Conflicting with heightened awareness about design's strategic role for businesses, research is lacking about methods and tools to guide designers and organizations in building strategic design management capabilities, as well as about the development of these capabilities in organizational contexts. This paper aims to provide important perspectives concerning these issues in two major ways. First, it presents the development of a new Design Management Audit Framework (DMAF) that aspires to identify and accommodate new capabilities and responsibilities that are necessary to support the changing and broadening context and roles of design. Then, the paper discusses the triggers, enablers and challenges in moving from design management to strategic design management practices in organizational contexts, based on the results of 3 in-depth case studies, which have utilized the new Design Management Audit Framework to carry out a comprehensive design management audit process inside these organizations.

**keywords: strategic design management; design management audit; case study; capabilities**

**Introduction**

As indicated by academic researchers, design practitioners, as well as commentators and authors at the intersection of design and business, there is an increasing integration of
design into business strategies and innovation processes of businesses from various scales and industries (Brown, 2009; Brunner, Emery & Hall, 2009; Danish Design Centre, 2003; Gemser & Leenders, 2001; Martin, 2009). However, it is also acknowledged that solely investing in design or engaging in design activities is not sufficient to ensure that design contributes to organizational goals and generates the desired business outcomes.

Theoretical and empirical studies reveal design management to be the mediating factor that determines the effectiveness of design projects and how design plays a role in improving business performance (Bruce & Bessant, 2002; Chiva & Alegre, 2007, 2009; Dumas & Mintzberg, 1989; Gorb & Dumas, 1987). Consequently, the development of design management capabilities is a critical organizational learning and capability building process, for firms that aim to turn design into a strategic resource for their organization.

On the other hand, a review regarding recent literature in the design management field reveals that design is undergoing a transition in the ways it is used and managed inside organizations. While the more traditional roles for design inside businesses have been largely limited to the design and development of products and services, especially over the last decade, the roles for design have broadened towards more upstream activities and responsibilities concerning the overall business context, strategy and organization. Designers and designerly methods are now increasingly being called on to contribute in restructuring and shaping company strategy, brand strategy and communications; formulating new or improved business models and visions; as well as in driving organizational change and strategic renewal (Deserti & Rizzo, 2013; 2014; Lee & Evans, 2012; Lockwood, 2011; Buchanan, 2008; Junginger, 2008; Smith, 2008; Ravasi & Lojacono, 2005; Borja de Mozota, 2003; Turner, 2013). On the design practice side, we see that an increasing number of design consultancies around the world (e.g. Frog, IDEO and Continuum) have extended their services to strategic services such as brand strategy, technology strategy, innovation strategy, and business design, in order to strengthen the connection between business needs and user needs (Sanchez, 2006; Weiss, 2002). These developments provide significant indications regarding how design capabilities can also participate in the discovery and decision making processes in connection to the business context (Weiss, 2002).

As a result, the contemporary outlook calls for more participative and interactive roles and widened responsibilities for designers and design managers, particularly in the context of strategic decision making processes in organizations. This also points to the growing need to handle design efforts, corporate goals and strategies in a more unified manner, which has long been highlighted by the design management literature under the concepts of strategic design and strategic design management (Borja de Mozota 1998; 2003; Er, Er & Özcan, 2005; Hertenstein & Platt, 1997; Lorenz, 1994; Holland & Lam, 2014; Calabretta, Gemser & Karpen, 2016).

Consequently, as organizations focus on acquiring or improving their design management capabilities, they often recognize that they have to build more strategic skills in managing design. In order to transform design into a strategic resource, they feel the need to expand their design management processes from project level and functional level tasks to strategic level design management activities, that is, "using design management to drive and implement corporate strategic goals" (Holland & Lam, p.3). Yet this is not an easy task, with little research and guidance regarding how to develop and establish these
Despite the mounting literature highlighting the significance of strategic design management, there are important gaps in our body of knowledge concerning these practices. Research is lacking on many important issues such as: strategic level design management capabilities residing inside organizations, how companies make the transition from carrying out project level design management to building strategic level design management capabilities, how these capabilities are developed over time, as well as the enablers and barriers businesses encounter throughout their development.

This paper aims to provide important perspectives regarding these issues, based on 3 in-depth case studies, which utilized a new Design Management Audit Framework to carry out a comprehensive design management audit process inside the organizations. Different than existing tools, the new Design Management Audit Framework allows for a detailed examination of not only project or organizational level design management capabilities, but also the strategic level capabilities in managing design and how design efforts are linked to business strategies. The case studies also put considerable emphasis on the development of these skills over time, in order to understand triggers, enablers and barriers in the building of these capabilities.

The paper begins by presenting the theoretical review undertaken to assist the development of the new audit tool and continues by introducing the Design Management Audit Framework. Later, the paper explains the details of the case study research, the rationale for the selection of cases and methods utilized in data collection and analysis. Then, major results of the case studies are presented regarding triggers, enablers and barriers in the development of strategic design management capabilities. Finally, the paper ends with the study’s conclusions.

**Theoretical Review for the Development of the New Design Management Audit Framework**

An initial review of existing tools and frameworks for assessing design management capabilities revealed that they fall short in catching up with the transition that has been undergoing in the ways design is utilized and managed inside organizations. Therefore the major question in the development of a new design management audit tool was: How can design management capabilities be assessed with an up to date consideration, particularly incorporating design management capabilities at the strategic level? With this research question, it was intended to come up with a comprehensive design management assessment framework that incorporated design management capabilities that are integral to the linking of design activities with strategy, business context, and organizational goals, as well as to update existing tools to include capabilities that are becoming increasingly critical to support the emerging contexts and needs for design.

