Northumbria Research Link

Aligning strategy and design perspectives: a framework of design's strategic contributions

Abstract

Many aspects of strategic importance can be influenced through effective use of design. An integrated, holistic application of skilled design resources can make important contributions to competitive advantage. Identifying such contributions elicits a framework useful for clarifying the concept of 'strategic design' in general terms, and for describing design's use in specific organizations. This paper presents such a framework and descriptions of two contrasting firms, based on interviews with designers and others in design-related roles in each. These demonstrate differing approaches to the use of design as a strategic resource, and how such a framework helps identify and describe them.

Introduction

The services and methods of designers and design agencies are increasingly discussed in business press and other media, seen as offering a significant contribution to business performance. Firms like Apple, Sony and BMW have become cliché cases in point. No doubt such firms excel in conceiving and shaping superb customer experiences, yet an examination of design contributions in relation to strategic models suggests that design can make significant contributions in many ways beyond those visible to customers. Successful exploitation of this we term 'strategic design'.

We choose the term strategic design, as distinct from *design strategy* which is commonly used to mean a long-term plan for implementing design, particularly at a product, rather than corporate, level. Whereas design strategy is explicitly practiced by skilled experienced designers and design managers, strategic design involves complex interplay of influencers and stakeholders and might not be explicitly recognized in an organization.

Thus, it is often claimed that through strategic design, benefits come not only from *better-designed products and services*, but from *better use of design* throughout the firm. Such a broad claim merits closer examination. This paper seeks to clarify how design might contribute to the formulation and implementation of strategy. In doing so, a framework is developed that aims to integrate concepts which have previously been described independently, and to provide clarity to the rather intangible concept of strategic design. The framework is based in literature and is illustrated with examples from two detailed case studies in industry.

Through a brief look at some key strategy concepts, potential contributions can be attributed to the activities of design professionals and related specialists. To explore their occurrence in practice, case studies have been carried out in two large UK-based firms, chosen for their visible use of such services. Summary excerpts from the case study findings are presented to demonstrate that these contributions do occur, albeit in different ways in different firms.

First the theoretical context is outlined from which design's strategic contributions were established, concluding with a summary diagram outlining these contributions as a simple framework, then case study excerpts and observations follow.

Theoretical context

There are many perspectives in strategic management that have become accepted as useful views of how firms achieve and hold on to competitive advantage. Arguably, these various views attend to different aspects of strategy and some are regarded as complementary, rather then mutually exclusive (Roos, 2005). Early treatments the of the subject assumed a rational, orderly nature to the problem, reflecting the prevailing view of economics pre-1980s, but subsequent attention has drawn on sociological, psychological and philosophical thought to tackle its 'messier aspects… involving politics, culture, interpretation and emotion' (Stacey, 2007: 3), and attempted to account for various professional perspectives, such as those of management and marketing. Within this broad and complex domain, focus has widened in three decades from trying to understand and shape the external competitive environment, to examining internal capabilities and resources, including such intangibles as tacit knowledge, corporate culture, and shared vision.

This paper does not attempt to argue the case for one viewpoint over another, nor can it do full justice to the deep and detailed knowledge that has arisen from the field. (For summary accounts of this history, see e.g. Roos, 2005; Mintzberg *et al.*, 2004, 1998; Mintzberg, 1994; Nag *et al.*, 2007.) At a time when design and 'design thinking' are touted as a magic bullet for corporate woes, it attempts to bring some clarity to these claims. What does it mean for design to be strategic?

Broadly, strategic management addresses initiatives around the utilization of a firm's resources to enhance its competitive performance in its environment (Nag *et al.*, 2007). In this section, influences and contributions from design activities are described in four main foci, with reference to literature from the strategic management domain:

1) Competitive forces
2) Strategic fit and value creation
3) Resources and capabilities
4) Strategic vision

Design contributions in these foci, are now outlined briefly in turn, summarized in Table 1 with their respective sources in strategic management and design management literature.

[insert table 1 about here]

Competitive Forces

In this focus on the competitive environment external to the organization, design acts in building market differentiation, customer intimacy and perceived value, and in influencing supply chain dependencies.

Design used to build market differentiation, customer intimacy and loyalty; to raise customer perception of signalled value and address varied markets

Perhaps the most visible, recognized and accepted of design's strategic contributions, this role relates to *market positioning and differentiation* by which loyalty and perceived value confer strategic advantage, reducing the threat of substitution and buyer bargaining power (Porter, 1980, 1985; Treacy & Wiersema, 1993). In this capacity, design is acting externally of the organization, shaping customer perceptions and experiences both directly, through products and services themselves, and indirectly through corporate image and brand activities (see e.g. Blaich & Blaich, 1993; Lorenz, 1994; Olins, 1989). Similarly, as a *core competence* (Prahalad & Hamel, 1990), design can improve access to a wide variety of markets and contributing significantly to perceived customer benefits .

Design influencing dependencies in the supply chain

Also with an external influence, this design contribution relates to the principles of *market positioning,* and to the *generic strategies* of both *cost leadership and differentiation* (Porter, 1980, 1985; Treacy & Wiersema, 1993), specifically to buyer and supplier bargaining power as identified in Porter's Five Forces, which influence the competitive environment outside of the firm (Porter, 1980). It also relates to the concept of value co-creation in the *value constellation* or *network* (Normann & Ramirez, 1993; Stabell & Fjeldstad, 1998). Design decisions such as choice of materials or components can influence supplier bargaining power, e.g. by minimizing switching costs to reduce dependence on particular suppliers or technologies. More subtly, the supplier relationship is arguably as important as the buyer (or customer) relationship, and design can similarly have an emotional influence on loyalty and preference.

