An investigation of how design-oriented organisations implement design thinking

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Abstract This paper examines how design-oriented organisations implement design thinking to develop design outcomes. An empirical investigation revealed that organisations implement design thinking by: (1) creating and disseminating end-user profiles across the organisation, (2) cultivating organic organisational structures to increase collaborations, (3) using brand image to establish a design language, and (4) factoring in competitors’ design outputs to stimulate design thinking. Design thinking is typically understood as a process that results in many possibilities for innovation. The results of this study offer an alternate understanding of design thinking as a creative process that is structured by these four key implementation schemes.

Keywords design thinking; design orientation; innovation; new product development; grounded theory

Introduction: What is design thinking?

The role of design in marketing management is considered significant from both conceptual and pragmatic standpoints (Moll, Montańa, Guzmán, & Parellada, 2007; Verganti, 2008). Writers emphasise that design is the highest form of creative enterprise for it involves imaginative pursuit of innovation that results in problem solving and customer value creation (Brown, 2009; Martin, 2009). Additionally, firms utilise design to achieve competitive advantages such as the creation of a unified brand experience and differentiation from competitors (Karjalainen & Snelders, 2010; Montańa, Guzmán, & Moll, 2007). As a result, there is an emphasis on design, especially in relation to marketing activities such as product development (Dahl, Chattopadhyay, & Gorn, 1999, Dahl & Moreau, 2002), product packaging (Raghubir & Greenleaf, 2006), and brand logo creation (Henderson & Cote, 1998).

Recently, ‘design thinking’ has entered the language of the design world and continues to draw attention (Brown, 2008, 2009; Brown & Katz, 2011; Lockwood, 2009; Martin, 2009). For instance, Brown (2008) articulates a model of design thinking that calls for the implementation of human-centred thinking into design processes and objects. That is, design-thinking implementation is the actuation of thoughts and beliefs into organisational processes.

Design thinking is related but different from design orientation and design management. Design orientation and design management pertain to the coordination
of the design function with other parts of the organisation (Bruce & Daly, 2007; Moll et al., 2007; Montaña et al., 2007). We define design thinking as the transfer of the organisation’s design philosophy into design activities and outputs.

A comprehensive understanding of design thinking is important to the marketing management process. When managers and designers in an organisation engage in design processes, such as brainstorming during ideation or sketching during concept development, they use the organisation’s design philosophy to reduce design outcomes from infinite possibilities to a select handful that match corporate goals. The literature alludes to several types of design thinking that organisations implement to achieve design outcomes. They include (1) thinking about end-user needs (Brown, 2008; Veryzer & de Mozota, 2005), (2) knowledge brokering (Brockman & Morgan, 2006; Hargadon & Sutton, 1997), (3) thinking about the brand image of the organisation (Noble & Kumar, 2010; Verganti, 2009), and (4) thinking about competitors’ designs (Beverland, Napoli, & Farrelly, 2010; Dell’Era & Verganti, 2007). Yet, there is limited research that provides a systematic framework that integrates the various modes of design thinking.

In light of these studies, an alternate understanding of design thinking is still needed. That is, there is a need for a pluralistic, integrated model of design-thinking implementation. Previous research is centred on singular models of design thinking, such as human-centred thinking (Brown, 2008). There is also rivalling evidence that organisations may implement more than one mode of design thinking during projects (Kelley & Littman, 2006). Finally, an empirical inquiry that involves managers, designers, and a heterogeneous firm sample could advance knowledge in design thinking. Past research has examined discrete populations within organisations such as designer populations or top management (Dahl & Moreau, 2002; Moll et al., 2007; Noble & Kumar, 2010), and focused on firm samples from singular industries (Beverland, 2005; Dell’Era & Verganti, 2007; Magnusson, 2009).

In summary, the focus of this study is to develop a conceptual framework for design thinking, and then to investigate empirically how organisations implement it in actual practice. In doing so, the article will first address the question: ‘What is design thinking?’ This will be followed by a detailed empirical analysis that addresses (1) the dimensions of design thinking, and (2) how organisations implement design thinking to create concepts that match organisational goals.

Conceptual framework

A conceptual framework that outlines how design thinking is implemented in organisations will be presented below. The literature alludes to several types of design thinking that are implemented when organisations develop design outputs such as products, services, and communications: end-user needs, knowledge brokering, brand image, and competitor orientation. Design thinking is often thought of as an open-ended creative process that results in numerous design possibilities. The literature suggests that managers and designers use design thinking to delimit the number of possibilities to a manageable few.

End-user needs

One implementation of design thinking emphasises the unconscious needs and desires of end-users or consumers. Good design thinking identifies problems end-users face
in everyday life and develops innovative solutions that improve human and social conditions (Bayazit, 2004; Dorst, 2006; Johnson, 2004). End-users cannot always articulate their needs. It is up to designers and marketers to observe and think about the end-user while developing product concepts (Johansson & Holm, 2006). This approach is called user-centred design (Veryzer & de Mozota, 2005).

Design ethnography, the integration of ethnographic research in the front end of product development, is one way to discover user needs and stimulate innovation (Griffiths-Hermans & Grover, 2006; Rosenthal & Capper, 2006). Through design ethnography, two aspects of design thinking can be stimulated: (1) serendipitous design opportunities that are not obvious, and (2) unconscious needs and desires of consumers.

