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Paper Title: Influencing innovation in SME's: from designer to transitional
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Abstract:

The following paper presents insights found during an ongoing industry engagement with a family-owned manufacturing SME in Australia. The study seeks to unpack the cultural, strategic, product opportunities and challenges available to the firm engaging in a design led approach to innovation. Design led innovation finds new market opportunities to innovate through maintaining a holistic perspective of both the internal business operations with the customer experience. Unlike their metric-focussed peers, designers work in the uncertain space between 'knowing' and 'doing', which is 'making'. This reduces risk through the active testing of value with the customer. Of focus to this paper are the strategic discussions and perceptions of a selected group from within the firm that has been brought together to create dialogue and action around the best strategies to try and integrate design thinking as a fundamental skill across the firm. Two key approaches were discussed including creating buy-in through showcasing the value of design led innovation within a small project. The second approach sought to enable time by critically assessing the strategic alignment between current projects and the broader company vision.

1.0 Introduction:

The desire to foster an authentic culture of innovation and drive strong value propositions through a deep understanding of the customer is not an easy undertaking in any small to medium sized enterprise (SME). Key literary subject matter on work practices, culture, market analysis, strategy; education, training and knowledge management are all documented as being relevant to the difficulties businesses face in innovation. This paper has been authored in concurrence of a case study of an Australian family owned, manufacturing SME examining the challenges and barriers to becoming an entrepreneurial, innovative company through design. With recognition of the aforementioned subjects as being critical to the discussion, the perspective taken within this paper is the value of *design* in *family owned* business to growth and innovation. Furthermore, *how* that journey to innovation takes place and understanding *who* is the best person to lead such a change and bridge the gap between design and management.

The need for firms to stay afloat in an increasingly competitive global market requires consistent re-evaluation of existing strategies as well as the creation of new visions and alternative scenarios (Lockwood, 2010; Matthews and Bucolo, 2011). The challenge being that for a firm to identify, eliminate or innovate aspects of the business that are not adding value to the customer requires a deep understanding of what it *actually* is the customer wants. Consequently the continuation of existing business activities prevails through a preference to protect what has been established even when there is recognition of weaknesses in the business model proposition or execution of the proposition.

The value of design to entrepreneurial activity has traditionally been seen as product and service differentiation through styling and aesthetic outputs or as a function of branding and company image. Martin (2007) extends design as critical to strategic orientation through its capacity to 'solve problems and create effective change inside an enterprise and its vision through generative reasoning tools such as prototyping and iteration.' Design integration into manufacturing firms, which are often historically grounded in traditional modes of strategy

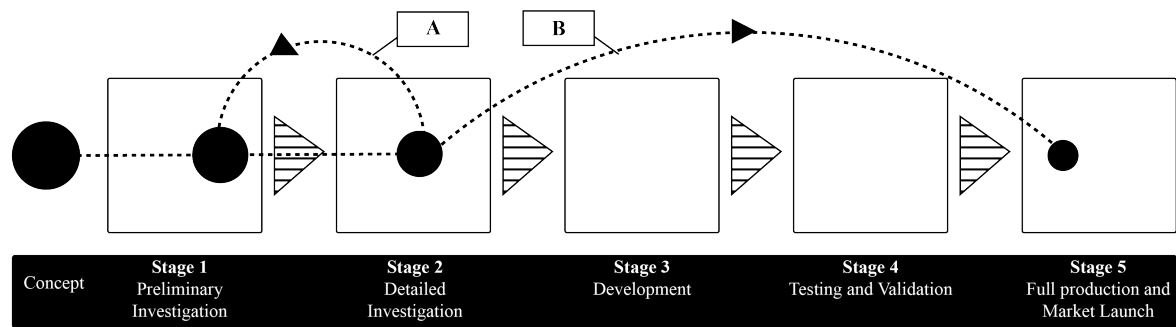
could benefit by increasing the firm's ability to keep strategic development of products and services internal rather than outsourcing to external design consultancies – a trend common among SME's (Hovanessian, 2008). Secondly, by taking strategic ownership, the firm has the opportunity to better control the product or service offering's alignment with the strategic vision in a holistic business sense. Empowering firms to find profitable and innovative opportunities and then drive those autonomously will become a fundamental skill of future entrepreneurs.