Strategic fit and value creation

In this focus on operational efficiencies, design serves in integrating and mediating between professional domains, and in supporting primary and secondary value activities within the organization or value network.

Design integrating and mediating between professional domains

The role of designers necessarily involves other professional domains, and the design process brings together disparate expertise and perspectives from within and outside the organization. Here design contributes to the principles of *strategic fit*, improving linkages between internal value activities (Porter, 1985), and to external co-ordination of the firm in its environment, identifying potential partnerships and generating new industry vision (Stabell & Fjeldstad, 1998; Borja de Mozota, 2003).

Design supporting primary and secondary activities in the value network

Design's value is increasingly recognized not only in the primary value-adding activities of product development and marketing, but also in research, infrastructure, human resources and other secondary (support) activities. As above, this design contribution also relates to the principle of *strategic fit*, (Porter, 1985), as part of a holistic design strategy in which design is permitted to contribute across communications and identity, products and services, and environments (Cooper & Press, 1994).

Resources and capabilities

In this focus on the firm's intangible resources and capabilities, design serves in shaping and communicating corporate culture and improving knowledge management; also design capability is itself a tacit knowledge resource.

Design shaping and communicating corporate culture

Relating to the principles of the *learning organization* (Senge, 1990), design contributes to creating and communicating a *shared vision*, one of the learning organization's five disciplines. A design-influenced corporate culture also relates to nurturing people with knowledge, as valued according to the *knowledge-based view* (Wernerfelt, 1984; Barney,

1991; Grant, 1996; Manville & Foote, 1996). The communication and interpretation of corporate vision occurs through designed material artefacts such as products, interiors and buildings, and through 'culturally-mediated language such as metaphor, stories and humour' (Hatch & Schultz, 1997). Communication design and graphic design provide a medium for the intangible elements of culture embedded in language and stories (Hayes, 1990; Olson *et al.*, 1998).

Design in processes and systems of knowledge management

Design can be applied to improve knowledge management systems and processes, contributing to strategic fit (within the firm infrastructure, a support activity in the value chain), as above. But in its own right, knowledge management is a crucial strategic *capability* according to the *knowledge-based view* (Grant, 1996; Wernerfelt, 1984; Barney, 1991). So organizational knowledge management systems may be considered strategic assets, provided they are conceived and implemented accounting for the users and the context of the system (Meso & Smith, 2000) – in other words, if they are well designed.

Design as a tacit knowledge resource: path dependent and hard to imitate

This contribution, like the previous, also refers to the principles of the *knowledge-based view*; the tacit knowledge of designers (and its effective management and integration in a firm) can be a strategic resource or capability if it is path dependent, or difficult for competitors to develop quickly ('imperfectly imitable'), and is valuable to the firm (Barney, 1991).

Strategic vision

In this focus on decision-making for strategy formulation, design activities at leadership level help achieve a holistic view of complex systems and create a shared strategic vision. They are used in exploring uncertainty and assessing trade-off, in stimulating creativity and providing fresh perspectives.

It could be said that strategy formulation is about designing an enterprise (Liedtka, 2004), and designerly methods or 'design thinking' (Martin, 2009) may provide creative tools for exploring possibilities and building a qualitative understanding of what holds meaning, and

hence value, for customers, employees, suppliers and other stake holders.

Design stimulates creativity and provides fresh perspectives

This design contribution relates to Mintzberg's *fallacy of formalization*, the misconception that strategy can be made in an imposed formal structure and process, without allowing freedom for creativity (Mintzberg, 1994). Designers and design methods may include both formality and freedom, which might contribute to strategy formulation.

Design helps explore uncertainty and assess trade-off through prototyping and visualization

This design contribution relates to Mintzberg's *fallacy of predetermination* – that business conditions can be predicted to any meaningful degree – and to the *fallacy of detachment* – that strategy should or could be based only on hard facts in objective isolation (Mintzberg, 1994). It also relates to the concepts of *strategic intent and trade-off* that are required of a business leader in order to set a strategic course (Hamel & Prahalad, 1989; Hammonds, 2001). Predictive tools are valuable, but only if the future is an extension of the present (de Bono, 1992). Design methods include ways to safely explore the unknown territory of the future.

Design helps achieve a holistic view of complex systems, creating a shared strategic vision

This relates to the concepts of *shared vision* and *systems thinking*, two of Senge's Five Disciplines (Senge, 1990). Systems thinking is 'a discipline for seeing wholes', which is described explicitly by Senge as a 'design approach'; shared vision is required for a firm to have a united sense of strategic direction.

The design contributions outlined are summarized in Figure 1. In the next section these categories of strategic contributions provide a descriptive framework for two case examples, illustrating their occurrence in practice.

[insert figure 1 about here]

Case examples: two design-active firms

Interviews in 17 UK firms have been carried out over a three year period as part of a larger study. Excerpts from two of these firms are presented here as examples of design contributions being made in the categories identified.

The aim of this study was not to make generalizable claims about the design contributions but merely to verify their occurrence and recognition in practice. Firms were judged suitable based on being accessible and willing participants, and having some visible design activity. Neither case included respondents from all operational divisions, but respondents' roles, seniority or experience suggest that their views would provide relevant insights.

Case 1: Alpha Structures

Alpha Structures is a large global design and engineering firm with headquarters in London. It was identified as a suitable case for this study as it is large, geographically accessible, and willing to participate. Also it has a reputation worldwide for design excellence. This might suggest a greater awareness of design's strategic impact than many other firms, as well as a better understanding and greater capability of managing design.