Studies show that user-centred design thinking results in benefits for organisations. User-oriented design enhances collaborative new product-development process, improves idea generation, results in superior products, and facilitates product appropriateness and adoption (Veryzer & de Mozota, 2005). Additionally, applying user-centred design during new product development can result in more useful, original, and appealing product concepts (Dahl et al., 1999).

Knowledge brokering

Knowledge brokering is a type of design thinking that involves transferring thoughts, ideas, and solutions from one context to another to achieve radical innovation. The literature identifies three types of knowledge brokering. The first is technology brokering – the cross-pollination of technology from different industries (Hargadon & Sutton, 1997). Essentially, technology brokering is a form of across-firm or across-industry design thinking. For instance, IDEO developed a water bottle that used a leak-proof nozzle based on shampoo-bottle designs. The second type of knowledge brokering involves intra-disciplinary collaborations and cross-functional teams within a firm (Brockman & Morgan, 2006). For example, engineers may provide solutions to marketers (or vice versa) that can result in innovation. Finally, the third kind of knowledge brokering is analogical thinking – the transference of knowledge from one base domain to another (Kalogerakis, Lüthje, & Herstatt, 2010). For example, designers at Continuum used the grills of luxury sports cars to inspire the grill plates on the Fuego BBQ grill.

Research supports the notion that knowledge brokering increases innovation. For instance, scholars have established a positive relationship between intra-disciplinary cohesion and innovation quality and quantity (Björk & Magnusson, 2009; Brockman & Morgan, 2006; Nakata & Im, 2010). However, Ainamo (2007) provides a more sobering account: The positive outcomes of cross-functional teams are not universal but contingent upon the type of customers and technologies by which customers are served. Moreover, research establishes a positive correlation between the number of analogies used and product originality (Dahl & Moreau, 2002; McWilliams & Dumas, 1997). Analogical thinking also has certain efficacies, such as increasing solution novelty, fostering intra-team communications, and shortening project durations (Kalogerakis et al., 2010).

Brand image

Another implementation of design thinking involves using brand image to structure design languages (Montaña et al., 2007). Brand image is the set of associations
linked to the brand that consumers hold in memory (Keller, 1993, p. 2; also see Aaker & Keller, 1990). Brand image is developed through brand ‘levers’, which are actionable dimensions, features, and general product attributes that a design team can manipulate in creating a product (Noble & Kumar, 2010, p. 645). These levers include elements such as colour, texture, shape, material, and symbols, which are used to distinguish a company’s brand logos, product lines, and overall brand image.

The use of brand image in design thinking has been called ‘design-driven innovation’, a design-implementation strategy that encourages pushing ‘a firm’s vision about possible new product meanings and languages’ (Verganti, 2008, p. 436) and ‘propose[s] innovations that radically redefine what a product means for a customer’ (p. 437). According to Verganti, using brand image in design thinking is characteristic of firms with an innovator positioning, who focus on radical innovation (vs. iterative improvement) and the generation of new product meanings. There is also evidence that differently positioned firms leverage their brand image in design. For instance, me-too follower firms and craft-oriented firms also express their brand image through design outputs (Beverland et al., 2010).

**Competitor orientation**

A competitor orientation is the ability of an organisation to identify, analyse, and respond to competitors’ actions (Moll et al., 2007). This orientation helps firms to lower costs, thereby increasing the commercial performance of innovation and overall firm performance (Noble, Sinha, & Kumar, 2002).

One common expression of competitor orientation is aesthetic differentiation from competitors. A popular tool is the design audit, where marketers and designers identify competing concepts, compile their features, and outline design opportunities (Phillips, 2004). Innovator brands will often implement design audits to maximise differentiation from competitors.

Another expression of competitor orientation is imitation, where a market-driven brand copies category leaders to minimise production costs (Beverland et al., 2010). Research has found that a competitor orientation increases the introduction of me-too products, and reduces the likelihood of line extensions and innovation (Lukas & Ferrell, 2000). However, Dell’Era and Verganti (2007) found the opposite – imitator brands (vs. innovator brands) exhibited more variation with respect to product languages.

In summary, design thinking is an important function of the new product-development and marketing process. The diverse streams of research provide various perspectives on design-thinking implementation, but a pluralistic model that (1) identifies dimensions of design thinking and (2) examines how organisations implement design thinking is needed to advance knowledge in this area.

**Methodology**

**Sample and recruitment**

To investigate how design-oriented organisations implement design thinking to meet organisational goals, a qualitative methodology was adopted. Purposive sampling – the selection of subjects based on a particular characteristic – was used to recruit a
set of organisations listed in the Core 77 directory, an international database linked to the design industries (Gummesson, 2000). Recruitment letters were written to senior personnel (e.g. president, managers, and designers) in organisations that listed their contact information in Core 77. Thirteen organisations responded with interest in participating in the study. For an in-depth qualitative study, this is an adequate sample (Golafshani, 2003).

Table 1 displays the final sample. The names of the organisations are recoded to protect confidentiality. Six of the organisations are major consumer product companies whose main outputs are computer hardware accessories, toys, sporting equipment, and apparel. The consumer product firms are multinational companies with worldwide locations and distribution of products. The products produced by these organisations represent a wide range of aesthetic styles. The sample also includes seven design consultancies that work with the world’s largest brands to develop products, packaging, and branding. The works produced by these consultancies also exhibit a diverse range of outputs and visual styles.