The following sub-sections briefly present the review and synthesis of existing literature in design, design management and strategic management, in addition to a comparative analysis of existing design management frameworks and audit tools\(^\text{112}\).

\(^{112}\) A more detailed account of the theoretical basis of the Design Management Audit Framework can be found in the Ph.D. thesis of the author (Topaloğlu, 2016) and the paper presented in another conference (Topaloğlu & Er, 2017).
Evolving Design and Design Management Literature

A review of the evolving design and design management literature informed the development of the new audit tool by providing a comprehensive understanding about how the discourse in design and design management literature advanced with respect to the roles and contributions of design inside organizations. Additionally, it helped to delineate the breadth of activities, processes and notions that require a consideration in managing design.

The earlier literature predominantly specified the roles of design with respect to areas of actual design practice, depicting design’s direct role in the creation of products and services, organizational environments, communications and corporate identity (Blaich & Blaich, 1993; Cooper & Press, 1995; Kotler & Rath, 1984; Lorenz, 1986; Walsh et al., 1992). Accordingly, in this context, design management was largely confined to the management of specific design projects with the objective of ensuring their successful execution.

Yet, over time, scholars began to center more and more on the role of design in the context of critical organizational processes, such as production, new product development (NPD) and innovation. They revealed other significant roles of design for the organization such as: speeding up product development and providing efficiency in production processes (Walsh et al. 1992; Trueman & Jobber, 1988); understanding user needs and making new connections between technology and these needs (Borja de Mozota, 2003; Veryzer & Borja de Mozota; 2005); integrating, coordinating and communicating between different departments and functional specialists (Borja de Mozota, 2003; Cooper & Press, 1995; Lorenz, 1986; Trueman & Jobber, 1998; Walsh, 1996; Walsh et al. 1992); and design’s leading roles in major organizational processes like NPD and innovation (Perks et al., 2005; Utterback et al., 2006; Verganti, 2008, 2009; Veryzer, 2002; Von Stamm, 2003).

For the design management field, these perspectives demanded a focus on developing new methods and capabilities to guide the design and development process, to improve the collaboration between different functional groups, and to assist the generation of a supportive environment for design and innovation to flourish. These expanded the focus of design management scholars from project level to organizational level tasks and responsibilities.

On the other hand more recent research depicts design’s increasing roles in the context of defining company strategies, supporting strategic decision making inside businesses and guiding organizational change and strategic renewal. Studies reveal that designers and design methods are being invited to contribute to strategy formation and decision making, in order to provide ideas about business possibilities, new directions and opportunities that can inspire and shape strategy (Chung & Kim, 2011; Francis, 2002; Sanchez, 2006; Weiss, 2002). Even a quick glance at the latest articles in major design and design management journals especially since the 2000s, reveals the increasing discussion of design with respect to its role in tackling with wider business and management challenges that are beyond the traditional boundaries of design. These considerations under the notions of design thinking (Brown, 2005, 2008, 2009; Liedtka & Ogilvie, 2011; Martin, 2009) design attitude and managing as designing (Boland & Collopy, 2004) suggest that the introduction of design approaches, methods and designerly ways of thinking (Cross, 2007) to management thinking and routines can significantly improve the current shortcomings of management practice; boost innovation in business models, processes
and outcomes; and guide change and transformation. Accordingly, design management literature is increasingly placing emphasis on the role of design in informing, influencing, shaping strategies, visions and business models, as well as its role in leading organizational change and renewal (Buchanan, 2008; Borja de Mozota, 2003b; Deserti & Rizzo, 2013; Junginger, 2008; Lee & Evans, 2012; Lockwood, 2011; Muratovski, 2015; Ravasi & Lojacono, 2005; Smith, 2008).

Therefore, recent perspectives depict a significant shift taking place in the way design is utilized inside organizations and how this requires new roles and capabilities for designers and design managers in terms of strategy and decision-making processes. As a result, it can be concluded that beyond the management of design projects, new roles regarding taking part in informing and shaping corporate strategy, in addition to establishing the connection between design activities & resources and corporate objectives & strategy, emerge among the primary and fundamental responsibilities under design management (Best, 2006; Cooper & Press, 1995; Cooper et al., 2011; Er, 2005; Turner 2013). Therefore an updated tool for auditing design management capabilities need to integrate these important capabilities inside its array of skills.

**An Analysis of Strategic Management Literature and Implications for Design Management**

As highlighted in the previous section, as the role of design in strategy becomes more emphasized, it becomes more critical to understand strategy and strategic management concepts and perspectives and analyze their implications for design management.

In essence, strategy is concerned with the "long term prosperity" of the organization (Pearson, 1990, p. 21). It aims to answer major questions about the ends an organization seeks and what it should do to attain these results. Despite the multiplicity of distinct schools and perspectives, the literature in strategic management revolves around two main groups of thought: the Market Based View (MBV) (Caves & Porter, 1977; Porter, 1980, 1985), also referred to as the outside-in view, and the Resource Based View (RBV) (Barney, 1991; Penrose, 1959; Peteraf, 1993; Wernerfelt, 1984) or the inside-out view. These two theoretical perspectives provide alternative approaches to explaining the source of competitive advantage, and therefore strategy making for firms.