Alpha provides design, engineering and business consulting for the built environment. It has around 9000 staff in 100 offices worldwide, and headquarters in London. Its annual turnover is approximately £700 M (2008). Alpha is active in many industry sectors, grouped generally into transport, energy, property and social infrastructure. The firm is known for technical excellence and innovative attitude, which have given them a high standing among their peers. Consequently Alpha has been associated with many of the world's biggest projects and most iconic structures of the past 50 years.

Design activities in the firm are primarily in the services it offers its clients: engineering design, architecture and industrial design, and within its foresight team. In-house design activities also include web and interaction design, and print and communications design.

[insert Table 2 about here]

Case 2: Beta Telecom

Beta Telecom is also a large, UK-based firm, but founded primarily on telecommunications

technology and service delivery. Beta has around 100 000 staff worldwide, and headquarters in London. Its annual turnover is approximately £21 000 M (2008). Beta primarily provides communications network services and technology to consumer, corporate and public sectors, and also has a large Research & Development (R&D) group.

In contrast to Alpha, design is not a core activity in Beta: it occurs mainly in three proportionally small areas of the firm: in R&D, the Consumer division, and in the group-wide Brand department.

[insert Table 3 about here]

Methodology

Semi-structured interviews - 12 in Alpha, 11 in Beta - were conducted with designers, product managers and others in senior design-related roles. Discussions were loosely structured around four key concepts relating to the use of design throughout the organization. The concepts were deliberately broad, to avoid biasing the responses with leading questions. They were i) stakeholder involvement in design activities; ii) design support of the firm's operations; iii) roles of design from strategy to market; iv) evolving contributions of design over time.

To aid the interviews, a set of four diagrams was used to facilitate open-ended questioning and discussion of these concepts (termed graphic elicitation (Crilly *et al.*, 2006)). The purpose of the diagrams was twofold: first, to help explanation of the concepts by the interviewer; second, to be drawn on by the interviewees to complement or clarify their spoken responses. Graphic elicitation is considered especially suitable for discussions with interviewees having high 'visual literacy' as many designers do. These four themes, and the design of the diagrams were informed by a previous study (Stevens *et al.*, 2008b, a).

[insert Figure 2 about here]

Collectively, these themes and diagrams provided a means to consider attitudes and practice of designers and related roles within the case firms. Verbatim transcripts of the interview recordings were analyzed in conjunction with the diagrams, according to a coding structure based on the contributions already outlined. That is, each transcript was coded by identifying

any remarks related to any of these contributions (e.g. Design influencing dependencies in the supply chain).

Case findings

Design skills and services were found to contribute to strategy implementation in many of the ways identified. Some key differences between the case firms were explicitly evident in how they each value and apply design resources.

Competitive Forces

Design used to build market differentiation, customer intimacy and perceived value

Both Alpha and Beta recognize and exploit the strategic importance of design for market differentiation, customer intimacy and perceived value. For Alpha, design helps its clients differentiate themselves, adding value in a variety of markets. In providing this expertise, Alpha shapes perceptions of its own value offering and specialization to potential clients and to the general public. Perceptions of value are reinforced by a consistent brand identity in marketing communications, offices, and other publicly visible elements. In Alpha, design *is the core activity*, reinforced by other market-facing design.

In contrast, Beta uses visible brand expressions to represent its intangible primary activities, in products (such as phone handsets and broadband routers), service interfaces and branded marketing and PR communications.

> 'Design is effectively the point of experience delivery of the network – we call it the last millimetre. It's the interface... to your fingertips, to your ears, to your eyes, and that's where opinions are formed and that's why it's important.' [B-1]

This is especially important for a telecom and networks provider, because most of what they do is intangible; the visible elements are manifestations of the invisible. In Beta, brand and product design primarily *serve the core activity* to shape their customers' perception of it. Beta outsources most design work to agencies, some with long-standing relationships, allowing it to focus on core activities.

Alpha's designers build intimacy with clients by challenging them for a deeper understanding of their motives and needs.

> 'When the client [first] gives you a brief you say 'okay, so what you are trying to do?' to get a deep understanding as what they're *actually* wanting, because we assume that the brief is wrong.' [A-7]

Their design projects are very large and mostly one-off, not for the mass market; market research does not directly drive design decisions, though they are informed by research in long-term social, geo-political and environmental trends. Although large, Alpha is smaller than many of its competitors, and its own differentiation is achieved through its reputation for technical excellence, design and innovation, embodied in the iconic structures they help their clients build.

> 'Broadly, people identify firms with their products... My kids like that I work [on well-known buildings] because they can tell their friends. I think that's about our product, which is design.' [A-3]

There is a sense among respondents that the firm's core essence is design, and this is deeply seated in the firm's culture.

Beta's consumer products are strongly market-driven, informed by extensive market research. Customer focus and design awareness used to be minimal but, thanks to a determined drive in the past decade, are now high throughout the firm. These contribute to Beta's value and reputation in the consumer and corporate markets.

Although designers are involved very little, proportionally, in the firm as a whole, they play an important role as advocates of the customer to the rest of the organization. An example is a initiative started by a team of designers and usability specialists to maintain a consistent graphic language across all the firm's design. It began as a measure to improve usability of phones and other devices (making them easier to learn and remember), but has also served to significantly strengthen brand consistency and recognition.

Alpha and Beta recognize and work towards exploiting the strategic importance of design for market differentiation, customer intimacy and perceived value. Designers are often advocates of the customer, their loyalties divided and

conflicting between customer and firm. Design can play such a role as part of, or in support of, a firm's core activity, and confer competitive advantage through strategic positioning.

