

The 'Action Process' Framework for Strategic Design Approach Among Bumiputera SME Furniture Manufacturers

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Abstract. Currently the Bumiputera Small and Medium Enterprises (SME) furniture manufacturers are facing obstacles in terms of design fundamentals and manufacturing innovation. However, there is a strong understanding of the importance of enhancing product performance within the furniture industry. In response to this challenge, the 'Action Phase' framework was developed in this study to strengthen the efficiency and effectiveness of the product innovation operation together with commercialisation among Bumiputera SME furniture manufacturers. This study developed a structured methodological approach to strategic product development based on the systematic exploitation of the creative process and capabilities of a wide-ranging network of employees. It established cost-effective and successful commercialisation through an integrated production-driven innovation road-mapping phase. Thus, a greater understanding of the system application in real-life settings was achieved through a comprehensive analysis by implementing case scenarios. Consequently, the 'Action Process' framework was established for assessing the performance of product development process models through the implementation and typology for considerations influencing implementation.

Keywords: Action Process; Strategic Design Management, Bumiputera SME, Furniture Manufacturers,

1 Introduction

The Bumiputera SME furniture manufacturers are unsuccessful in the furniture industry development [1]. The key factors influencing their success include weakness in management, marketing failures and difficulties in obtaining financial assistance [2,3]. Other challenges include limited participation in the international market, shortage of skilled workers and product marketing problems [4,5]. Therefore, these issues have to be addressed by the Bumiputera SME furniture manufacturers through strategic design management to sustain in this industry. This strategy would help manufacturers create productive and successful use of production to preserve long-term corporate life, achieve a sustainable competitive edge and produce benefits over the average market. The strategy involves the recognition of the competitive role of the company, future strategic decision making and strategy execution. According to Durgun, Serin and Sahin [6], the strategy requires a full range of activities, decisions and steps necessary for a business to achieve strategic success to gain above-average

profits.

Therefore, this study proposed the 'Action Process' framework as a solution for Bumiputera SME furniture manufacturers to improve profitability, marketing and productivity with products using variability and commonality. Such improvement can be accomplished by managing product development and regular activity of design management as strategic instruments. These instruments should include all the management strategies, methods and competencies implicated in design development.

Definition of Bumiputera / Bumiputra: is a term used in Malaysia to describe Malays and Orang Asli or indigenous peoples of Malaysia or Southeast Asia.

Based on the background of the problem that have been described, the formulation of the research problem is:

1. What are the influences on design capabilities that allow Bumiputera SME furniture manufacturers to improve their design performance?
2. How can Bumiputera SME furniture manufacturers adopt 'The Action Process' and accept the advantages of improving design performance?

2 Bumiputera SME Design Performance

This framework [7] strongly explains the direction of the study in recognising the factors which can impact the design performance of Bumiputera SME furniture manufacturers. Based on the industry indicators, several key factors affecting the design performance were determined in this study, namely, the design, resources capabilities, marketing, process development and finance until to a commercialisation strategy.

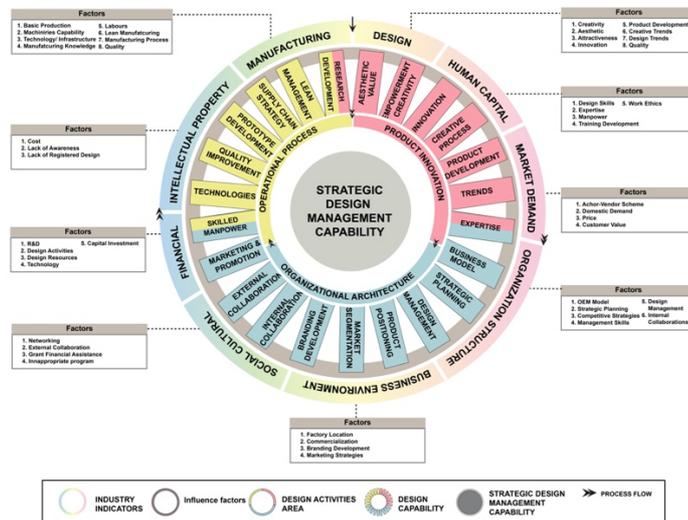


Fig. 1. Key factors influencing design performance of Bumiputera SME furniture manufacturers (Osman,2018)

Figure 1 illustrates nine industry indicators to assess the design performance of Bumiputera SME furniture manufacturers. The indicators include design, human capital, market demand, organisational structure, business environment, social-cultural, financial, intellectual property and manufacturing [8,9,10]. These industry indicators help manufacturers evaluate the company's market performance to achieve company objectives. Based on the evaluation of all industry indicators, a decline in the participation of Bumiputera SME furniture manufacturers in the export market is apparent due to the lack of organisational design capabilities [11]. A total of 23 design capability characteristics affecting Bumiputera manufacturers' design efficiency were discussed in this paper. The characteristics of design capability were described by reviewing the literature [12,13,14] and in-depth interviews with both experienced designers and manufacturing experts to provide a detailed accurate list of characteristics.

Table 1. Design Capability Characteristic

Area	Product Innovation	Organizational Architectural	Operational Process
Design Capability Characteristic	Aesthetic Value Empowerment Creativity Innovation Creative Process New Product Development Trends Expertise	Business Model Strategic Planning Design Management Product Positioning Market Segmentation Branding Development Internal Collaboration External Collaboration Marketing and Promotion	Quality Improvement Prototype Development Supply Chain Strategy Lean Management Research and Development

Table 1 indicates the design capability characteristic which is divided into three areas to achieve main goals and particularly to improve innovativeness: (i) product innovation, (ii) organisational architecture and (iii) operational process. The framework also demonstrated that the characteristics of design capabilities span across the industry indicators which help in a design performance including the influence of design (output) and the requirement for design (input).