Emerging in the 1980s, the MBV puts weight on external conditions that characterize the industry, as the major sources of competitive advantage for firms. Scholars of the MBV argue that strategy starts with a thorough analysis of industry conditions and based on this analysis, it involves determining a profitable product-market position - cost leadership, differentiation or focus (Porter, 1980; 1985) - , and then, directing all organizational efforts to attaining and sustaining that position. Especially the early literature in design management has considered the relationship between design and strategy largely through the lens of the MBV. In this context, scholars mostly elaborated on how design can be used in terms of key generic strategies suggested by Porter (1980, 1985) and discussed the role of design in reference to the specific requirements of differentiation, cost leadership and focus strategies (Bruce & Bessant, 2002; Cooper & Press, 1995; Kotler & Rath, 1984, Lorenz, 1986, 1994; Walsh 1996; Walsh et al., 1992). As a result, from this perspective, design management focuses largely on the direct and tangible contributions of design with respect to products, communications, identities and
environments, and how these processes and projects can be executed in the light of the chosen product market position. Consequently, MBV brings the emphasis more on the project level tasks in managing design.

On the other hand, scholars of the RBV take an inward looking stance, and consider firm-specific, unique, hard to imitate and hard to substitute resources and capabilities as the main sources of competitive advantage for firms. The enterprise is viewed as a bundle of tangible and intangible resources and capabilities, among which some can constitute the firm’s distinctive or core competencies (Amit & Schoemaker, 1993; Barney, 1991; Grant, 1991; Prahalad & Hamel 1990; Wernerfelt, 1984). These capabilities are developed over long periods of time through firm specific learning processes. Therefore, they are not easily traded or imitated, presenting a more lasting competitive advantage for the enterprise. Since the 1990s, RBV has gained increasing popularity and diffused rapidly throughout the strategic management literature (Mahoney & Pandian, 1992; Priem & Butler, 2001).

Other important concepts and perspectives originated in relation to the RBV, such as: dynamic capabilities (Helfat et al., 2007; Teece et al., 1997), organizational learning (Crossan & Berdrow, 2003; Nelson & Winter, 1982), the learning organization (Senge, 1990), knowledge creation (Nonaka & Takeuchi, 1995) and the knowledge based perspective (Grant, 1996a, 1996b; Kogut & Zander, 1992). By turning the focus of strategy, from planning of responses to external market conditions, towards identifying and building valuable internal resources and capabilities, the RBV aligns itself with a more dynamic approach to strategy making. It encourages strategic management to focus on developing distinctive competences (such as, fast product development cycles, superior process and product design, or advanced customer service) in order to create long-lasting sources of competitive advantage.

The influences of the RBV can be observed especially inside the more recent design management literature. Particularly since the late 1990s, design and design management capabilities are increasingly linked to the core notions of the RBV, and explored as strategic resources (Borja de Mozota, 2003; Svengren-Holm, 2011), core competencies (Borja de Mozota, 2003; Svengren-Holm, 2011), and dynamic capabilities (Jevnaker, 1998). Jevnaker (1998) relates design and design management capabilities to the RBV, and specifically elaborates on design management capabilities inside the dynamic capability perspective (Teece et al., 1997). Similarly, rooting her discussion in the RBV, Borja de Mozota (2003) analyzes design as a resource; as knowledge, as a source of organizational change and as a core competency. In this discussion, the management and integration capabilities for design emerge as essential capabilities, in order to turn design into a core competency. Therefore, when considered from this perspective, design management emerges as the administration of design as a learning process; a fundamental capability for organizational knowledge creation (Nonaka & Takeuchi, 1995); and a dynamic capability (Teece et al., 1997) that renews and reconfigures design capabilities, “regenerating both the products and the company” (Borja de Mozota, 2003, p. 160). Additionally, this approach recognizes design’s role not only in the creation of more direct and tangible outcomes, but also in the coordination and development of other significant organizational processes, capabilities and core competencies, such as those related to
rapid NPD, design-driven innovation, unique service provision, the creation and development of a creative organizational culture, as well as design’s role in strategy formulation, organizational learning and organizational change.

Through this analysis, it is concluded that some important implications of the RBV in terms of design management tasks and responsibilities can be inferred as:

- focusing on the integration of design with other business processes and capabilities to generate core competencies,
- continual nurturing of design skills and resources,
- ensuring design’s participation in strategic management processes,
- focusing on the integration of outside knowledge through design research capabilities to feed into innovation processes,
- and the generation of a culture and environment supportive of learning as well as design.

A Review of Existing Design Management Audit Tools and Frameworks and Identification of Major Gaps

Assessment of design and design management capabilities possessed by businesses is a significant subject, valuable for both academic research and business practice. In the most basic sense, the assessment of these capabilities enables businesses to review and discuss how the organization handles design activities and decisions, and to evaluate design processes and outcomes, as well as their effectiveness (Best, 2006; Cooper & Press, 1995). The audit process establishes awareness about existing routines and shortcomings, and opens up a path for improvement and change. Moreover, these tools and frameworks are also used for research purposes, to explore existing capabilities in organizational, industrial and national contexts, and to understand problems, as well as conditions facilitating good practices in design and design management (See Dickson et al., 1995; Heskett & Liu, 2012; Moultrie et al., 2006; Koosta, 2009; Storvang et al., 2014). Scholars commonly refer to these tools and frameworks under the term design audit (Best, 2006; Cooper & Press, 1995), as a broad heading to cover audits regarding every possible area related to design and its management inside an organization.

In essence, audits are formed of a list of questions that provide the foundations for "an in-depth analysis of a particular area of importance to the corporation" (Cooper & Press, 1995, p. 190). Inns (2002) explains that the audit process is similar regardless of the subject area; it begins with the identification of areas and activities to be examined; continues with the determination of relevant stakeholders; and using questioning, observation and research methods, assesses the quality and performance of the activity under focus. This is followed by analysis of the results in order to offer recommendations and directions for change (Inns, 2002).