Design influencing dependencies in the supply chain

Designers' decisions are recognized in Alpha as having strategic influence over suppliers, both for client projects and for their own infrastructure and operations.

> 'When you have too many [suppliers] you don't receive much respect from any of them... It is important to us that we develop relationships where we're preferred. If you don't do anything you end up with a very fragmented supply chain.' [A-3]

Design activity has also enabled strategic alliances with manufacturer-suppliers, e.g. of lighting and furniture.

Beta recognizes that design must be used to differentiate and add value to their consumer products, to reduce the bargaining power of retailers, i.e. to maintain its margin in competition with unbranded products. Still, for some products, differentiation is sacrificed in favour of a buy-and-badge approach – devices are bought from other manufacturers and customized with Beta branding – to allow rapid entry to market at lower risk.

> 'Because we're trying to get things quickly to market... often a lot of our things are procured in... We're fast followers, we're not first to market. If we see an opportunity... then we'll jump on the bandwagon and follow suit quite quickly.' [B-3]

Design is not evidently used in either Alpha or Beta to deliberately shape the *experiences* of suppliers. However, Alpha recognizes that suppliers may be influenced by the credibility and pride of association with other prestigious or iconic projects. Beta staff identified aspects where design could improve procurement processes, to allow more agile supplier engagement especially for small firms.

Design is seen to shape supply chain dependencies upstream and downstream. Supplier and buyer bargaining power can be influenced by decisions in the design of products, by high profile design output (such as iconic buildings or popular products), and by design-led alliances, resulting in competitive advantage through strategic positioning. These influences are recognized in the

case firms, though may be traded off against other factors such as speed to market.

Strategic fit and value creation

Design integrating and mediating between professional domains

The mediating role of designers is regarded in Alpha as fundamental to its core activity and performance. Multi-disciplinary collaboration is emphasized in sales messages, and appears to be highly valued strategically. Visual tools such as project sketchbooks and models are used for sharing and exploring ideas between professional domains. The firm tries hard to emphasize its unity as an organization in order to attract complex, multidisciplinary design challenges. Such work, in turn, improves the way these disciplines work together.

> 'If you're able to communicate that you are one big group of designers that can solve any problem, that changes the questions that come to you and helps you to become integrated.' [A-5]

Recognition of such a role was not explicitly evident in Beta. However, influential designer mediation was evident in R&D activities and also in consumer product development (by an external agency).

> '[This agency offers] experience platform design and co-ordination... Silos are the enemy of innovation. So a lot of what we do is help companies correct their dysfunctional behaviour relating to poor or distant connections between the marketing and the technical.' [B-1]

Agency designers of consumer products mediate between marketing and technical specialists inside and outside Beta (including suppliers), and between project managers and their senior managers. They may also recognize and connect people in the firm with relevant skills and agendas who may not know one another.

Designers in R&D use visual methods and models to communicate real life applications of novel research and technologies, among other researchers, between researchers and product development teams, and also between product development and external firms and universities. In this way they contribute to the formation of new partnerships in business and

knowledge-sharing among others with a common interest in future applications of communication technologies. Working with scientists and engineers, they advocate innovations relevant to their end users, rather than the pursuit of technology for its own sake.

> 'There are [other] people refining the technology, making it better and better. But designers are useful for reminding people what their technology is for, and what real people will do with it.' [B-6]

Designers are seen to provide mediating roles within and outside a firm, identifying potential partnerships, optimising linkages (fit) and generating new industry vision. Some firms recognize design's role here as strategically important.

Design supporting primary and secondary value activities

As already noted, design is regarded in Alpha as an essential element throughout all primary activities, and more broadly as a unifying process between of all of them. Alpha regards all its Operations activity as design, and also much of its R&D. The value of design is less recognized in support activities, where there is little evidence of a 'design approach'.

> 'The design process... is a very valuable background that is missing in some of the more corporate functions: HR, Management, in-house technology development (if it's not part of project delivery), Marketing, Sales, all these things.' [A-1]

While some areas may have design applied effectively these efforts may be isolated in pockets, not well integrated, despite effort and intention to do so.

Beta has a company-wide program that rewards holistic design, identifying linkages and improving fit between primary value activities. Although the program is not solely the domain of designers, there is ambition to better capture behavioural and subjective aspects of the customer experience, likely to result in more design involvement.

Both firms use and value design expertise in technology development. Design's potential contribution in other secondary value activities is recognized in both firms, but is not evidently practised; some specific concerns were identified (notably in the HR departments

of both firms).

In the two firms discussed, design makes a recognized, valuable contribution supporting value (co-)creators within primary activities, in technology development, and in some other secondary activities, though is not systematically applied or co-ordinated across all secondary activities.

Resources and capabilities

Design shaping and communicating corporate culture

Alpha regards its strong and distinctive corporate culture as an essential contributor to the firm's long-term success; its culture is believed to encourage performance through technical excellence and creative freedom, and is seen as a key factor in staff satisfaction and hence retention. The firm encourages the sharing of experiences among peers wherever they are located.

> 'My role is to sustain and encourage the design culture… A component of that is around wise investment in our skills networks, the prime vehicle for developing and sharing skills and knowledge.' [A-3]

Cultural values, histories and knowledge are communicated and reinforced, both publicly and internally, through graphics and communications, digital interaction design, and interiors and architecture. Design is also regarded as an essential *part of the culture* itself.

> 'We publish and celebrate our work… There may be an element [of arrogance] to it, but I suspect it is actually a genuine celebration of the passion for design.' [A-11]

Beta's Head of Brand believes that designers *cannot* shape culture, and that this is the role of Human Resources managers. However, important elements of the strategic vision are introduced and reinforced in corporate culture through graphic and communications design. Awareness campaigns produced by Corporate Communications teams are run throughout the organization, via intranet, posters and presentations.