2.0 Case study outline

The case firm is an Australian steel fabricating company of a few hundred employees who design and manufacture for the industrial and construction markets. With a long-standing presence in the industry, the family owned business has experienced continual growth. Over the past three decades however, the Australian manufacturing sector has dropped from being 16% of the workforce to just over 8%. As a share of gross domestic product, it has fallen from 29% in 1960 to 8.6% by the end of the decade (Manufacturing Australia, 2012). Consequently, the competitive differences Australian firms once leveraged upon are no longer delivering the same value.

The rapidly changing environment leaves manufacturing firms recognizing the need to move beyond a dominant product focus where the buyer is not passive but active and the process is no longer transactional but relationship specific (Homburg and Rudolph, 2001). Within Australia, family owned businesses account for around 70% of all Australian businesses, employing 50% of the workforce (Dana and Smyrnios, 2010). Being family owned, the unique structure and culture plays a significant role in how the firm is strategically orientated and it's activities that drive everyday operations. Typically, the firm has exercised design as a departmental function within the value chain responding to the customisations and specifications of orders. A strong entrenched perception of design as an '*add on*' function further down the production channel means that there can be disconnection between managerial decisions and design influence.

As a result, high volumes of projects are managed simultaneously in isolated instances across the firm. The firm has typically utilised a *Stage Gate* model for new and incremental product development. Often lead by the market more so than the customer, projects put into the first gate can risk a cyclical rotation between first and second gate because the brief is not driven through subsequent gates by core value propositions and constraints. Consequently more time is spent finding the solution rather than better *defining the problem to give clarity to the solution*. The figure below shows how the *Stage Gate* model is utilised within the case firm. Sequence 'A' shows the recurring tendency of projects to move between first and second gate usually due to an inclination to re-fit the brief to the path of least resistance. Sequence 'B' can then occur where the need to have something in the market space causes the bypassing of critical gates.



Of focus to this paper, are the responses and discussions that took place post exposure to a design integration workshop. A strategically selected group of 6 from varying departments of the firm were chosen to attend the workshop wherein the value, tools and cultural need of design integration were communicated. Shown in Figure 2 below, first round interviews were conducted at the 3-month stage where the chosen participants had limited knowledge of design led innovation. Capturing their understanding through individual interviews, short written surveys and roundtable discussions at the 10th month where the participants have greater knowledge of how design integration could take place at the case firm is the primary data reported upon in this paper. Being at the stage of the ‘integration’ with the case firm, this paper documents a small stage of the whole engagement, wherein the participants have banded together to create some impetus for change.

