable to exert the proper leverage. Although Siderar was the client for this project, it is SOM SA that was the customer for the manufactured goods. Setting up SOM SA provided local control over the project and created a customer focus for internal suppliers. Problematically, some of the suppliers did not recognise SOM SA’s long term role in the project as a service-provider and treated it as an external customer. The failure to predict that this would be the case cost CCL in lost profit opportunities in the early part of the operation.

5 Discussion: implications for managing the design and innovation process

ETO manufacturers have been used to designing and manufacturing for well-defined customers, whose requirements are clearly specified and understood by engineering designers within the organisation. The implications of the
increasing complexity exhibited by long-term service-focused projects of the type illustrated in this article are that the identification of the customer can become problematic in as much as the requirements for project success become fragmented and dispersed amongst a wider set of agents, some of whom will be obvious, whilst others may be hidden by prevailing organisational structures and lines of management.

As the NWL case demonstrates, there may be more than one customer within the organisation. The case reveals clearly the need to identify different customers at different points in the project and to empower them to shape project outcomes. Many successes in achieving this were evident in the Project Sponsor role and the DOG group. The case of the Pendolino also revealed a proliferation of customers. Moreover, these different customers had very different interests in what was built. For Virgin it was appearance and reliability, for Alstom (in the guise of WCTc) it was maintainability and reliability and for Angel it was longevity. The CCL project shows how SOM SA, despite being a joint venture between CCL and its partner Portia, was nevertheless perceived by internal supply companies as an external customer, from whom a first cost profit should be extracted. The failure of the project, in this respect, was to put SOM SA in the role of the customer without affording it the authority it needed properly to shape the outputs of its suppliers. For instance, SOM SA, unlike Alstom, had no means to pass on the risks of poor reliability to its suppliers.

What is clear is that, in the types of long-term service-focused projects we have described, if contractors and manufacturers focused solely on what the client alone wanted (i.e. the organisation with which they have the contract) they could fail to make a profit or worse. Because contractors are taking on some of the downstream responsibilities for the capital facility, they must also view themselves as customers for that facility.

Complex ETO products and the projects set up to deliver them are not unitary entities, but are fragmented into numerous different aspects of design, supply, organisation and management. Clients may see their high levels of involvement in some aspects as critical to their interests but not others. Many clients rely on consultants and other third parties to act as the ‘voice of the customer’ and those charged with the task of managing the project on behalf of the ETO organisation may be uncertain to whom they should be listening and responding at any one time. Customers should be actively identified, defined and constructed as a strategic response to the demands and responsibilities of any given project. Correctly identifying, defining and constructing ‘the customer’ is an important aspect of getting the design right for the contractor. However, the case studies suggest that this not always easy; as one participant in our workshop exclaimed: “I don’t know who my customer is”.

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References and Notes