Table 1 indicates existing design audit tools and design evaluation frameworks that were reviewed and analyzed to inform the development of the new design management audit framework.

<table>
<thead>
<tr>
<th>Tools</th>
<th>Author</th>
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</table>

Table 1 Existing design and design management audit tools and evaluation frameworks.
Among these, except for the Design Ladder by the Danish Design Center (2001), which is suggested only “as a tool for rating a company’s use of design”, all the other tools either completely target design management capabilities, as in the case of Design Management Effectiveness Audit by Kotler and Rath (1984), Design Management Staircase by Kootstra (2009) and Design Capacity models by Heskett and Liu (2012) and Storvang et al. (2014); or encompass important dimensions regarding design management, as in the case of Design Atlas (Design Council, 1999). Some of these tools are in the form of short self-assessment questionnaires, such as Design Management Effectiveness Audit (Kotler & Rath, 1984), and design skills assessment tool (Dickson et al., 1995). Some are more visual and aim to provide an instant characterization of design management without much concern for a detailed evaluation, such as Design Capacity models by Heskett and Liu (2012) and Storvang et al. (2014). Yet others are more structured and comprehensive, such as the Design Atlas (Design Council, 1999) and Design Management Staircase (Kootstra, 2009), allowing for an extensive and systematic review of design and design management capabilities. However, taking into consideration the inferences and arguments put forward in the previous sections, existing tools are found missing in several respects.

As revealed in the previous sections, design management field has evolved from being concerned solely with the organization and management of design projects and corporate wide design activities, to include more upstream activities, skills and responsibilities that emphasize the integration of design strategies and processes with organizational goals and business strategy. Yet existing tools and frameworks are somewhat lacking to provide a satisfactory approach to frame and evaluate design management capabilities that specifically focus on establishing the link between the business context, organizational goals, and company strategies, and the way design is organized, managed and utilized inside organizations.

Secondly, although the literature highlights attaining a higher level of design integration inside the organization among the most critical conditions for effective design management (Borja de Mozota, 2003; Bruce & Bessant, 2001; Dumas & Mintzberg, 1989; Stevens et al., 2009; Topalian, 1990; Turner, 2013), existing tools and frameworks do not provide a way to evaluate design integration inside organizations, such as: design’s level of coordination and communication with other business functions and processes; the extent

<table>
<thead>
<tr>
<th>Corporate design sensitivity and design management effectiveness audit</th>
<th>Kotler &amp; Rath (1984)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-assessment of design management skills</td>
<td>Dickson et al. (1995)</td>
</tr>
<tr>
<td>The Design Atlas</td>
<td>Design Council (1999)</td>
</tr>
<tr>
<td>The Design Ladder</td>
<td>Danish Design Center (2001)</td>
</tr>
<tr>
<td>Design audit tool for evaluating design performance in SMEs</td>
<td>Moultrie et al. (2006)</td>
</tr>
<tr>
<td>Design Management Staircase</td>
<td>Kootstra (2009)</td>
</tr>
<tr>
<td>A model for design capacity</td>
<td>Heskett &amp; Liu (2012)</td>
</tr>
<tr>
<td>Design Capacity Model</td>
<td>Storvang et al. (2014)</td>
</tr>
</tbody>
</table>
of design activities carried out in different fields, or the level of coordination and coherence between design activities in different domains.

Another critical point is that in the current business context the significance of creativity and knowledge has long been established. This in turn underlines knowledge creation, integration of outside knowledge and organizational learning as extremely critical capabilities for businesses in the generation of competitive advantages. Yet existing tools and frameworks do not provide any dimension concerning how outside knowledge is acquired and integrated in the context of design, for example through processes such as design research, or the establishment of idea and information networks (except for some focus to this issue in Moultrie et al. (2006) in the context of requirements capture through user and competitive research). Neither do they provide a way to review how design and design management capabilities are advanced and renewed inside the organizations, which are highly significant capabilities in connection to organizational learning.

A New Design Management Audit Framework

In order to fill the gaps that were identified and summarized in the previous section and to update existing tools based on new research and perspectives provided by the evolving literature, a new Design Management Audit Framework (DMAF) is developed, which is presented in Table 2 in its brief form.

Design Management Audit Framework consists of 9 major dimensions, in other words capability categories, which altogether define a company’s design management capability. These are:

1. Design in Strategy
2. Planning for Design
3. Investments for Design
4. Design Processes
5. Design Organization
6. Research for Design
7. Training and Development for Design
8. Design Integration
9. Culture and Climate for Design

Each capability category further comprises of 2 to 6 items that represent the most significant activities or skills under each category, generating a total of 31 items for reviewing design and design management capabilities inside an organization.

Although with some differences, the 5 categories of Planning for Design, Investments for Design, Design Processes, Design Organization, and Culture for Design, largely overlap with the dimensions included in the Design Atlas (Design Council, 1999) and the Design Management Staircase (Kootstra, 2009) frameworks and constitute the more typical and acknowledged dimensions under design management. Yet the other 4 categories, Design in Strategy, Research for Design, Training and Development for Design and Design Integration, and the respective items under each, are devised to address the aforementioned gaps and are proposed as significant skills and activities that must be included inside an up to date and comprehensive design management system.
Additionally, as part of the Design Management Audit Framework, an assessment scale is developed based on the process maturity principle, in the form of a 4 level maturity grid, similar to the approach utilized by the Design Atlas (Design Council, 1999), Design Management Staircase (Kootstra, 2009) and the design audit developed by Moultrie et al. (2006). Table 3 presents the assessment scale for the capability category Design in Strategy.