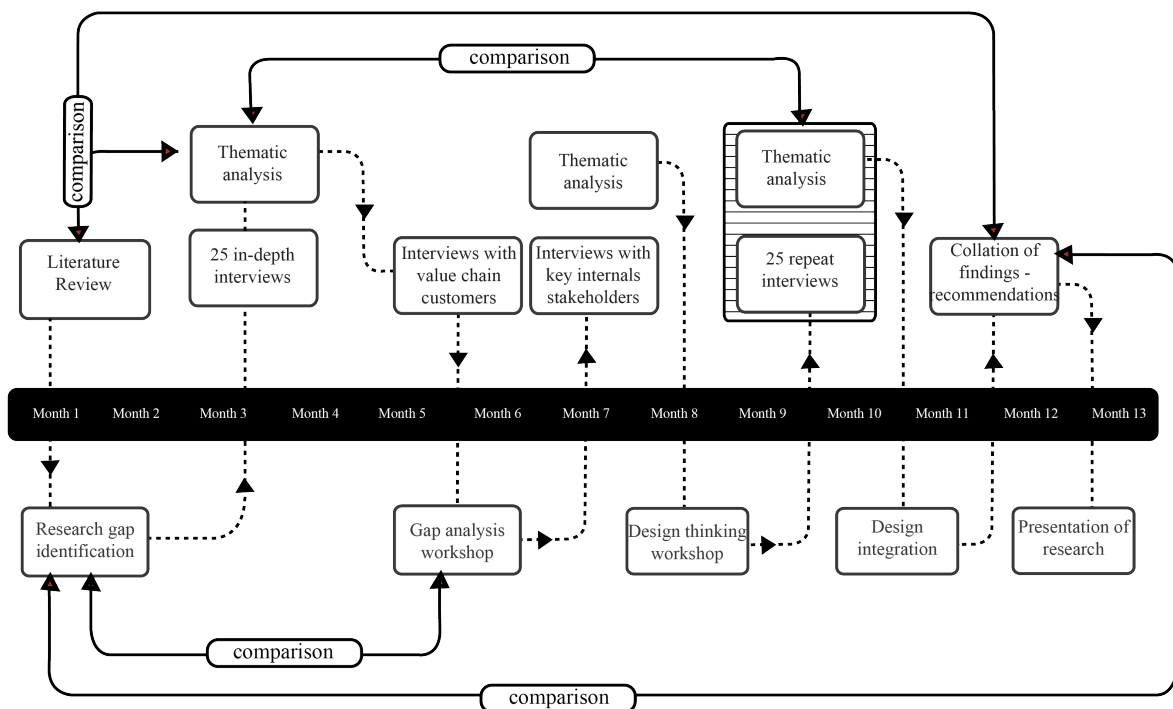


Figure 2 Project method for design led innovation case study (Rectangle blocked indicates the research stage presented within this paper).

6.0 Workshop:

The Design Integration workshop sponsored by the Australian Institute of Commercialisation was held over the duration of 2 days wherein employees from varying companies were engaged in both passive and active learning. The group that attended the workshop from the case firm was made up of 4 significantly different roles throughout the company - design, business development, marketing management and product management. Delivered by the secondary authors of this paper, activities challenged the groups to rapidly prototype a number of products or services envisioning the problem from the customer's perspective. Furthermore, participants had to consistently ensure that the '*peripherals*' of a customer or market's problem were kept in perspective thus broadening the context upon which solutions or innovations can be found (Design Integration Workshop, 2012). Often, firms concentrate only on the most immediate point of a product or service interaction/transaction as the key opportunity for innovation. As a result, bypassing a much more enriched understanding of their product or service as *one event* in a series of customer interactions with other

stakeholders, products, services or emotions. Firms need to look in new places for entrepreneurial opportunity to remain competitive within an increasingly crowded marketplace.

6.1 Key Insights:

The workshop provided a forum for discussion around the case firm's ability to integrate design as a strategic advantage into the firm. The need to harness the energy or excitement created within the group was a key priority in maintaining momentum. Like many firms, balancing resources towards unfamiliar growth opportunities while maintaining revenue from core business activities is a challenge. So at this critical stage of group engagement, tracking the process of transforming dialogue into action amidst the day-to-day operations of the firm is imperative to the learning process.

6.2 Defining the 'design champion'

The person that takes charge of a design proposition has in the past been termed the 'design champion'. As discussed by authorities however, achieving just advocacy and leadership has a limited affect in bringing about cultural transformation as this requires an additional understanding of "operational requirements, business needs, and strategy" (Wrigley and Bucolo, 2012, Martin, 2007). What is critical to the role is the ability to take research from the design or market field and translate that into the language of business (Wrigley and Bucolo, 2012). Furthermore, the ability to communicate the value of a new process is critical to the engagement process as shown by the limited uptake in previous operational initiatives such as Six Sigma and project management workflows. For this reason, it was important to capture the participant's individual perceptions of how their tenure within the firm as well as their particular skills could play a role in facilitating design integration.

6.2.1 Individual

On an individual level, the majority of the participants each believed that their ability to influence the engagement and transformation to a design integrated company was limited to within their own departments. One designer stated: "I would be able to influence colleagues in my immediate vicinity, but my influence elsewhere would be limited." Another designer limited his contribution to facilitating learning: 'being relatively new to the company, my influence would be minimal but being a designer, I think...I could assist others in seeing the positives at integrating design into the current model.'

While a longer term of employment and positions with higher status in the firm certainly enhanced some participant's sense of aptitude to lead such a transformation, common barriers were still identified. Being availed from day-to-day expectations and responsibilities to sufficiently manage the execution of an innovation project was cited as a blocker for both participants. A willingness to share the learning, tools and processes within their own work spheres was evident as described here by a product manager; "I can adopt the ideas of DLI (design led innovation) and use it in training and presentation with new and old employees to bring about change."

