

The Effect of Design Capability Characteristic on Design Performance for Bumiputera Furniture Companies

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Abstract: Malaysia furniture industry has seen exchange from the Original Equipment Manufacturer (OEM) to Original Design Manufacturer (ODM). These changes occur due to the local furniture manufacturers to add design value into their products. One of the ways out of this creativity rut was to revamp the model form producing or manufacturing product for international buyers in creating, designing and marketing our own product internationally. This study attempts to investigate the design capability of Bumiputera furniture manufacturing companies, that effects on the decline on design performance. Besides that, this paper also is to develop a richer understanding of how design capability can be introduced, accepted and sustained in the organization. 30 questionnaire survey was sent out to design managers or CEO of Bumiputera furniture manufacturing companies, and empirically demonstrate that both design and process management have an equal impact on design performance. This study uses a literature review and data collection from structured interview to document the findings. Then, it uses a data analysis (SPSS) to identify the appropriate components as design capability characteristics in developing the framework model. The framework model is to provide details of effects and actions on the companies, in order them to enhance their design performance. The finding shows the Bumiputera companies need to improve and enhance their design and process management with long-term implementation, in order to achieve the companies goal. With understanding the aspect of design capability, future efforts to develop the design capability become more successful and help to decrease the risk of design development.

Key words: *Design Capabilities Characteristic, Bumiputera Companies, Malaysia Furniture Industry*

INTRODUCTION

In furniture manufacturing companies, design can be considered as an important key of firm performance [1-2], especially for small and medium-sized enterprise. Brazier [3] and Acklin [4] state that design will help the company to improve communication and product development and become a source to support the company innovation. However, to achieve a good design is need the organization to have an effective design management. In the previous study [4], it shows that design has four powers to add to company bottom line and innovation capability. Firstly, design as a differentiator through a source of competitive; secondly, design as an integrator by improving new product development processes, thinking in product

lines and management; Thirdly, design is a transformer through creating new business opportunities and improving the company ability to cope change; and fourth, design will help the companies to increase sales, margins, brand value, greater market share on investment and others.

However, some Bumiputera furniture manufacturing companies are unaware of these powers, and most of them are neglected to use design as a strategic resource. This cause of most the Bumiputera manufacturer is lacking in design capability, in order for them to implement design role within the organization in more successfully. Therefore, the knowledge of design as a strategic resource has to be acquired, assimilated, transformed and exploited either through the

integration of designers into business processes or by other to forms of incorporation of design knowledge and capabilities [5]. By adopting design management into companies practice, these companies are able to build on prior knowledge of the value of design and design management.

In this paper, the author adopts a process-oriented of view of design and design management capability with identifying specific single design capabilities of organization process that influence to the decrease of design performance among the Bumiputera manufacturer. This design capability will act as a dynamic capability that can bring the impact on the overall organization process.

Research objective

The paper objective is to explain the twenty-three design capability characteristics that effect on the decrease in design performance among Bumiputera furniture manufacturing companies. Furthermore, the design capability characteristic was involving three areas in the organization process: (i) products innovation, (ii) organization architecture and (iii) operational.

LITERATURE REVIEWS

Design capability can be defines a developing the awareness or maturity of how these organizations understand and use design [6-7]. While, other scholar define design capability is the development of design capability in relation to specific competence or activities [8] or view design capability as understanding of how to exploit skills and methods related to design [9]. The literature review on design capability identified three key aspect related to an organization ability to utilize design: (i) awareness of design, (ii) design resources, and (iii) organization structure.

a) Awareness of design

The development of awareness in relation to design is the first step towards design capability in a design novice organization [10]. Many of models are based on perspective, viewing the development of understanding and use of design as an increase in capability or maturity, for example, a maturity model of design staircase from the Danish Design Center [11]. The staircase model access and describe how design is perceived and used within an organization and its awareness of design. Other models specific to design management [12] is developed with the aim to assess the practice of design management capabilities among European business and to identify potential obstacles to increasing their design management capability.

Through this model, design capability put emphasis on the understanding of design, and how and why design skills and abilities are used. This perspective suggests that an organization design capability would increase as the understanding of the design approach, methods and tools will have developed. The development of knowledge about design, the design approach, methods and its potential contribution; development of an awareness of design, play an important role in the development of design capability.

b) Design Resources

Many scholars describe the design as a strategic resource [13]. A common use of design capability in the literature is more related to the design competency skills, or activities brought by trained designers or the use of a design methodology. Rae [14] indicate the design resources is involving integrative thinking, creativity, and emphatic skills, while Savintra & Eloranta [15] define design resource is the ability to handle ambiguity and work with open-ended issues. However, thus not defined as a specific skill, competence or activities, but it used in relation to this kind of aspect. On this point of view, design capability could be defined as referring to skills or competence specific to design.