**Table 2 Design Management Audit Framework (DMAF).**

<table>
<thead>
<tr>
<th>Key Capability Categories</th>
<th>Major Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Design in Strategy</strong></td>
<td></td>
</tr>
<tr>
<td>Strategy Formulation Process</td>
<td>How effective is the business in strategy formulation? How are strategies formulated in the organization?</td>
</tr>
<tr>
<td>Strategic Planning Process</td>
<td>How effective is the business in planning its activities? Are strategies turned into business plans? How is the planning process carried out?</td>
</tr>
<tr>
<td>Strategy and Planning Communication</td>
<td>Are business strategies, goals and plans communicated effectively within the organization?</td>
</tr>
<tr>
<td>Design in Strategy</td>
<td>Is design included in strategy formulation? How is design positioned inside business strategy and objectives? Is there a defined design strategy?</td>
</tr>
<tr>
<td>Design’s Input to Strategy Formulation</td>
<td>Is there any form of design/designer/design thinking input in the strategy formulation process? Do design managers or designers contribute to the shaping of business strategy and design objectives?</td>
</tr>
<tr>
<td><strong>2. Planning for Design</strong></td>
<td></td>
</tr>
<tr>
<td>Design Planning</td>
<td>Does the business carry out design planning? If yes, how is this done; what types of evaluation and objectives guide the design planning process?</td>
</tr>
<tr>
<td>Design Planning Horizons</td>
<td>How far into the future does the organization think when planning for design?</td>
</tr>
<tr>
<td>Design Policy and Principles</td>
<td>Is there a formal/established corporate design policy or major notions that guide design? Are there defined design principles?</td>
</tr>
<tr>
<td><strong>3. Investments for Design</strong></td>
<td></td>
</tr>
<tr>
<td>General Budget Allocation</td>
<td>Does the business carry out its budget allocation in a structured manner?</td>
</tr>
<tr>
<td>Design Budget Allocation</td>
<td>Does the business allocate budgets to design activity? If yes how are decisions regarding design budgets made? Does the business utilize any methods to guide design budget allocation decisions?</td>
</tr>
<tr>
<td><strong>4. Design Processes</strong></td>
<td></td>
</tr>
<tr>
<td>General Process Awareness</td>
<td>Does the business identify its activities as processes?</td>
</tr>
<tr>
<td>Design Process Awareness</td>
<td>Are design processes recognized and defined inside the organization and in connection with other processes? (ex: design in NPD, marketing, corporate communications)</td>
</tr>
<tr>
<td>Design Process Management</td>
<td>Does the business have structured processes for design project management and monitoring? (Time plans, review meetings, documentation, brief formats, cost monitoring)</td>
</tr>
<tr>
<td>Design Process Thinking, Methods &amp; Tools</td>
<td>How do design projects/activities proceed? Are structured methods, techniques and tools utilized during design processes? (Research, Concept generation, Design development, decision making tools, evaluation of concepts)</td>
</tr>
<tr>
<td>Legal Processes for Design</td>
<td>Does the business ensure the legal protection of design based intellectual rights? How is this process managed?</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Design Evaluation Processes</td>
<td>Are there structured procedures for evaluating design? (both pre-launch and post-launch, the success of design projects, the contribution of design to profitability, ROI, effectiveness in market?)</td>
</tr>
<tr>
<td><strong>5. Design Organization</strong></td>
<td></td>
</tr>
<tr>
<td>Design Management Responsibility</td>
<td>Does the business have an assigned management responsibility for design?</td>
</tr>
<tr>
<td>Design Skills</td>
<td>Does the business have the necessary skills to carry out design activities? Does the business have a design function? Does it utilize outsourced design capabilities?</td>
</tr>
<tr>
<td>Organizing for Design</td>
<td>Does the business effectively organize its (in house and/or outsourced) design activities?</td>
</tr>
<tr>
<td><strong>6. Research for Design</strong></td>
<td></td>
</tr>
<tr>
<td>Design Research Programs and Resources</td>
<td>Does the organization carry out design research activities or utilize resources to inform design? (user needs and requirements, market research, user research, demographic and social trends, future trends, lifestyle research, technology, competitors)</td>
</tr>
<tr>
<td>Information and Idea Networks</td>
<td>Are there established information and idea networks for design?</td>
</tr>
<tr>
<td><strong>7. Training and Development for Design</strong></td>
<td></td>
</tr>
<tr>
<td>General Training and Development</td>
<td>Does the organization carry out training and development programs for its employees?</td>
</tr>
<tr>
<td>Nurturing Skills and Creativity of Design Related Personnel</td>
<td>How does the organization nurture the skills, knowledge and creativity of design related personnel/in-house design staff?</td>
</tr>
<tr>
<td><strong>8. Design Integration</strong></td>
<td></td>
</tr>
<tr>
<td>Coordination and Communication with Other Business Functions, Strategies and Processes</td>
<td>Are there effective structures and processes for communication and coordination between design and other business functions?</td>
</tr>
<tr>
<td>Role and Place of Design</td>
<td>Which processes does design contribute throughout the organization? When does design get involved in these processes? When do design processes start?</td>
</tr>
<tr>
<td>Breadth of Design (Design Activities Undertaken in Different Areas)</td>
<td>What are different design activities undertaken throughout the organization?</td>
</tr>
<tr>
<td>Coherence and Coordination Between Different Areas of Design</td>
<td>If design is undertaken in different design fields, is there coordination and coherence between design activities undertaken in different areas?</td>
</tr>
<tr>
<td><strong>9. Culture and Climate for Design</strong></td>
<td></td>
</tr>
<tr>
<td>Design Awareness &amp; Understanding of Senior Management</td>
<td>Do senior managers have a broad understanding and awareness about how design contributes to the organization?</td>
</tr>
<tr>
<td>Design Commitment of Senior Management</td>
<td>How committed are senior managers to design?</td>
</tr>
<tr>
<td>Design Attitudes of Employees</td>
<td>How positive are the attitudes to design among the employees?</td>
</tr>
<tr>
<td>Environment for Creativity</td>
<td>Is there an environment supporting creativity? Do managers encourage creative experimentation and design?</td>
</tr>
</tbody>
</table>
Table 3  Assessment scale of the Design Management Audit Framework for the capability category Design in Strategy.