Firm representatives were chosen based on their work experience and their role in harnessing the marketing practices of the organisation. In-depth interviews were conducted with senior-level managers and senior-level designers across the 13 organisations. It was at the senior management and senior design levels that design thinking was developed and implemented. In particular, senior-level designers represented an ideal mix of responsibilities in design and marketing. They interfaced with senior management, conducted field research, managed their own teams, conveyed customer wants and needs to junior designers, and constructed marketing communications.

Data collection

The main mode of data collection was long, semi-structured interviews (McCracken, 1988) conducted by the principal researcher. The interviews lasted between 90 and 160 minutes. The Appendix displays the question protocol. Each session started with grand tour questions that covered the organisation’s history. As interviews progressed, more guided questions were directed to uncover the structure of the organisation, the relationship between the marketing and design departments, a detailed walkthrough of the development of a design concept, and information about the organisations’ design thinking.

The interviews ended with photo elicitation, a projective technique that asked respondents to respond to a visual image. A commonly used variation of photo elicitation is the auto-driving technique, where informants comment on photographs of themselves captured in activity rituals (Heisley & Levy, 1991). The photo elicitation was ‘modified’ because informants were asked about visual images of their own products and competitor products that were self-selected before the interview. The respondents were probed on what they thought about the designs. The goal of the exercise was to generate even more textual information beyond responses to the interview questions and to tap into the underlying design thinking of each organisation.

After each interview, researchers’ notes were prepared that expressed impressions about each organisation, the informant, the organisation’s design thinking, design processes, organisational structure, and product aesthetics.
### Table 1: Organisation profiles.

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Description</th>
<th>Informant(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ant Farm Toys</td>
<td>Educational toy company that oversees five brands and more than 50 products.</td>
<td>Product Manager</td>
</tr>
<tr>
<td>CaseGood</td>
<td>Market leader in portable electronics and computer accessories with more than $1 billion in annual sales.</td>
<td>Project Manager and two Industrial Designers</td>
</tr>
<tr>
<td>Checkerboard</td>
<td>Premiere skate shoe and apparel brand; also a market leader in water sports, snowboarding, and biking products.</td>
<td>Senior Product Designer</td>
</tr>
<tr>
<td>Open View Hardware</td>
<td>The hardware division of the world's largest computer software developer.</td>
<td>Project Manager</td>
</tr>
<tr>
<td>Red Tag Toys</td>
<td>The dolls division of the premiere toy company in the world.</td>
<td>Senior Designer</td>
</tr>
<tr>
<td>Identity Shoes</td>
<td>The online division of a premiere athletic shoe brand, which allows self-customisation of shoes.</td>
<td>Lead Designer</td>
</tr>
<tr>
<td>Azereus Design</td>
<td>Design consultancy that specialises in the development of human performance products.</td>
<td>President</td>
</tr>
<tr>
<td>CGC Creative</td>
<td>Graphics communication and interactive design boutique whose clients include H&amp;R Block, Universal Studios, and Enchiladas Restaurants.</td>
<td>President</td>
</tr>
<tr>
<td>Oxygen Design</td>
<td>Design consultancy whose clients include Ford Motorcars, Nike, and Black and Decker</td>
<td>President</td>
</tr>
<tr>
<td>2D Studio</td>
<td>Design consultancy that specialises in consumer and medical products that establish an intimate relationship with the user.</td>
<td>Industrial Designer</td>
</tr>
<tr>
<td>Masterson Creative</td>
<td>Design studio specialising in brand and identity development. Clients include Coca-Cola and major music recording artists.</td>
<td>President</td>
</tr>
<tr>
<td>Stewart Design</td>
<td>World-renowned industrial design consultancy distinguished by its research-driven approach to design. Clients include CaseGood, Volvo, and major medical device companies.</td>
<td>Two Designers</td>
</tr>
<tr>
<td>Zebra Design</td>
<td>An internationally recognised consultancy distinguished by its research-driven approach to design. Clients include a host of Fortune 100 companies.</td>
<td>Design Researcher</td>
</tr>
</tbody>
</table>

The researchers continued to collect data until they reached a saturation point when no new themes emerged from the data (Golafshani, 2003; Strauss & Corbin, 2008). Sixteen interviews were conducted across the 13 firms. All interviews, photos, and researchers' notes were transcribed and converted to text. The sum total of data
is more than 24 hours of digitally recorded audio, 1100 double-spaced pages of text, and more than 150 photographs.

**Data analysis**

Interviews and other data were converted to text and subjected to grounded theory analysis (Strauss & Corbin, 2008). Grounded theory is a micro-structural approach towards the analysis of qualitative, textual data. It involves the reconstruction of textual data into categories, reconstruction of categorical data into higher-order patterns, and model development from prolonged exposure and thought surrounding data patterns (Moisander & Valtonen, 2006; Strauss & Corbin, 2008).

Researchers coded the data using the three iterative analytic stages of grounded theory. In open coding, concepts and categories in the data were identified, and their properties and dimensions decomposed. Using Max QDA, a qualitative analysis software, researchers categorised units of data by assigning codes to interview text. For instance, they coded textual fragments with names such as ‘focus on end-users’, ‘create imaginary customer profiles’, and ‘disseminate end-user needs’. Open coding resulted in more than 900 such categories related to design thinking. The software was helpful in organising the data, and allowed researchers to search and filter quickly through the 900 analytical categories. Furthermore, Max QDA documented code frequencies, provided cross-code analysis, and decreased the search costs of looking for individual textual fragments.