Furthermore, the concept of design capability may be used in relation to the processes methods and tools that form part of design activities and their associated skills and competence (design practice). In this furniture manufacturing context, the design resources are more related to design competence or skills, hiring design competence or training employee in design methods and tools in the organization, for example, access specific tool or facilities such as CAD programs in order to enhance the design development.

c) Organization structure

In this section, the design capability is related to managing the design resources and integration of design into current practice, which are closely connected with the organization management. Malmberg [16] indicate the design capability cannot be developed directly by adding the resources, but it requires the development of structures, routines or processes that enable the use of design competence and assimilation of design practice as an organizational function. This is to the support and manage the use of design resource for Bumiputera manufacturing company exploit their design more successfully.

METHODOLOGY

In order to examine the design capability characteristic that effect Bumiputera companies in design performance, the in-depth interview (n=6) was conducted among manufacturing experts and professional designers. The interview was carried put over a period of time and the interview was guided by a structured interview. Besides that, the questionnaire survey also was distributed among the Bumiputera manufacturer (n=30). The respondent that involves in this survey is consist of the general manager/CEO or the person in charge of product design within the company. The scale was based on the literature review its scale utilized in this study are Likert Scale (5- point scale: 1- strongly disagree to 5- strongly agree). The data collected from the survey were compiled and analyzed using SPSS software with a relevant statistical test as reported.

RESULT ANALYSIS AND DISCUSSIONS

In this study, the industry indicators were used to measure and evaluate the companies design capability and performance of the Bumiputera furniture manufacturing companies. The industry indicators were select under nine dimensions that directly and indirectly reflect manpower, market landscape, investment, business and social-cultural environments of the furniture sector. By analyzing the literature, questionnaire survey and in-depth interview: both professional designer and manufacturing expert, the author found a comprehensive reliable list of characteristics that affect the design performance and declining of Bumiputera furniture manufacturing companies in the export market.

The design capability characteristic contains all twenty-three characteristic identified by the research. Which of, each characteristic has an impact for internal and external of the company and have an interlinking relationship, with share the same ultimate goal of improving design performance and enabling sustainable growth of companies.

Table 1: Design capability characteristics

Area	Design Capability Characteristic
Product Innovation	Aesthetic value
	Empowerment creativity
	Innovation
	Creative process
	New product development
	Trends
	Expertise
Organization Architectural	Business model
	Strategic planning
	Design management
	Product positioning
	Market segmentation
	Branding development
	Internal collaboration
	External collaboration
Operational Process	Marketing and promotion
	Skilled Manpower
	Technologies
	Quality improvement
	Prototype development
	Supply chain strategy
Lean management	
Research and development	

In table 1 show that the design capability characteristics can be divided into three area of organization process; (i) product innovation, (ii) organization architecture, and (iii) operational. This finding shows that the design capability characteristic is mainly within the boundary of design management capability (Figure 1).