<table>
<thead>
<tr>
<th></th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategy Formulation Process</strong></td>
<td>There is no strategy formulation process.</td>
<td>Strategy understood as setting a few conventional performance targets without the formulation and evaluation of strategic options, no clear, guiding strategic visions.</td>
<td>Business strategies are developed, however with a limited analysis of internal &amp; external factors and strategic options, and the process is not regular and structured.</td>
<td>Business strategies are developed through a structured process, and a detailed analysis of internal and external factors (trends, technology) and promising strategic options.</td>
</tr>
<tr>
<td><strong>Strategic Planning Process</strong></td>
<td>There is no business planning process.</td>
<td>Planning is carried out in a limited and unstructured way in a few business areas/functional departments.</td>
<td>Business strategies are turned into detailed business plans in several business areas/functional departments.</td>
<td>Business strategies are turned into business plans through a detailed and structured planning process in all business areas/functional departments, planning is an organization-wide approach that drives the business.</td>
</tr>
<tr>
<td><strong>Strategy and Planning Communication</strong></td>
<td>Strategy and business goals and plans are known only by few key individuals.</td>
<td>Business strategies, goals and plans are communicated in an unstructured way to senior management.</td>
<td>Business strategies, goals and plans are communicated in a structured way to senior management but there are problems in their communication to lower levels.</td>
<td>Business strategies, goals and plans are communicated in a structured way, with all company staff receiving relevant information and being updated.</td>
</tr>
<tr>
<td><strong>Design in Strategy</strong></td>
<td>Design is not part of strategy formulation or business plans.</td>
<td>Design is sometimes articulated as part of strategies and business plans of other areas like marketing and new product development but as individual projects.</td>
<td>Design is integrated into company strategy and business plans, but under marketing or new product development strategy.</td>
<td>Design is part of company strategy and business plans with a clear design vision, objectives and planning for design, design strategy is linked to other business processes and corporate objectives in various areas.</td>
</tr>
<tr>
<td><strong>Design’s Input to Strategy Formulation</strong></td>
<td>There is no input from design to strategy formulation or business planning.</td>
<td>Designers and design managers indirectly contribute to strategy and plans through their interaction with key individuals and senior managers.</td>
<td>Designers and/or design managers contribute to strategy and plans however in the lower levels of marketing strategy or design strategy formulation.</td>
<td>Design managers and/or design staff contribute to strategy formulation by taking part in the company’s strategy formulation process through structured meetings and processes.</td>
</tr>
</tbody>
</table>

Details of the Case Study Research
Using the DMAF presented in the previous section, the case studies aimed to explore the scope and nature of design management capabilities in organizational contexts, with a
specific focus on design management capabilities at the strategic level. Other major objectives were to understand the triggers that stimulate businesses to develop strategic design management capabilities, and the barriers and enablers encountered throughout their development.

**Selection of Cases**

In the light of abovementioned objectives, the fundamental concern in the selection of cases was to choose cases that offered the greatest possibility for learning. This condition meant that the companies did not simply use design, but that they showed a discernible and consistent emphasis on design use in connection to their business strategies.

The empirical context was decided to be specified as the Turkish ceramic sanitary ware industry based on two major factors. The first is that this industry is one of the first industries in Turkey to begin the acquisition of design and design management capabilities. Secondly, beginning with the mid 2000s, several firms from the industry have been observed to initiate major strategic renewal processes that involved the integration of design into their corporate strategies, an increasing focus on the development of design management skills and a noticeable intensification in design activities carried out in different areas ranging from product development to corporate communications (Topaloğlu & Er, 2010; 2011). This trend towards taking a more strategic perspective to the management of design is noticed to be followed in differing degrees by the major players in the industry. Therefore, it was discerned that ceramic sanitary ware sector provides a unique and significant ground to explore design management capabilities at the strategic level. Additionally, the criteria for the selection of companies followed from the research objectives and were identified as:

- Utilizing in-house designers and/or working with external designers,
- Being a large scale company\(^\text{113}\),
- Giving a clear focus on design as part of business strategy (as demonstrated by their web sites, corporate communications, and participation & awards earned in design competitions).

As a result, 3 large scale ceramic sanitary ware manufacturers were identified as offering information rich cases for studying strategic design management capabilities. In the later stages of the study, these organizations (Eczacıbaşı VitrA, Kale Seramik and Serel Seramik) were found out to be the top 3 players in the industry in terms of market share.

**Data Collection and Analysis**

In order to attain a rich understanding about design management capabilities and to cover the phenomenon of interest inside its context, data was collected at 3 major levels of analysis: the business organization, the development of design and design management capabilities throughout the years, and present design management capabilities possessed.