6.2.2 Group

The sense of empowerment when the discourse changed to a group approach was evident. As cited on numerous occasions by many of the research participants, the culture of the case firm exhibits a common SME trait: 'he who makes the most noise,

gets things done'. The idea of power in numbers encouraged a renewed sense of enthusiasm and excitement at the prospects of shifting the perspective within the firm. An important finding was that there was consensus that the firm had the correct people with the appropriate skill sets available to lead such a challenging task, but cited the difficulty in finding avenues to utilise those skills more effectively. A designer stated, "The people and the resources are here, the drive and tools are here, but are stuck in current thinking and models." Further emphasising the need for an implementation framework that can get traction for real change yet maintain the current business model sufficiently in the interim. The challenge to overcome is described by one participant as, "Short term cash out trumps the vision."

6.3 Product developments and defining the customer problem

The preliminary results from both interviews and the observations indicated that a key gap in fast tracking growth for the case firm is the process for new product development. Participants speculated a number of reasons for projects circulating the *Stage Gate* model as described above in the case study outline. One participant listed, "relying on adaptations of existing solutions, allowing clients to dominate new specifications and falling back on core manufacturing competencies so often." Another participant referenced how the information is analysed and dissected reasoning that the case firm tends to "follow previous ideas without asking 'why'".

A key challenge facing the firm is adjusting the structure and workflows to be better able to define whom the customer is and what their problems truly are. As a fundamental and central competency of the design led innovation approach, participants noted the need to prototype more consistently and frequently throughout the design process for the sake of delivering a product that exceeds customer expectations. The repercussion of not prioritising prototyping is that the value proposition is tested predominantly through the fully materialised product in the market. Incurring added cost, time and risk to the firm's brand. A standout characteristic used to describe the firm in light of the aforementioned behaviour was "fault tolerant". One participant discussed that the case firm was receptive to "killing a project at the 11th hour" through being realistic about the availability of profitable market space. There was consensus that decisions like this are made because of a gap in the case firm's ability to effectively 'predict returns on innovative concepts' in the *early* stages of project conception.

6.4 Time versus Need

Two definitive strategies were discussed as potential ways to begin implementing design thinking within the firm. The strategies were discussed in parallel with two critical factors- *time* required to implement and the *need* to implement. Hovanessian (2008) recognises this as the middle ground where SME's are aware the importance of innovation and change, but are disillusioned by the lack of practical strategy for embedding it within its culture.

6.4.1 Innovation team as advocates of DLI value

The first approach discussed was the preferred strategy for the majority of the participants where the focus would be on creating buy-in from the other relevant stakeholders as well as creating an environment to cultivate and nurture design thinking. A designer noted, "People (at the case firm) respond positively to examples so possibly running a new, small-scale innovative project...if managed correctly it could create some excitement in the possibility of change and innovation." Taking ownership of a small project from start to finish and using customer insight to continually prototype the value proposition and unpack the problem was seen as a

good way to gain respect and attention of important stakeholders. Furthermore, this strategy placed importance on slowly influencing the culture of the case firm by involving specialists across the business to engage with the innovation team and design thinking. One participant, a designer, cited this as critical to the success of the project, "...build an environment where the employees are open to change and make it clear why this is an advantage and how it directly impacts their work in a positive manner." Leading by example with 'faster prototyping and testing of theories may bring about a better innovative style of thinking'. This strategy however, did not address the difficulties the team would face in finding time to prioritise the initiative thus risking partial engagement or disbanding of the team.

6.4.2 Innovation team as a vision creator

The second approach stepped away from introducing another project to the portfolio rather focussed the innovation team on 'auditing' the current (extensive) project portfolio to ensure it's alignment with the case firm's greater strategic/brand vision. Working closely with executive management, questioning if project resources prioritise the strategic vision - and if they don't, questioning what the vision is that we're working towards? The team would act as an independent body of specialists who in actively assessing the project value could advise the relevant project managers and stakeholders. Essentially, this approach challenges executive management to intimately understand the goals and values of the firm in order to eliminate or innovate current projects. This milestone is really the *start* of the entrepreneurial journey as it signals the transition beyond the daily activities that provide financial stability.