In axial coding, categories were related to their subcategories and linked at the level of properties and dimensions. Conceptually similar codes were aggregated into larger analytical categories. For instance, subcategories ‘focus on end-users’, ‘create imaginary customer profiles’, ‘disseminate end-user needs’, and other similar codes were coalesced into a larger category named ‘create and disseminate end-user profiles across the organisation’. Then, researchers evaluated the extent to which each firm expressed each category. For instance, researchers discovered that all organisations in the sample rated high on the ‘create and disseminate end-user profiles across the firm’ dimension. Using these laddering techniques, researchers reduced the 900 open codes to a manageable quantity. Even in reduced form, the data set was expansive, with many analytical codes pertaining to topics other than design thinking. Designers selected the five core categories relevant to design thinking for the final coding phase.

Finally, in selective coding, researchers expanded the relationship between the five core categories through rounds of iterative writing. That is, researchers iteratively reflected back on previous theories for guidance on the relationship between categories (Gummesson, 2000; McCracken, 1988).

**Findings**

Overall, the findings reveal that there are many factors involved in design thinking, including designers, managers, end-users, and competitors. More importantly, as described below, marketing organisations engage in various strategic design activities: (a) implement multiple modes of design thinking, (b) create end-user profiles to develop concepts that match organisational goals, (c) cultivate organic organisational forms to increase collaborations, (d) use brand image to establish a design language, and (e) factor in competitors’ design outputs to stimulate design thinking.
Multiple modes of design thinking in design-oriented organisations

The empirical investigation began with an examination of the types of design thinking organisations implement to develop design outcomes. Past literature identifies singular modes of design thinking, including user-centred design (Brown, 2008; Veryzer & de Mozota, 2005), brand-oriented design (Noble & Kumar, 2010; Verganti, 2008), and a competitor orientation (Dell’Era & Verganti, 2007). Based on the empirical inquiry, no organisation implements just one type of design thinking.

To generate design concepts, each organisation develops its own design-thinking mixture, which incorporates elements of user-centred design, emphasising brand image, fostering collaborations, and adopting a competitor orientation. For example, Stewart Design promotes user-centred design, but also endorses discovering form languages for its design concepts that communicate brand image (design-driven innovation), and minimising the use of non-biodegradable resources in production (green design).

Although different combinations of design thinking are implemented within each organisation, there are several common themes across organisations. First, all organisations follow a variation of the problem-solving approach, which emphasises discovering problems faced by consumers and providing value through problem solving. This problem-solving approach to design is made salient when firm representatives issue statements similar to the one below:

Design integrates solutions that address the needs of different stakeholders who are involved with the product. When a product is designed to speak directly to the end-user, the end-users benefit from its function as well as its emotional rewards. A successful product targets end-users’ functional needs and emotional needs. In turn [this] helps build long-term brand loyalty to make more money for the company. [Zebra Design]

Second, organisations favour ‘modern’ aesthetics, characterised by the minimisation of ornamentation, an emphasis on material, and basic colour schemes. The Modern aesthetic is applied in a variety of design concepts, including logos, products, and packaging. It is also prevalent across industrial categories, including high-tech, accessories, toys, fashion, and graphic design.

Third, many factors are involved in design thinking. Designers who work in the organisation are the frontline of design thinking and implementation. But end-users, organic organisational structures, brand image, and competitors also have roles in shaping organisations’ design thinking.

Thus, the initial examination contributes to the literature by outlining a pluralistic model that captures the multiple modes of design thinking implemented by design-oriented organisations. The rest of the findings section will be devoted to outlining the role of these factors in this model of design thinking.

Create and disseminate end-user profiles across the organisation

Creating and disseminating information on end-users is a key aspect of design (Moll et al., 2007; Rosenthal & Capper, 2006; Veryzer & de Mozota, 2005). All members of the organisational sample, including top management, marketing managers, designers, and engineers, endorse a user-centred approach to design.
The importance of end-user requirements is captured in statements similar to the one below:

A success of any design can be evaluated from its relevance to the people it is intended for. Good design begins and ends with the end-users. A good designer is an end-user advocate in the [contemporary] business world. (Zebra Design)

*End-user profiles as platforms for design thinking.*

Although most firm representatives cite end-user research as important, very few organisations actually implement end-user research because it is too costly and time intensive. Furthermore, firms are sceptical about the value of end-user feedback in generating ideas that leads to innovative design concepts. According to one design researcher:

I personally think [focus group research] needs to be taken with a grain of salt. I think all research is to inform, but not to help make decisions for you. At some point, you need to realise that if you want to be innovative, you are creating products that people have never seen, people have never experienced. Ask people 12 years ago, they'll say, 'I don't need cell phones'. Nobody can live without cell phones now. Imagine the focus group that that has to go through.

Instead, organisations favour *end-user profiles*, imaginary portraits of target customers, which display their lifestyle, consumption preferences, fashion sensibilities, and demographic make-up. These profiles are used as platforms to stimulate design thinking. A designer at Stewart Design, a renowned design consultancy, explains the implementation of end-user profiles:

We worked on a laptop for [a brand computer company] a while back. We had to go on Flickr and create semi-realistic profiles to use as people who would actually use this product going into design. One day, we just found this girl who was the perfect user. We dissected her profile, and printed out every picture that she took and that’s the platform that we stood on. We used a lot of imagery and life experience. We tried to inject some of those experiences into the design that we came up with: she liked to go to concerts, and she liked to travel, she had a two-year-old daughter. All those things hit us. (Stewart Design)

*Disseminating end-user profiles in the organisation*

End-user profiles disseminate to the rest of the organisation in several stages. Oftentimes, these profiles have roots in the marketing department, where customer intelligence is harvested. Marketing managers package customer intelligence into design briefs, which go to lead representatives in the sales and design departments who use them to develop spec sheets for client campaigns and design concepts. Designers receive the information and performed further research to refine the profile and better understand end-users’ needs.