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\(^{113}\) The results of a survey conducted by the Danish Design Council (2003) reveals that “large companies have a greater capacity to engage in design compared to small companies” (p. 29), and that company’s focus on design in relation to company strategy, business visions and future role in the value chain increases together with the company size. This indicates that large scale companies are more likely to possess design management capabilities pertaining to the strategic level.
by the organizations. Additionally, the case study design pursued a literal replication (Yin, 2009) approach.

With the objective of triangulating (Yin, 2009) the evidence, data was collected through 4 major sources: interviews with key informants; documents, including company documents, books, reports and articles covering the cases under study; direct observations regarding work environments; and physical artifacts, which included the outputs of different design activities carried out by these organizations, such as product designs, retail environments, websites, product catalogues and other marketing and communication materials. Yet, interviews constituted the principal method of data collection, which were carried out with key informants such as design managers/directors, marketing managers/directors, designers, and general managers. DMAF established the interview guide, where the list of topics and questions structured under this framework were utilized as the basis of semi-structured interviews, comprising questions of an open ended nature. In order to collect data regarding the development of design and design management capabilities throughout the years, company documents and prior research were complemented by additional interview questions. A total of 13 interviews were carried out with details presented in Table 4. All interviews were recorded as audio files and were fully transcribed. A total of 21 hours and 51 minutes of interview data were collected.

Data analysis was carried out in two phases. Level 1 analysis focused on analyzing case study data by describing and evaluating how the studied organizations managed design, based on the capability categories and themes provided by the audit framework. Whereas, Level 2 analysis focused on analyzing how design and strategy are linked
through design management practices and routines in the current situation; the triggers for the development of strategic design management capabilities; and key enablers and barriers that influence this process.

This secondary level of analysis was carried out, initially in the context of individual cases, by identifying emergent themes and recurring patterns; and later, by exploring them by means of a cross-case analysis. The themes were then integrated through their comparison across the cases, eventually to come up with the study’s final conclusions.

Results

Triggers for the Development of Strategic Level Design Management Capabilities

The case studies revealed that the triggers for an increased integration of design into business strategy and subsequently the development of strategic level design management capabilities were all initiated in the context of major strategic renewal and organizational transformation processes.

For a long time, the companies had managed design under the direction of marketing, product development or production departments and utilized design to provide product differentiation inside a market environment, which was becoming increasingly more competitive. However, in all three cases, starting after the mid 2000s, the companies began to develop a more strategic perspective regarding design and initiated a new period in the development of their design management capabilities. The factors that triggered the development of design management capabilities at the strategic level were all strongly linked to major organizational change and strategic renewal processes, which were planned to be executed by the top management teams.

In every individual case, design was positioned by these organizations as the most important tool for the intended organizational transformation efforts that involved premeditated changes in several dimensions, such as organizational structure, resources and capabilities, market focus and business growth mindset. The organizations felt the necessity to make a leap in their design management capabilities in order to achieve the new long-term goals of their renewed strategy.

More specifically, for Eczacıbaşı VitrA, design was identified as the key instrument in the company’s transfer to a brand development strategy with the long term objective of becoming a global brand. For Kaleseramik, the development of strategic level design management capabilities was a major route inside the strategic renewal and organizational restructuring processes regarding several group companies and to develop a unified approach to all product design and development activities. For Serel Seramik, design management capabilities at the strategic level began to be advanced following company’s merger with another group company after which design was identified as the driving tool of its new business strategy, which involved a major change in market focus and significant organizational transformation and brand repositioning efforts.

Systems and Routines Utilized For Linking Design with Company Strategies

The companies were seen to utilize 3 main routes to connect design strategies and activities with their business strategy:

- Assignment of management responsibility for design at the senior level
• Inclusion of design managers in strategy formulation and business planning processes
• Establishment of an independent design function

The assignment of management responsibility for design at the senior level contributes to the coordination of design with overall business strategy and content by clearly granting executive responsibility for design to a manager who has direct information and understanding about the long-term outlook, business context and priorities of the organization. In other words it moves design management from “the assignment of the normal administrative chores to a manager” to “identifying and communicating ways that design can contribute strategic value to a company” (Blaich & Blaich, 1993, p. 13).

The inclusion of design managers in strategy formulation and business planning processes ensures design's contribution to strategy making, as well as allowing the design manager to have detailed knowledge and understanding about business strategies, as well as policies and plans of major business functions. This in turn facilitates the identification of different roles for design throughout the organization. On the other hand, the establishment of an independent design function ensures that design is considered in strategy formulation and business planning processes in a distinct manner and treated in the same status with other major business departments such as marketing, production or sales.

Overall these findings confirm the previous work in design management literature, underlining: the importance of assigning design management responsibilities to a senior level manager (Topalian, 1990), the increasing role of design and design managers inside strategy formulation processes (Chung & Kim, 2011; Francis, 2002; Hertenstein & Platt, 1997; Jerrard & Hands, 2008) and the direct relationship between design’s influence and strategic role with its degree of independence in the corporate structure (Borja de Mozota, 2003).