7.0 Discussion:

As shown by the results, much of the dialogue focussed on the need to move from reactive to proactive design. This could in turn, allow the firm to move beyond a dominant product focus to one that is shaped by closer contact with the customer, driven by knowledge value and not product value alone. As discussed within the literature review, the challenge for SME's is not in identifying the need for change but in transforming dialogue into an action plan for implementation (Hall et al., 2001; Hovanessian, 2008). Furthermore, a particular challenge perhaps struggled with more so in a family owned firm is disseminating the strategy company-wide. As the incumbent strategies of family firms are often dominant and emotionally connected with the leading family it is imperative that entrepreneurialism and new ideas are rewarded throughout the company (Hall et al., 2001; Wiesner, 2004; f, 2006). To successfully achieve this, priority needs to be given on sharing and communicating the strategic family vision throughout the company. This could be a contributing factor to the study participant's sense of powerlessness on an individual level.

The findings also support research into the cultural characteristics of family owned firms (Laforet and Tann, 2006). In a family owned firm, the receptiveness to change felt by employees can be limited because "the feelings and emotions related to change are likely to be deeper and more intense than those in nonfamily businesses" (Hall et al., 2001). This creates a contrasting employee engagement scenario, which was important to consider in the formation of the DLI team. Employees with a shorter tenure within the company who are often younger can add value through a hunger for growth, creativity and a desire to achieve which is imperative in driving engagement in change. Where as longer-term employees have an intimate understanding of the firm's strengths and weaknesses, which is critical in influencing engagement. Research shows however that while these employees are generally in higher status positions (with greater ability to engage others) they also have a very embedded

role in maintaining the current culture of the firm (Hall et. al., 2001). Consequently, “they are intimately involved in determining what kinds of change will be accepted and which refused, whatever their ‘objective’ desirability”(Schoenenberger, 1997). Therefore getting the right people with the right combination of stature, knowledge and drive for change is imperative to the firm successfully achieving design integration.

8.0 Recommendations for further exploration:

The insights emerging from the implementation phase of the ongoing engagement are indicative and further analysis of possible integration strategies will need to be explored with the participant group. An initial systems framework is currently being explored as a possible strategy in creating targeted workflows according to the level of novelty/familiarity of the concept/idea. The core objectives of such a framework would be to:

- Improve the distribution of resources by allocating according to the level of innovation or complexity in moving the concept through the stage gates.
- Expedite the research and design process from conception to release without bypassing the necessary gates required to future proof the design/concept.
- Create a workplace structure that nurtures the opportunity for innovation, creativity and new ideas.
- Maximise the efficacy of employees with specialist skill sets.

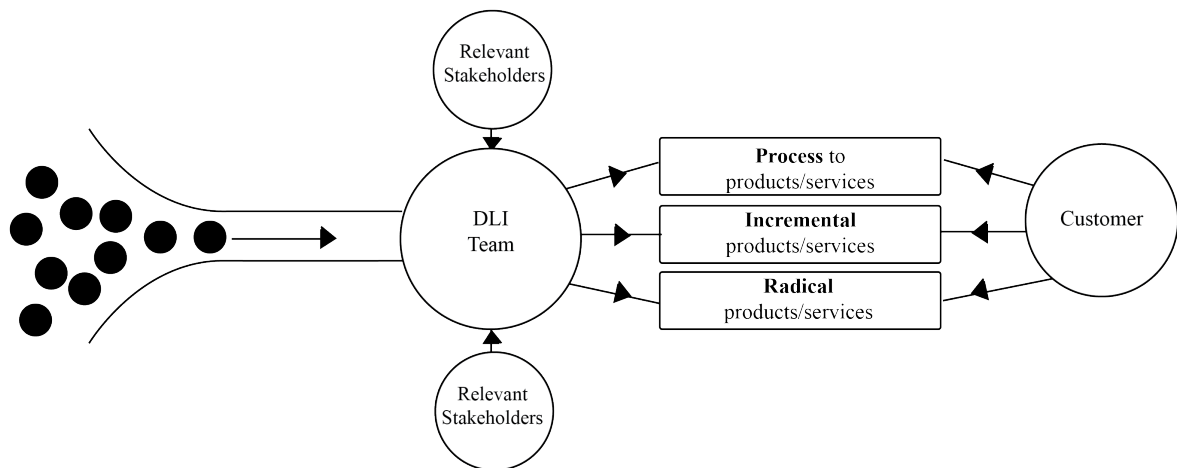


Figure 3 Preliminary framework – first phase process to assess the case firm’s current project portfolio