End-user profiles have two important functions with respect to design thinking. First, end-user profiles are used to validate or invalidate design concepts during iterative stages of concept development. During design reviews at OpenView Hardware and Red Tag Toys, design concepts for computing equipment and children’s toys are selected based on whether those concepts match requirements
identified in end-user profiles. In other words, end-user requirements are filters that organisations use to guide and refine their design thinking. Second, end-user profiles provide justification for design decisions to clients and upper management. According to one designer:

To some extent, the [customer] research is an insurance policy. When we present designs and the client says, 'Why did you do that? Why did you make that decision?', we can refer back to the research. 'We interviewed people and that is what they wanted'. It's a safety net for us to fall back on, just in case we are in that situation with the client. Stories that we go back to when the final design is chosen, just so we can say, 'We are doing our homework . . . we are not pulling this out of the air at the last minute'. [Stewart Design]

In summary, the results show that organisations do not perform primary, end-user research as prescribed by the literature (Rosenthal & Capper, 2006; Veryzer & de Mozota, 2005). Instead, they prefer the use of imaginary, end-user profiles to stimulate design outputs. Thus, the findings attenuate the immediacy of performing end-user research. Additionally, the finding that organisations disseminate end-user information supports the notion that design and conventional marketing are parallel disciplines focused on the same goal (Johansson & Holm, 2006). The implication is that design and marketing functions can be coordinated to create even more value to end-users (Montaña et al., 2007).

*Cultivate 'organic' organisational forms to increase collaborations*

Although past research shows that design-oriented organisations coordinate the marketing and design functions to develop superior design outcomes, the mechanisms that mediate the cross-functional collaborations between marketing and design remain unclear (Bruce & Daly, 2007; Montaña et al., 2007). The findings show that organisations cultivate ‘organic’ organisational forms to increase collaborations, which in turn stimulate design thinking.

An ‘organic’ composition is set in opposition to structured organisations that follow highly rational procedures. In structured organisations, design thinking starts at top management and the marketing department, which stipulate the product specifications in a formal design brief. The brief passes down the chain of production until it reaches the design department, where the work is divided up among specialised designers, such as sketchers, modellers, and colourists. On the other hand, ‘organic’ forms invoke a system of flexibility, holism, equality, emergence, and free flow. Respondents in eight organisations referred to recent shifts in their organisations towards organic arrangements characterised by role convergence and flattened hierarchies.

*Role convergence* characterises an organic organisational structure. Designers perform tasks that are normally attributed to marketers, such as conducting customer research, interacting with clients and retailers, and performing competitor analyses. At the same time, marketers absorb tasks of designers, including iterative sketching and prototyping, producing design briefs, and preparing concepts for manufacturing. In other words, each individual adopts the coalesced roles of marketer, designer, client liaison, and customer researcher. According to a senior designer at Red Tag Toys, role convergence — particularly that of designer and customer researcher — is integral to a holistic workflow and achievement of innovative product concepts:
I actually think that the best design results from design research. I think that it would be focusing on ethnographic research. That designers would really be researchers. From that information, they would be able to do some forecasting and they would see holes in the market that are not being fulfilled. How can they then design something to fill that niche that nobody is filling? I think that is the best way to create products that nobody else has seen’. [Red Tag Toys]

*Flattened hierarchies* are consequences of role convergence. According to a CaseGood representative, without the restrictions of traditional power barriers, ‘now everybody’s got to be able to contribute ideas’, which means that all individuals are accountable for design thinking. Interdepartmental barriers are relaxed, hierarchical structures between designer and marketing managers are attenuated, employees ‘could talk to bosses’, and many individuals have the power to accept and veto projects. A 2D Studio representative expresses similar sentiments:

Collaborative, open. You don’t have any sort of structure where you can’t go talk to the boss or talk to anyone so it’s a very family kind of knit organisation, which allows you to accomplish a lot. Everyone here is given a lot of tasks and a lot of responsibility. It migrates into different areas which is beneficial for a lot of the projects we work on. [2D Studio]

Overall, these findings provide evidence that organic, organisational forms enhance design thinking. Specifically, role convergence and flattened hierarchies mediate cross-functional collaborations between marketing, design, and other functions within organisations. The breakdown of barriers between disparate organisational functions allows for cross-pollination of ideas and solutions, a key ingredient for innovative design thinking (Hargadon & Sutton, 1997; Nakata & Im, 2010).

**Use brand image to establish a design language**

The literature shows that organisations use brand image – elements such as colour, symbols, and forms – to develop a design language that unifies their products and marketing communications (Noble & Kumar, 2010; Verganti, 2008). The results of the empirical inquiry support the literature in this regard.