**Key Enablers for the Integration of Design with Strategy and the Development of Strategic Level Design Management Capabilities**

The major factors that have supported the development of strategic level design management capabilities and the establishment of an increased level of integration between design activities and strategy show substantial similarity in the studied organizations. These are:

• Design's recognition as a strategic tool
• Top management awareness, support and commitment
• A deliberate focus on attaining strategy alignment, coordination and communication between design and major departmental functions
• Cultivation of a supportive organizational culture for design

Design's recognition as a strategic tool in the wider context of significant organizational transformation and strategic renewal processes acted as the initial trigger and major enabler for all companies. Another important facilitator was the awareness, support and commitment coming from top management, which has long been pointed out by design management literature among the most essential factors concerning the effectiveness of design integration efforts (Topalian, 1990).
Additionally, beginning with the development of a more strategic approach towards managing design these organizations began to place a deliberate focus on attaining strategy alignment between major business functions and on increasing communication and coordination among departmental managers through different systems such as: organization of design platforms and special meetings among these groups, restructuring the strategic planning process and inclusion of design managers in strategic planning processes. It was seen that this purposeful focus on the improvement of communication and coordination among departmental managers was also instrumental in helping them to take increasing ownership of design and design’s renewed place in the overall company strategy.

Another major enabler was observed to be increased efforts towards the cultivation of design awareness and understanding throughout these organizations. This was undertaken by establishing new systems and routines, such as: initiating important training and development programs for design, organization of regular design talks and presentations inside the company given by in-house and external design specialists; annual meetings and awards directed at increasing awareness, recognition and encouragement regarding design, creativity and innovation; and internal communication systems broadcasting news and events regarding design and creativity.

**Key Barriers and Challenges in Linking Design with Company Strategy and the Development of Strategic Level Design Management Capabilities**

Although the triggers, current systems and routines utilized, as well as the major enablers in the development of strategic design management capabilities were substantially similar, major barriers and challenges faced by the organizations showed greater variance from one organization to the other. Among these, 3 themes could be identified that showed a fair degree of similarity:

- Finding the organizational place for the design function
- Assignment of strategic level design management responsibilities
- Characteristics of organizational culture that are antagonistic to design such as: institutional inertia, corporate pragmatism, management routines based on efficiency and problems regarding power sharing

It was observed that throughout the development of strategic level capabilities in managing design, these businesses undertook numerous changes regarding their design and design management organization. Design department was structured under different departments such as production, product development or marketing until it gained its independence as a separate functional department. In one of the cases design department was restructured back under marketing after functioning as an independent department for one and a half years. Additionally, the assignment of design management responsibilities changed frequently together with changes regarding design organization. Although to different degrees, these organizational changes indicate that throughout the development of a more strategic stance towards design, finding the most favourable organizational structure for managing design activities was a major challenge for the companies.

Another significant challenge for the organizations was identifying how to carry out and who to assign design management responsibilities at the strategic level. As the
organizations began integrating design into their business strategy, they had to begin carrying out strategic level responsibilities such as defining design’s expanding roles, formulating design strategies and standards, or planning and allocating budgets for growing design investments. They tried out different systems such as forming design boards, assigning strategic level design management and project and organizational level design management responsibilities to different managers inside the organization. It was seen that design management responsibilities were mostly carried out in a dispersed manner by different parties based on different design disciplines and their level of responsibilities, where strategic level design management tasks were carried out for a long time by managers with other priorities than design, such as marketing managers.

Other significant barriers and challenges were related to the prevailing organizational culture inside these companies. Although for each company these characteristics varied to different degrees they can be listed as: institutional inertia, corporate pragmatism, tradition-bound behavior, short-term management routines based on efficiency, cost-cutting, and seeing fast results, and problems with respect to company politics and power sharing. It was seen that these factors slowed down necessary organizational change processes, increased their time to take effect, and made it hard to instill new approaches, more creative and strategic stances to the management of design activities. These are in line with previous literature which has focused on identifying major barriers to successful design integration (Bruce & Bessant, 2002; Cooper & Press, 1995; Jenkins, 2010; Jerrard & Hands, 2008).

**Conclusions**

The paper provides new knowledge in the context of strategic design management in two main ways. Firstly, the paper presents the development of a new Design Management Audit Framework (DMAF), which aspires to update existing tools. Despite design management’s broadened roles and responsibilities, existing tools and frameworks are lacking to frame and evaluate design management capabilities that enable the essential connection to be made between an organization’s goals, its business strategy and its design practices. Additionally, a more detailed review of literature suggests that it is necessary to expand and update current frameworks in the light of new perspectives and research that have emerged over the last decade. As an answer to this need, DMAF is suggested as a comprehensive design management audit tool that allows not only the examination of more traditional capabilities and responsibilities under design management, but also the appraisal of strategic level design management capabilities. Additionally the framework suggests new capability dimensions to accommodate key responsibilities and skills that are increasingly underlined by the recent design management literature.

Secondly, the paper presents the results of in-depth case studies, which made use of the DMAF to explore strategic design management capabilities in organizational contexts, as well as their development through the years. The case studies increase our knowledge on the interface between design management and strategic management, as well as about the enablers and challenges encountered by businesses in the process of becoming a more design-oriented organization. The case studies revealed that although the organizations had long been utilizing design, the main factor that triggered these
businesses to initiate the development of more strategic capabilities in managing design was the start of major organizational change and strategic renewal processes. Additionally, the case studies indicated that the major enablers in the development of strategic design management capabilities were: support and commitment coming from top management; specific efforts on attaining alignment, coordination and communication between design and major departmental functions and their strategies; and focus on the cultivation of an organizational culture supportive for design. Whereas the major barriers and challenges were faced in the context of assigning strategic level design management responsibilities; finding the most effective place for the design function inside the organizational structure and certain characteristics of the organizational culture that are hostile for design, such as corporate pragmatism, desire for seeing fast results, routines based on efficiency and problems with respect to power sharing.

References


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