> 'The values and strategy type stuff, 'this is what we do as a business', is… part of the architecture of the business… Walk round the building you'll see all kinds of stuff that

relates back to that.' [B-11]

Also, R&D produces concept prototypes that are used internally to articulate Beta's long-term direction, and indirect cultural influence may come from the design of Beta's products and services which express and reinforce the firm's values and purpose.

Design is regarded in some firms as a powerful tool for shaping and communicating corporate culture. It is recognized for its role in creating a shared strategic vision for a learning organization, and for improving employee satisfaction and retention in accordance with the knowledge-based view.

Design in processes and systems of knowledge management

Knowledge management is regarded as critical to Alpha's culture, performance and sustainable advantage. Design is used by the firm's Information Management group to provide a core resource to the primary activities in the firm, combining interactive systems, physical places, graphic and communications design. The firms recognizes design's strategic importance in this respect.

'We have a very deliberate system to make design expertise available through the firm, and actually the system itself was also designed... It's about as good as it gets. It's easy to find people and to find knowledge... Our big challenges are keeping everyone informed, sharing knowledge and continuing building the culture... It's also one of our core values. It's super-important.' [A-4]

Knowledge management in Beta was not examined, so design in this context was not found to be either recognized or applied as a strategic resource.

Well designed knowledge management processes and systems may be regarded as strategically important in some firms, as in Alpha, in accordance with a knowledge-based view.

Design as a tacit knowledge resource: path dependent and hard to imitate

As design is part of Alpha's core activities, the strategic value of tacit design knowledge is recognized as a crucial competitive resource for the firm. It is difficult for competitors to imitate yet difficult to manage as a resource. Alpha's culture nurtures tacit knowledge by

encouraging personal interactions, and learning by example, demonstration and participation, and this is regarded as an essential element of the Alpha culture, as already noted.

> 'In the realm of the more hard-to-capture stuff… in terms of our knowledge strategy, we try to encourage connection between people… because how else are you going to derive that more tacit knowledge than through a person? Because some things can't necessarily be codified or written down or easily communicated in a paper form, or even electronically.' [A-9]

Design activity within Beta is mainly a support activity, as in R&D where it supports technology development. Otherwise external design services are bought in, as is industrial design by the Consumer Products teams. Most tacit design knowledge for consumer products resides then with the agencies, so does not provide strategic advantage in itself. Its value may be recognized in a general sense but considered inappropriate for Beta's fast-follower approach to products. With a few agencies Beta has maintained long relationships, ensuring that acquired tacit knowledge remains available to the firm (and not its competitors). One has worked for Beta for over 20 years, and speaks of having 'led their teams delivering probably about six to seven hundred' of their consumer devices. Such long-standing relationships with agencies may provide a trade-off between knowledge ownership and the burden of its management.

In R&D, design activity plays a role in exploring and translating technology applications, and design knowledge within the group could be described as a tacit resource, with strategic value. Yet this value is not always recognized within the firm. One designer suggests that the value of their activity, as perceived by senior management, can diminish so far that it is almost ignored, or has to be hidden.

> 'We go through periods when design within research is not valued in any respect at all and you're hiding it away… claiming you don't do design, but you do some other thing… It's not regarded that highly [and some senior managers] would much prefer if it wasn't here. They don't see the major value that we actually add.' [B-3]

Firms may prefer to use design agencies rather than in-house teams, but the success of this approach might depend on internal capability to manage the process, to co-ordinate the

relationships with design agencies. Although avoiding the necessity to manage *design knowledge*, this management role itself still requires some design expertise.

Tacit design knowledge may be nurtured as an imperfectly imitable resource, conferring strategic advantage in firms where such knowledge is valuable. In some firms, the value of acquiring and keeping such knowledge may be less than the cost to do so.

Strategic vision

An important contribution to Alpha's strategic decisions comes from its Foresight team, dedicated to understanding possible futures and to bringing these scenarios into the firm's research and strategy consulting activities, as well as to design projects. This foresight activity includes not only analysis and research, drawing on social and physical sciences, but also art and design. Their use of design methods to share and explore ideas is an important differentiator for Alpha from other management and strategy consultants. The foresight stage is considered a valuable precursor to strategy formulation, exploring possible future scenarios in which any strategic plan will exist.

Agency designers involved with Beta's consumer products claim to contribute to discussions about product strategy, and less often, brand strategy. But Beta is a large firm and most of its activity is in provision of networks and telecommunications; consumer product strategies, although important, constitute a small element of corporate strategy as a whole.

There is some scepticism towards the motives and abilities of outside consultants claiming to have strategy expertise. It is suggested that consultants want to do strategy consulting because it is easy money for little work, and many such engagements result in little value. Although it is important to explore long-term ideas with freedom from practical limitations, Beta's Consumer Products teams have to focus on near-term commercial products. Creative exploration must be balanced with core business. Long-term exploration of applications is the remit of R&D, and designers there play an important part.

Stimulating creativity and providing fresh perspectives

Alpha's Foresight team uses design methods to bring creativity to the firm's strategy-making.

Designers from Alpha are invited by their clients to offer ideas and challenging views on strategic-level questions, and even participate in board-level discussions, for clients and for the firm.