**Establishing brand image**

The brand images represented in the research sample are diverse. Each organisation has a brand image, which is communicated through design concepts such as the brand logo, packaging, design concepts, and marketing communications. These values are important because they delineate the boundary limits of the brand and differentiate the organisation from competitors. The heterogeneous firm sample features brands that have different market positioning and thus different values. But one set of values that is consistent with the problem-solving ethos of design is illustrated by CaseGood:

> When you see [a CaseGood product], it is very intuitive. It is an intuitive product. When you see it, you know what it is ... it’s not overly decorated. It’s very simple and pure. And basically, it is very user-friendly design. I think those three: intuitive, simple in aesthetics, and user-centric. I think those are values that lead to CaseGood’s design language’. [CaseGood]
Establishing oppositional brand image

Oppositional brand image is attributes, characteristics, and messages that convey what the brand is not. Zebra Design is known for its simple aesthetics and functionalism. Their design researcher outlines an oppositional brand image that is inconsistent with the brand:

"It's not edgy. It's not flashy. It's a lot about sensibility. It's constrained. It's not about slapping you in the face with the product. It's about being kind of quiet. [Zebra Design]"

Similarly, images that represent the CaseGood brand – intuition, simplicity, and user-centricity – create boundary limits for design concepts. Employees in the organisation recognise that CaseGood’s concepts should be contained by a minimalist aesthetic characterised by monochromatic colour schemes, clean lines, and minimisation of ornamentation. Conversely, extrusive elements, expressive colours, and decorative patterns were inconsistent with CaseGood’s brand image. A CaseGood representative explains the oppositional brand image:

"It should be pure; it should be simple and be mature as well. So we can’t just go out there and make a leopard-spotted case. Because people would be like, ‘What the hell is this? This has nothing to do with CaseGood. What does this leopard-spotted case have to do with USB cables, routers, and networking devices?’ So we have to be conscious about it. We can’t just go all out and represent the extreme. But where possible, we can do subtle things . . . For us, we are a company that is simple. We are not going to add polka dots and reflective glow in the dark material because we can. [CaseGood]"

Linking brand image with a design language

A design language emerges when the brand image is implemented and systematically repeated in design outputs. For example, the skate heritage of Checker is embodied by its famous checkerboard pattern, which is printed in its logo, shoes, apparel, and skate accessories. OpenView Hardware is an organisation known for its high-tech and high-performance concepts. These values are expressed by the streamlined, machine aesthetic of its packaging and design concepts. Finally, Masterson Creative is a consultancy known for its expressive designs. These values are represented in its colourful and expressive graphic work and packaging designs.

Design languages provide a vocabulary for representatives to constrain design thinking. According to respondents, design concepts are comparatively easier to generate when given parameters with which to work. The president of CGC Creative and 2D Studios (design consultancies) finds it ‘frustrating’ when clients cannot articulate their brand image because they then faced infinite design possibilities. In this regard, brand image and design languages are important because they delimit decision making to choices consistent with the brand. The president of Oxygen Design explains:

"If you start developing [brand image] correctly, it becomes a filter. And it almost becomes a 'go/no-go switch'. Because you are able to go to design reviews with ammunition, experience, and information that is less about your own emotion and more about the emotions of the brand. [Oxygen Design]"
The same case also applies to manufacturing firms. The president at Masterson Creative iteratively performs crosschecks to ensure design concepts are aligned with Masterson’s brand image:

I did a lot of making sure that all of the finishes matched and looked cohesive. I guess there is always kind of a check process where you are coming up with concepts but then you are running it through this filter – okay, did I make this more difficult for the user to use? Does it look like a Masterson Creative product? Does it look intuitive? Is it easy to use? So you are always filtering that concept against those criteria. (Masterson Creative)

In summary, the findings support past literature that shows that organisations manage an internal design language by repeating brand image through symbols, colours, and forms in products and marketing communications.

**Factor in competitors’ design outputs to stimulate design thinking**

In addition to honing their own design language, organisations source competitors’ designs to stimulate their own design thinking. In the literature, this is known as a competitor orientation, a marketing strategy that promotes a reflexive reaction to competitors as the basis of competitive advantage (Armstrong & Collopy, 1996). The literature identifies two types of competitor orientation: (1) differentiation from competitors (Beverland et al., 2010), and (2) imitation of competitors (Dell’Era & Verganti, 2007). In this study, organisations favour differentiation from competitors, while lambasting imitation. For instance, the president of Azereus Design castigates vendors who imitate designs as ‘the Anti-Christ of Design’. Consistent with an innovator brand positioning, a senior designer at Red Tag Toys summarises the value system centred on differentiation:

We will never take what [competitors] do and try to do it better. That is a concept that has been done and it’s over. By the time it gets to market, it is so outdated, it’s not worth doing that. A lot of companies do that, but that is not being an innovator. (Red Tag Toys)

**Avoidance of competitor design cues**

There are two techniques organisations implement to avoid competitor design cues. The first is the competitor analysis, where competing design outputs are collected and analysed. If the design goal is a brand logo, then competitor brand logos are pooled into a brief and reviewed by the management and design teams. The goal of the exercise is to identify the defining features of competitor concepts in order to avoid them. Using a product context, one respondent explains this strategy:

After the brief, I look at what other competitors are using so that I’ll be aware of what to avoid. If I create something like that, it’s going to look like this guy’s. Or something that has a translucent top with LEDs and a bright cloaks, I should avoid that too because that is already taken. (CaseGood)

The second technique organisations use to avoid competitor design cues is perceptual maps. Perceptual maps began with the identification of two dimensions, such as price and lifestyle. Designers lay out current market offerings along these
two dimensions to identify saturation points and voids in the marketplace. A project manager at OpenView Hardware describes this process:

We lay out keyboards in different quadrants, and some in between, and see where a void is – where opportunities may be. If we look at the keyboard market right now with [our competitor], they have some keyboards that are very minimal, sleek, and high end, and they have keyboards that are very bulky and ergonomic driven that are very curvy and complex, and they have some in between. If you look at our keyboards, you’ll see a lot of comfort driven, very complex and organic, bulky keyboards that are comfortable. But we don’t have any keyboards that are satisfying that minimalist, sleek keyboard language that some people may want. So we use [these maps] as a tool to communicate where we want to go. (OpenView Hardware)

In summary, the findings show that organisations factor in competitors’ design outputs and engage in design activities to differentiate themselves from competitors. Thus, the results support existing literature that shows that design-oriented firms favour differentiation (Karjalainen & Snelders, 2010; Noble & Kumar, 2010). There is no evidence that organisations followed imitation strategies in the current sample, although scholars have shown that me-too design strategies do exist in the design industries (Dell’Era & Verganti, 2007). Clearly, the strong competitor orientation inherent in conventional marketing (Armstrong & Collopy, 1996) is also present in the design discipline. Thus, Johansson and Holm’s (1996) assertion that marketing and design are parallel discourses is supported.

**Discussion**

The objective of this study is to examine how design-oriented organisations implement design thinking to develop concepts that meet organisational goals. Figure 1 visualises the model from the empirical analysis. As shown in the empirical work, design-oriented organisations implement design thinking by (1) employing multiple modes of design thinking, (2) disseminating end-user profiles across the organisation, (3) cultivating organic organisational forms to increase collaborations, (4) using the brand to establish a design language, and (5) factoring in competitors’ design outputs to stimulate design thinking. The model captures the myriad ways that organisations implement design thinking, as opposed to emphasising one form of design thinking, which has been the focus of many previous studies (Brown, 2008; Hargadon & Sutton, 1997; Verganti, 2008; Veryzer & de Mozota, 2005).

**Implications for design orientation, design management, and design-thinking research**

Overall, this study extends the literature on design orientation and design management by introducing a model identifying four forms of design thinking that are implemented to meet organisational goals. Past studies on design orientation and design management pertain to the coordination of cross-disciplinary functions within the organisation and analysing the relationship between design and marketing disciplines (Bruce & Daly, 2007; Johansson & Holm, 2006; Moll et al., 2007; Montafon et al., 2007). However, the design-orientation and design-management
Figure 1 Design-thinking implementation.

Literatures produce few insights on the mobilisation of design thinking in practice. For instance, Montañà et al. (2007) argue that ‘design can be involved’ in new concept generation, design strategy, resources, and implementation (p. 832). The current study proposes a model of design thinking that describes the transfer of organisational design philosophies into design processes and outputs.

The pluralistic model of design-thinking implementation (Figure 1) represents a contribution to the design-thinking literature. Past research focuses on singular models of design thinking, such as user-centred design (Brown, 2008). The pluralistic model supports practitioners’ assertion that organisations may use multiple forms of design approaches to achieve innovation (Kelley & Littman, 2006).

The focus on singular forms of design thinking in past research may be a consequence of homogenous sampling procedures. Previous studies on design thinking centre on firm samples from a single industry, such as furniture (Dell’Era & Verganti, 2007), wine (Beverland, 2005), or technology (Magnusson, 2009). Additionally, past researchers have chosen to interview discrete populations within the organisation, such as managers only (Moll et al., 2007) or designers only (Noble & Kumar, 2010). The design-thinking model in the current study is derived from a heterogeneous firm sample comprised of both managers and designers.
Implications for design research

Design thinking is typically understood as an expansive, free-flow process that results in infinite possibilities for innovation. The results from this study offer an alternate understanding of design thinking as a creative yet reductive process that is structured by four key filters. Overall, the findings support the assertion that imposing constraints and limiting design alternatives can bolster creative processing and innovation (Miaskiewicz & Kozar, 2011; Moreau & Dahl, 2005). Where previous studies focus on end-user level constraints (Brown, 2008), the findings in this study suggest that there is also brand-level, competitor, and collaborative constraints that filter and facilitate design thinking.

The results show that organisations favour the use of imaginary end-user profiles as a platform for design thinking, as opposed to actual end-user research. The rationale for end-user profiles is twofold. First, organisations are sceptical of the role of end-user feedback in terms of generating innovation. This sentiment is consistent with research that found that ordinary users provide very little actionable feedback that contributes to innovation (Magnusson, 2009). Second, organisations are reluctant to engage in end-user research because it can be costly in terms of time and money. Organisations feel imaginary end-user profiles are sufficient substitutes for thinking about end-user needs. This notion is buttressed by past studies that show ‘thinking about the end-user’ (vs. end-user research) has a positive effect on the usefulness, originality, and appeal of product concepts (Dahl et al., 1999). As a result, the findings in this study attenuate the call to implement user-centred approaches exclusively (Veryzer & de Mozota, 2005).

Organisations increase collaborative design thinking by cultivating organic structures characterised by role convergence and flattened hierarchies. The barrier between marketers and designers is becoming fuzzy as marketers gain a more integral role in structuring design thinking, and designers are incorporating more marketer functions in their duties. In the literature, the blurring of disciplinary boundaries is viewed as a positive outcome; intra-disciplinary thinking is a form knowledge brokering that increase innovation quality (Nakata & Im, 2010). Thus, the current study supports findings from the literature on cross-functional teams. Previous literature indicates that analogical thinking is a prevalent type of design thinking (Dahl & Moreau, 2002; Kalogerakis et al., 2010). However, there are only limited mentions of analogical thinking in the data. It may be that analogical thinking is a designer-level practice as opposed to a firm-level practice, which is the scope of the empirical inquiry. Designer populations may have values and practices that are independent of the organisation for which they work (Beverland, 2005).