There is a definitive need to create some structured workflow around the process of product development. Typically the case firm has engaged in projects that are either incremental or improvements to existing product ranges. While a percentage of incremental innovations are required to continue to grow the business, the growth factor is much smaller year-to-year (Christensen, 1997). The challenge being that to enable the firm to pursue radical innovation opportunities, changes in the structural set-up of both project management and the design team need to occur. By requiring separate activities in each workflow, the significance of each tier is also promoted. For example, radical projects where the perceived risk is higher because the ability to predict returns is lower requires greater strategic planning and activities in the investigation stages of the Stage Gate model to offset that risk (Neumeier, M. (2008); Bucolo, 2011).

The path to implementing such a process however is not simple and requires deep analysis of what constitutes each level of engagement – the people, skills, finances, materials, and managerial contact. Once identified however, this would formulate a unique Stage Gate process for each category of product development.

A two-phase preliminary model has been shown here which outlines the role of the DLI team in implementing the framework and then where the DLI team should be placed into the future. Figure 2 shows that the role of the DLI team in the first phase would be to work closely with the relevant stakeholders to assess the categorical placement of each current project. By doing so, they would also be challenged to question the alignment of each project with the broader company vision – this can help define the objectives and allocation of resources against each category.

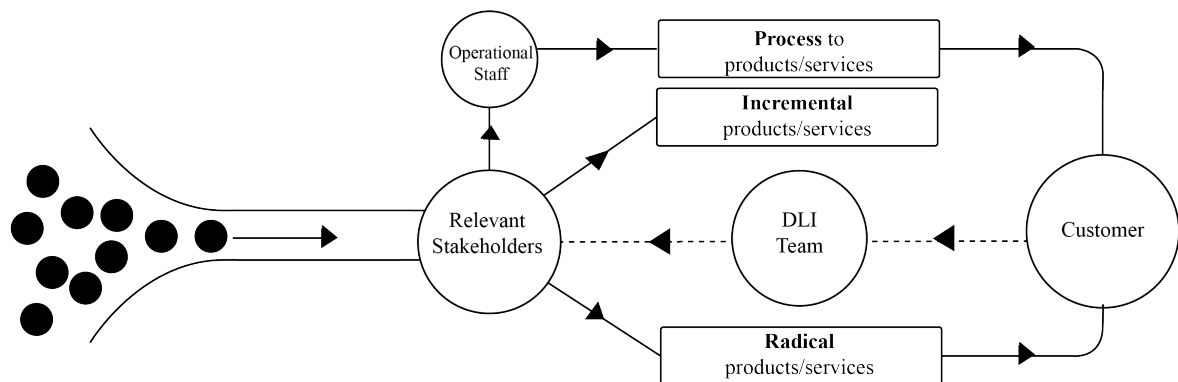


Figure 4 Preliminary framework – second phase process used to assign resources to the relevant project category.

Once the current project portfolio has been assessed, the role of the DLI team should shift as a key resource between the radical and incremental development categories. As a central hub, the team should lead research questions, customer insight and design thinking tools to ensure the value proposition for the product or service has competitive difference. In the second phase the relevant stakeholders will drive the projects through the relevant categories with a higher level of contact required between incremental and radical. Improvements to products and services should be able to be managed by general operational and engineering resources in a fast and highly linear Stage Gate process.

9.0 Summary:

Many business cultures have political, social and operational complexities that require very thorough navigation and consideration of factors that have traditionally remained outside the scope of design. The rapidly changing marketplace however demands a new way of tackling problems, framing scenarios from both a customer and business perspective. The core problem identified from this paper is that design led innovation cannot be seen and treated as a discrete event, nor a series of steps or stages. Complete implementation into SME's or family owned SME's in particular is a supreme challenge when organisational culture and power relations are so embedded. The insights found within this case study have however given some perspective on the possible strategies for generating some buy-in from upper management while maintaining the core activities and expectations from day-to-day operations. The first strategy placed the DLI team as exemplars of design thinking -creating buy in from upper management through the engagement of a small project. The second strategy used the DLI team's knowledge of design integration to assess the current projects

contribution to the firm's broader vision for growth. Moving forward with the insights presented within this paper, the project will continue to evaluate how these factors can play a role in facilitating the firm's transformation into a design led company.

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