> '[We are] helping identify opportunity from a different perspective. Because one of the things that limits you... is an assumption that [something] is impossible. And sometimes an engineering or design view might be... 'that's no longer impossible, so do you want to consider that again because it would transform your industry?' [A-12]

Whereas in Beta, designers may present to the Board, but are not participants; their presentations may serve as visual stimuli, the results of free and creative exploration, but are presented quite formally. Long-term exploration of tech applications is the remit of R&D, and designers there play an important part. Concepts usually involve technologies originating from the R&D research scientists but also from sources outside Beta. These concepts contribute to business leaders' awareness of technical possibilities and of competitor activity, and help generate ideas around long-term options for the firm.

Agency designers involved with Beta's consumer products claim to contribute to discussions about *product* strategy, and less often, brand strategy. Such high-level relationships depend on trust, and the level of engagement varies as personnel change roles. But Beta is a large firm and most activity is in provision of networks and telecommunications; consumer product strategies, although important, constitute a small element of corporate strategy as a whole.

Stimulating creativity and providing fresh perspectives in strategy-making may be achieved through design involvement at board level. This is is evident in Alpha and in Alpha's clients, and to a lesser degree in Beta.

Exploring uncertainty and assessing trade-off through prototyping and visualization

Rather than trying to predict the future, Alpha's Foresight team focuses on understanding many possible futures, and designers use visual media to share and explore them. Although informed by rigorous research, this approach encourages intuitive and judgemental thinking. Clients come to Alpha for this service, but the Foresight team also contributes to Alpha's own strategy making. The use of sketches and drawings, models and prototypes is a key aspect of design practice and related disciplines. It is regarded in Alpha as a vital skill on project work,

and also in strategy consulting. These methods help clients explore possible future scenarios, often specific to their industry sector, e.g. healthcare or the hotel industry.

> 'We've got people... talking with clients and client associations at quite a high level about where is their industry going, where is their business going, what opportunities are there, which is bringing this [role of] helping visualize things strategically.' [A-12]

During strategy workshops, client participants explore ideas by making physical models, which are then used to share concepts with their own design teams:

> '[There are] physical deliverables, it isn't just bullet-point lists of recommendations... Only we could do that compared to other consultants. So that is a differentiator: we are designers.' [A-7]

There is increasing recognition in firm and among their clients that such approaches to understanding possible scenarios is highly valuable for strategy makers.

In Beta, visual designs help senior management make strategic decisions regarding investments in new applications of communications technologies. As already noted, R&D designers play an important role generating and communicating concepts. It is not about merely adding cosmetic gloss to an idea. They use sketches, models and prototypes to 'bring technology to life'; visual flair is of secondary importance to the holistic consideration of these complexities.

> 'Here people aren't interested in whether it looks cool or funky. Sometimes it's a hindrance. The more holistic, strategic we can make something [the better]: IP, potential revenue, and the back story [of] why we've done this initial prototype, they're the important things.' [B-3]

They help senior management make strategic trade-off decisions, and to explore uncertain futures, including softer aspects of human attitudes, behaviour and preference.

Design is being used by firms to consider unpredictable futures. Through visual representations, trade-off decisions may be explored and clarified, and decision makers may draw more on intuitive and judgemental thinking.

Achieving a holistic view of complex systems and a shared strategic vision

Alpha's Foresight designers help represent and communicate complex systems to aid strategy making. In strategic consulting services for its clients, Alpha's strength is said to lie in translating strategic visions into concepts. This is a key strength in differentiating them from other management consultants, and also other engineering firms. Senior designers help translate a strategic plan into a shared vision, a concept which can be assessed and also executed, and this contribution is recognized in Alpha and by its clients. Conceptual thinking is said to flourish at operational level, that is on the design projects themselves, and also at the senior and Board level. Again, the Foresight team provides a visible example:

> '[Our Foresight workshop] has really helped just to get people thinking about some of the bigger issues, and think about how you can innovate around that… it gives people more of a handle to tackle them' [A-7]

In Beta, R&D designers inform strategic decisions by representing complex technologies and systems, addressing the complex systems of new business propositions. When they are taken up by the Board, these concepts may have far-reaching impact on Beta's business, influencing pricing structures or network infrastructure, or creating new businesses for the group.

> '[We generate and communicate] concepts which together might actually create a whole new business case related… [which might] drastically change the strategy for the deployment of wi-fi hotspots across the city, for instance. And will influence potentially even the pricing models…. So these concepts… should influence the core strategy that the company develops and deploys.' [B-3]

Designers help some business leaders visualize complex systems and provide a common vision. This may be achieved with visual representations of products, or with abstracted representations such as conceptual frameworks.

Discussion

There are several existing conceptual models relating to design services and the strategic advantage they may confer. They differ in focus, scope and in their terms and concepts, and there have been no published attempts to consolidate and align them, or relate them to real-world cases. Through case studies of design's use in real firms, this study has aligned these models and related them to industrial practice.

Some firms value and exploit some or all of these contributions; unsurprisingly, different firms have different approaches and priorities, and this framework provides a structure with which to examine these differences. In some cases, even in highly design-capable firms, these contributions may be recognized as important but are not practised; they may be difficult to implement, or may be inappropriate for a firm's strategy or business model.

Comment [j1]: This discussion really is a little light. Are there any results from the case studies that are surprising? Are there any examples where the evidence disagreed with the theory. If the issue is one of emphasis, how does the emphasis vary between the two firms?

Limitations and further work

This study has taken a broad view of what constitutes design activity, and includes various design disciplines, which are often treated distinctly in other studies. This is deliberate, on the premise that design disciplines need to be considered *in toto*, and the strategic contributions identified are not specifically related to single design disciplines. This study was not intended to provide a detailed recipe for successful strategic design, and has not resulted in recommendations or best-practice guidelines. These would require an understanding of the causal factors for the phenomena identified, which are often complex and subtle. These might be the subject of more focused studies, and indeed in some cases already are, as documented in the literature on which this study was based.