The findings stress the importance of implementing brand image in design thinking. Brand image is the symbolic resource that communicates core messages of the organisation and provides boundary limits for design-related decisions. Organisations use brand image to reduce an infinite range of design decisions to a more manageable range of decisions. Only concepts that are aligned with core brand image are considered. A unified design language emerges when the brand image is embodied and systematically repeated in design concepts such as logos, products, packaging, retail environments, and online communications. In such a way, organisations use design to augment their brand positioning (Beverland et al., 2010). Consequently, this study provides supporting evidence that organisations use brand
‘levers’ in design thinking to achieve innovation (Noble & Kumar, 2010). These levers help firms create design concepts that have visual recognition for consumers (Karjalainen & Snelders, 2010).

Finally, a strong competitor orientation augments organisations’ design thinking. Consistent with past research, differentiation is a primary goal of design thinking (Karjalainen & Snelders, 2010). Organisations frequently review competitor design outputs, and there is an overt effort to avoid competitors’ designs. Therefore, competitors’ design cues are key constraints that structure organisations’ design thinking. However, there is limited evidence that organisations pursue me-too design approaches (Dell’Era & Verganti, 2007). It is possible that organisations in the sample are category leaders or product leaders who seek innovation and differentiation (Beverland et al., 2010).

**Implications for marketing research**

Design thinking complements conventional marketing. An axiom in marketing is that organisations should focus on identifying the needs of customers. This concept is operationalised by the market-orientation construct, which is comprised of gathering customer intelligence, disseminating customer intelligence across the organisation, and responding to customer intelligence (Kohli & Jaworski, 1990). Similar to market orientation, design thinking involves gathering, disseminating, and responding to end-user needs. This study finds that organisations developed imaginary profiles to discover end-user needs, and develop outputs that match their needs. The results from this study support the assertion that market orientation and design thinking are distinct but parallel disciplines (Johansson & Holm, 2006; Moll et al., 2007).

A second axiom in marketing is that organisations should differentiate themselves from competitors (Armstrong & Collopy, 1996). The empirical study shows design thinking involves a strong competitor orientation. Specifically, firms implement design thinking to differentiate from competitors in terms of (1) strategic orientation (design orientation vs. imitation) and (2) the visual aesthetics of design outputs (consumer goods packaging and online and retail environments). Organisations emphasise the imperative of visually differentiating their products from competitors. One way to achieve this goal is by leveraging brand image in design outputs (Noble & Kumar, 2010). However, it is important to note that differentiation is not a goal shared by all marketing organisations (Noble et al., 2002). Many organisations do the opposite, which is to adopt an imitation strategy (Dell’Era & Verganti, 2007). Existing research has found that a me-too strategy can be beneficial for ‘follower’ firms (Beverland et al., 2010).

But at the same time, it is important to understand that design thinking is not the same as marketing. There are artistic organisations, such as the performing arts, that do not follow a marketing orientation (Voss & Voss, 2000). Conversely, there are organisations, such as financial services, that follow a market orientation but do not implement design thinking. This study focused on organisations in the industrial design, high-tech, and durable consumer goods fields that implemented both design thinking and marketing. Thus, one conclusion is that design thinking and marketing are parallel and complementary discourses (Johansson & Holm, 2006).
Limitations and future research

There are some limitations to this study that could be addressed by future research. First, the findings suggest that there may be differences between organisations' values, clients' values, and end-users' values. Future research can explicitly address the negotiation between organisation, client, and end-user design values. Second, the study is limited to organisations located in Core 77. Because Core 77 organisations are closely linked to the design sector, the results on design thinking may not be generalisable to other organisations. However, some of the organisations in our sample are multinational corporations that deal with clients and end-users of international origins, thereby minimising concerns about the applicability of the findings. Finally, future research could quantitatively validate the model (Figure 1). For example, researchers could estimate the extent to which the creation and dissemination of end-user profiles, the cultivation of organic organisational structures, the use of the brand to establish a design language, and factoring competitors' design outputs are implemented in practice. Alternately, researchers could measure managers' beliefs that these forms of design thinking can lead to positive design outcomes.

References


Appendix. Interview protocol

Grand tour questions

Could you please give a short background history of your organisation?
What is your business, who are your customers, and what are your products?
What is your position in the organisation?

Organisational questions

Could you describe the organisational culture of this firm?
How is your firm organised?
How does the marketing department collaborate with the design department?
How does the organisation collaborate with clients/customers in design-related issues?
Design-thinking questions

What is your organisation’s design philosophy?
How is design thinking implemented in your organisation?
How would your organisation describe ‘good’ design?
How does design thinking communicate your brand/organisational values?
How does your approach to design provide value to customers?
How do competitors affect your design thinking?

Photo elicitation

Please select images of a product developed by your organisation, and images of products developed by other organisations. Please talk about why these represent ‘good’ or ‘bad’ designs.

Detailed walkthrough of a concept design

Please explain the design thinking that went into a recent design concept. What were some challenges? Has it performed well in the market?

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