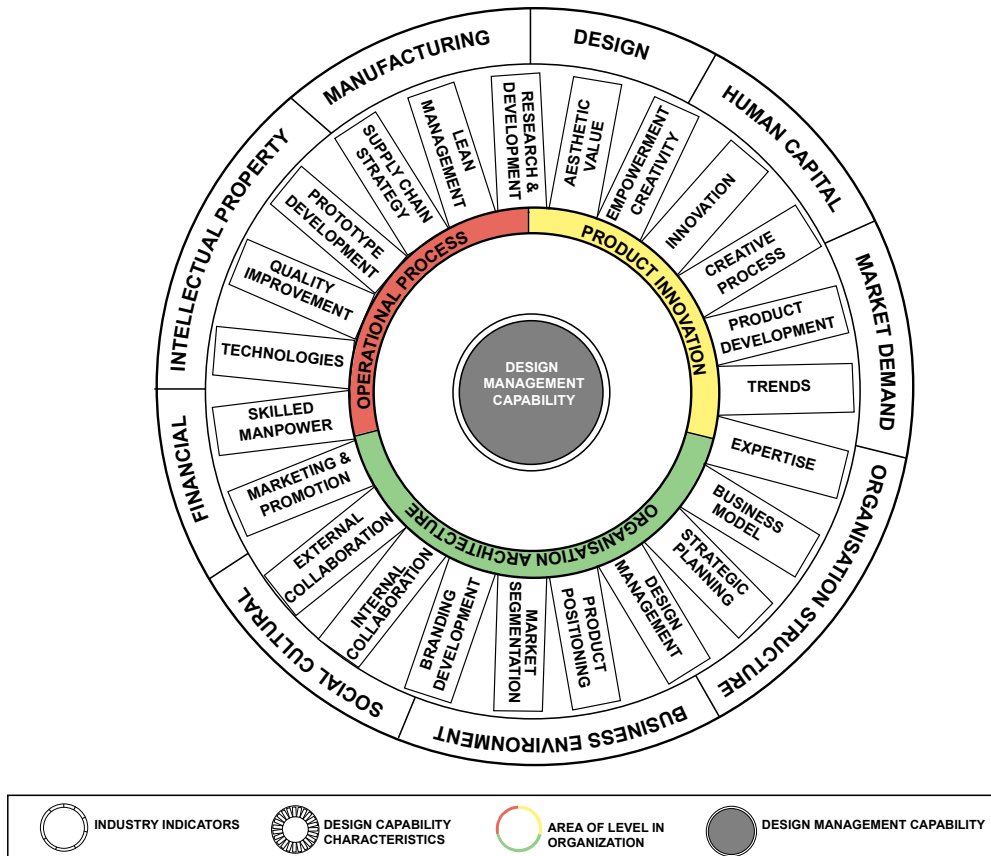


Figure 1: Design capability characteristic

a) Product innovation

The important of companies to identify or opportunities in new product creation for the business was found in this research. Manufacturing companies ultimate goal is to produce commercially successful product/services, therefore it is important for manufacturing companies to have the ability to come up with new product ideas that meet the consumer demands. The researchers recommend that manufacturing companies should consider these characteristics: (i) designing and added *aesthetic value* into the product creation to communicate quality and brand message, (ii) *empowerment creativity* among the stakeholders, (iii) developing *innovative* product with identifying the functional and usability need, (iv) involvement of *creative process* to increase process efficiency, (v) introducing new products through *new product development* as a strategy for growth, (vi) lead the *design trend* with optimizing functions with product aesthetic, and (vii) appropriate investment in *expertise* to increase quality and efficiently develop product/service.

b) Organizational Architecture

The research found in order to company achieve in creating innovative product, there is a need to companies implement their organization capability through: (i) transition of *business model* toward high-tech and branded mode, (ii) understand the challenges trend and issues through a *strategic planning*, (iii) deploying effective design with *design management* to develop a wide-ranging capability, (iv) manage their *product positioning* strategies to move to new position of consumer, (v) increasing market shares and profitability in fragmented market with *market segmentation*, (vi) *branding development* to increasing the continuing value cash of flow and reducing cost capital, (vii) encouraging *internal collaboration* through idea-sharing which enables implicit knowledge, (viii) involving user/client in NPD during *external collaboration* to interpreting and mediating information, and (ix) using a mix *marketing and promotion* to ensure consumer is aware of the product/service offering.

c) Operational Process

Process in this section refers to both technical and production process and the business operational process in furniture manufacturing companies. The companies should be considered of design capability characteristic to influence the process, including: (i) investing in *skilled manpower* for human capital development, (ii) technology utilisation scouting for new or appropriate *technologies* in both or outside the company to increase production efficiency and reduce R&D risk, (iii) applying internal and external *quality* to capture the ability of manufacturing plant, (iv) *prototype development* to identify user preference and manufacturability early in the process to increase production efficiency, (v) *supply chain strategy* for promoting efficient management and development important competitive advantage of suppliers, (vi) *lean management* to act for influencing the product positioning, managing the supplier links of the supply chain and to manage human/machinery capacity, and (vii) *research and development* is central to product innovation and firm commitment to the generation and commercial application of new products.

CONCLUSIONS

This paper is intended to provide a holistic overview of Bumiputera company design capability, which influence the manufacturer design performance. In order to Bumiputera manufacturers sustain and able in competing with other competitors, Bumiputera manufacturers should take an effort in improving their organization design capability. This can be done with improvised their product creation development, organization management, and operational process, in order for them to gain the benefit. The design capability action will enable them to restore to their level of originality in Malaysia furniture industry. This paper also does not look into design perspective alone but also from the point of view of how companies with little design experience can enhance their design capability learn to be divergent. Therefore, is an important perspective for the practice as well as for theory.

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