One of the main findings of these case studies is that even a firm with strong design culture and focus may not be using design as best it could. The findings show less use of design in the support activities of both firms, despite their awareness of the potential benefits. Exploring this further could bring more clarity to why and how this might be. The case descriptions might provide these firms with useful perspectives on design use, perhaps indicating unknown problem areas they may wish to address themselves.

Returning to the case firms might also provide an opportunity for discussion with senior leaders in the firm. The views of strategy makers in both firms are lacking from the study, and would be valuable additions to a follow-up study. Most executives approached for this study were unable or unwilling to participate. The model derived at this stage might enable better articulation of the study purpose, and therefore prove useful in persuading such involvement.

Exploring more firms moves attention away from the model itself towards specific cases. Perhaps more cases would give useful insights into variations between firms; findings from

using the model may be useful in themselves. The model as it stands is valid as a generalized view, but further work might generate different versions for different business models. The authors recognize that the field of strategic management includes a breadth and depth that is not addressed in these simple summaries of the 'classics' of strategy theory. A deeper examination of specific fields might yield further specific examples of design's contributions to current strategy approaches.

Conclusions

It is often claimed that through strategic design, benefits come not only from *better-designed products and services*, but from *better use of design* throughout the firm. This paper has set out to clarify exactly what this might mean, through the development and testing of a framework that captures the different ways in which design might contribute to strategy formulation and implementation. Case studies from two firms are presented to illustrate the elements of this framework.

Individually, each of these strategic contributions of design is not a new concept in its own right. Much of this previous work presents partial descriptions of design, related to various strategic imperatives. The theoretical contribution of this paper is the consolidation and alignment of these various terms and concepts into one simple framework. The nebulous and collective term 'strategic design' may now be grasped more precisely and broken down into more specific, meaningful categories.

Empirical literature of design management and strategic management uses terminology and concepts specific to these domains, yet this study has identified an important conceptual overlap, and has aligned the concepts there. At this stage, the framework may not be comprehensive. Nonetheless, this study has resulted in a more complete, more comprehensive, empirically grounded conceptual understanding of design's strategic capabilities.

Figures and tables

Table 1: Design contributions to competitive forces, value creation and fit, resources and capabilities, and strategic vision, based on literature of strategic management and design management

Strategic contribution of design	Strategic management literature supporting the importance of the contribution	Design management literature supporting design's capacity to contribute
Competitive Forces		
Building product (or brand) differentiation, and customer intimacy and loyalty.	Porter, 1980, 1985; Treacy & Wiersema, 1993	Blaich & Blaich, 1993; Lorenz, 1990; Olins, 1989
Raising customer perception of signalled value and addressing varied markets	Prahalad & Hamel, 1990; Porter, 1985	
Influencing dependencies on and of suppliers and buyers	Porter, 1980, 1985; Treacy & Wiersema, 1993	–
Strategic fit & value creation		
Integrating and mediating between professional domains, both within the organization (e.g. marketing, production) and outside (e.g. suppliers, partners)	Porter, 1980, 1985; Treacy & Wiersema, 1993	Lorenz, 1994; Fujimoto, 1990; Trueman & Jobber, 1998; Walsh, 1996; Seidel, 2000; Hayes, 1990
Supporting primary and secondary value adding activities	Porter, 1980	Borja de Mozota, 2003; Phillips, 2004; Phatak & Chandron, 1989
Resources & capabilities		
Shaping, communicating and reinforcing an organization's internal culture	Manville & Foote, 1996; Hatch & Schultz, 1997	Jobs, 2000; Borja de Mozota, 2003; Diller *et al.*, 2006: 59; Olson *et al.*, 1998
Improving processes and systems of knowledge management	Wernerfelt, 1984; Barney, 1991; Grant, 1996	Meso & Smith, 2000
Being a tacit knowledge resource: path dependent and hard to imitate	Prahalad & Hamel, 1990; Grant, 1996; Barney, 2001	Borja de Mozota, 2003; Rose *et al.*, 2007
Strategic vision		
Stimulating creativity and providing fresh perspectives in the strategy context	Mintzberg, 1994; Kim & Mauborgne, 2004; Lovallo & Mendonca, 2007	Seidel, 2000; Borja de Mozota, 2003; Diller *et al.*, 2006
Exploring uncertainty and assessing trade-off through prototyping and visualization	Senge, 1990; Hammonds, 2001; Mintzberg, 1994	Kelley, 2002; Liedtka, 2004; Seidel, 2000; Martin, 2009
Achieving a holistic view of complex systems and a shared strategic vision.	Senge, 1990; Mintzberg, 1994	Diller *et al.*, 2006; Rhea, 2008

Table 2: Interview participants from 'Alpha' company

ID code	Role
A-1	Skills Network Leader, Structural Engineer
A-2	Researcher, Foresight
A-3	Director, Civil & Structural Engineer
A-4	Director, Global Leader, Lighting

A-5	Product Designer, Lighting
A-6	Leader, global facade engineering
A-7	Associate Director, Foresight
A-8	Associate Director, Structural Engineer
A-9	Knowledge officer, Information Management
A-10	Associate Director, Human Factors specialist
A-11	Head of Web technology, Information Management
A-12	Associate Director, Materials / Facades Engineer

Table 3: Interview participants from 'Beta' Telco

ID code	Role
B-1	Industrial designer and Chairman, external agency
B-2	Industrial Designer, Research & Development, Technology Development
B-3	Media interfaces designer, Research & Development, Technology Development
B-4	Usability manager
B-5	Propositions manager, Consumer products – Handsets, Consumer Division
B-6	Research manager, Human Factors specialist, Technology Development
B-7	Group Chief Technical Officer
B-8	Propositions manager, Consumer products – Broadband, Consumer Division
B-9	Product Manager, Head of Fixed Line Devices; Strategy, Convergence & Products
B-10	Head of Consumer Affairs and Inclusion, Consumer Division
B-11	Head, Insights Research Centre, Technology Development

Figures:

EXTERNAL
competitive forces

influencing dependencies in the supply chain

building market differentiation, customer intimacy & perceived value

achieving a holistic view of complex systems & shared strategic vision

exploring uncertainty & assessing trade-off through prototyping and visualisation

stimulating creativity & providing fresh perspectives

strategic vision

resources & capabilities

being a tacit knowledge resource

shaping & communicating corporate culture

strategic fit & value creation

integrating & mediating between professional domains

supporting & optimising primary and secondary value activities

INTERNAL
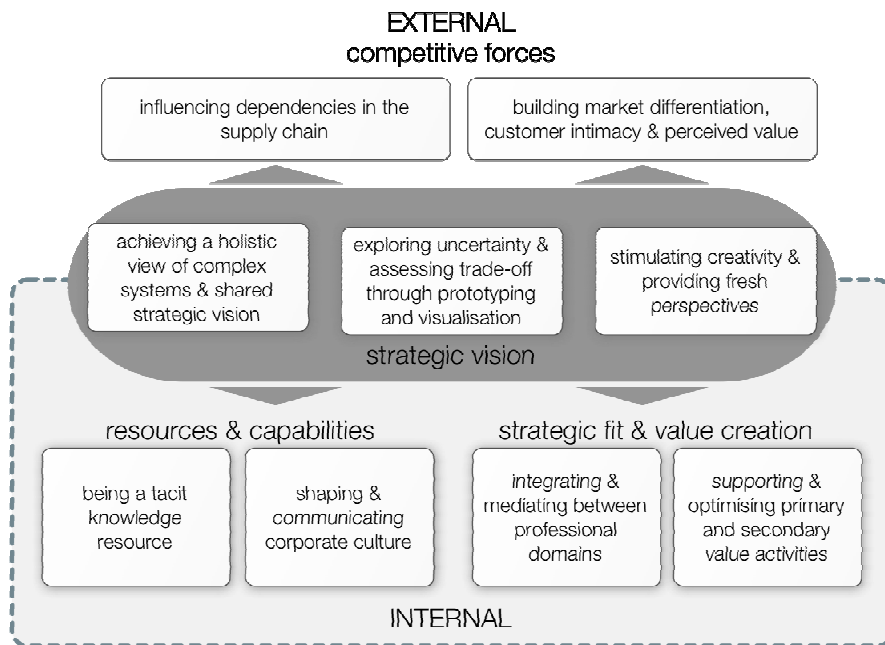
Figure 1: Design contributions to strategy formulation and implementation, based on published empirical literature
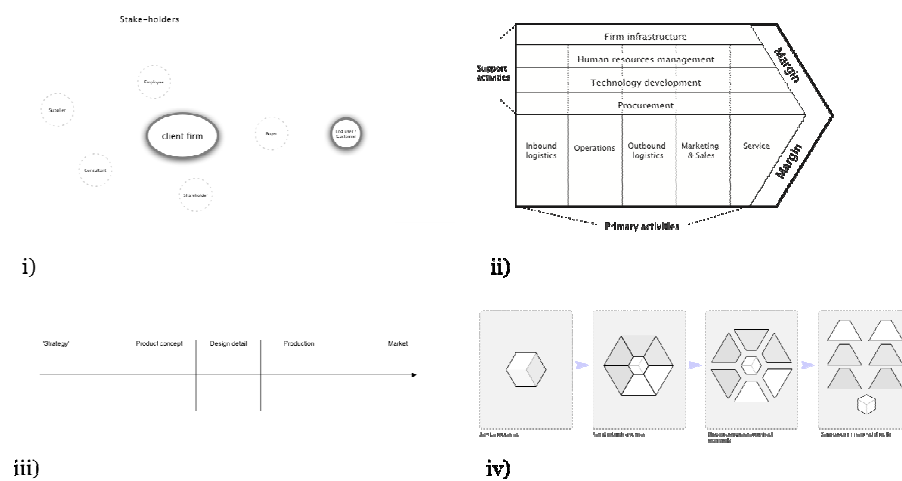

i)

ii)

iii)

iv)

Figure 2: Diagrams used in interviews: i) stakeholder involvement in design activities; ii) design support of the firm's operations (Porter's Value chain); iii) roles of design from strategy to market; iv) evolving contributions of design over time

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EXTERNAL
competitive forces

building market differentiation, customer intimacy & perceived value

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strategic vision

strategic fit & value creation

supporting & optimising primary and secondary value activities

integrating & mediating between professional domains

resources & capabilities

shaping & communicating corporate culture

being a tacit knowledge resource

INTERNAL

i)

Employee

Supplier

Buyer

Organisation

Consultant

Shareholder

End user / Customer

ii)

Margin

Margin

Firm infrastructure

Human resources management

Technology development

Procurement

Inbound logistics

Operations

Outbound logistics

Marketing & Sales

Service

Support activities

Primary activities

iii)

'Strategy'

Product concept

Design detail

Production

Market

iv)

Design Service requested

Remit extends and rises through the organisation

Strategic services are recognised separately

Services are commissioned separately and directly