2.1 Strategic Design Management

The implementation of strategic design management within Bumiputera SME manufacturing organisations utilises production factors efficiently and effectively to sustain the long-term operation of a company, achieve sustainable competitive advantages and benefit the average market. These approaches can aid organisations in developing strategic objectives, making future strategic decisions and serving as a reference for organisational management in putting the plan into practice for effective product commercialisation. In short, strategic design management process comprises the entire package of strategies, actions and initiatives required to ensure a business is more competitive than usual. The three stages of the strategy include formulation, implementation and evaluation.

Firstly, the strategy formulation stage involves: creating awareness among strategists; selecting and assigning strategists; developing vision, mission and objectives; identifying external opportunities and threats for an organisation [15]; identifying internal strengths and weaknesses; generating alternative strategies and selecting specific strategies to pursue. Secondly, the strategy implementation stage requires a firm to set annual objectives, develop policies, motivate employees and allocate resources to implement strategies [16,17]. Moreover, Fuertes [18] stated that this stage also includes coordinating organisational structure, systems, leadership style, corporate culture, human resources and business skills

with a developed strategy. Thirdly, according to Jofre [19], the strategy evaluation phase consists of two key activities. They are reviewing external and internal factors that form the basis for the current performance measurement strategies and taking corrective action.

3 Research Methodology

The research model and pattern can represent the way of thinking in a defined system. This study adopted a positive approach based on its objective nature to interact with respondents as little as possible. Having said that, data was collected from owners and managers of furniture manufacturing companies in Malaysia. However, only companies registered with the Malaysia Timber Industry Council (MTIB) and have participated in the Malaysian furniture exhibition were selected for this study.

The collected data were subjected to three key levels of analyses to gain a rich understanding of the design management capabilities in Bumiputera furniture manufacturers organisations. The three key levels include the enterprise structure, growth of the organisation architecture and capacity to manage design. The information collected through four main sources were objectively triangulated. The four main sources of information include (1) interviews with target respondents (design managers, general managers, designers, and marketing managers); (2) documents, books and scholarly articles covering the cases under study; (3) observation of the workplace environment; and (4) physical objects influencing the outputs of various design activities conducted by all the manufacturers (developing products, manufacturing, retailing, etc.). Having said that, the list of topics and questions organised under this framework was used as the basis for the structured interview which was open-ended. A total of 30 interviews were conducted and recorded as audio files before being completely transcribed.

Upon the collection of relevant data, data processing was conducted in three stages. Phase 1 focused on analysing case study data by describing and reviewing organisations' approach to the design based on the categories offered under skills and themes. Meanwhile, Phase 2 analysis focused on understanding the connection between design and strategy through design management processes and routines, strategic design management capabilities, together with key enablers and barriers affecting the operation. In this phase, variables were reviewed and major concepts were generated to reduce the number of categories by collapsing the variables into similar broader categories. Finally, in Phase 3, questionnaires were distributed to the same respondents (Figure 2) to collect empirical data.

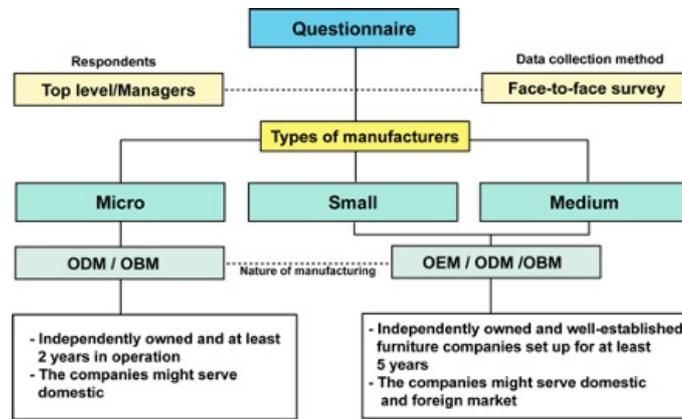


Fig. 2. Selection of respondents for distribution questionnaire

The questionnaire consisted of three blocks, including 25 main and 73 supplementary questions. The questions aimed to determine: (1) the level of knowledge at the organisational stage of the research activities, (2) the problematic issues at the stage of the research, and (3) the competitiveness of manufacturers. Unlike the interview, the questionnaire included both open and closed questions.

4 Result and Discussions

The data collected through the questionnaire survey was coded and transformed into a matrix in the Excel software to enable the analysis of data using statistical software packages using IBM SPSS. The quantitative method undertaken for the data analysis included data preparation and screening, descriptive statistics, principal component analysis (PCA), scale reliability analysis and hierarchical cluster analysis (HCA). A general demography analysis was also conducted for the samples (Table 2).

Table 2. Frequency analysis of respondents

Description		Frequency	%
Gender			
1.	Male	26	86.7
2.	Female	4	13.3
Total		30	100
Position			
1.	CEOs/Manager	28	93.3
2.	Executive	1	3.3
3.	Marketing	1	3.3
Company Size			
1.	Small	16	53.3
2.	Medium	10	33.3
3.	Large	4	13.3

The questionnaire identified literary elements or variables that impacted the production of Bumiputera SME furniture manufacturers. The inability of these Bumiputera manufacturers to produce products on demand was due to their limited design capabilities and internal inefficiency. This study also employed a clustering algorithm to measure the distance or dissimilarity of the results by identifying homogeneous clusters and group case recognition. The average similarity of clusters was also determined accordingly at this point. Figure 4 depicts the codes obtained for each case in the study along with the resulting diagnostic information generated by the dendrogram.

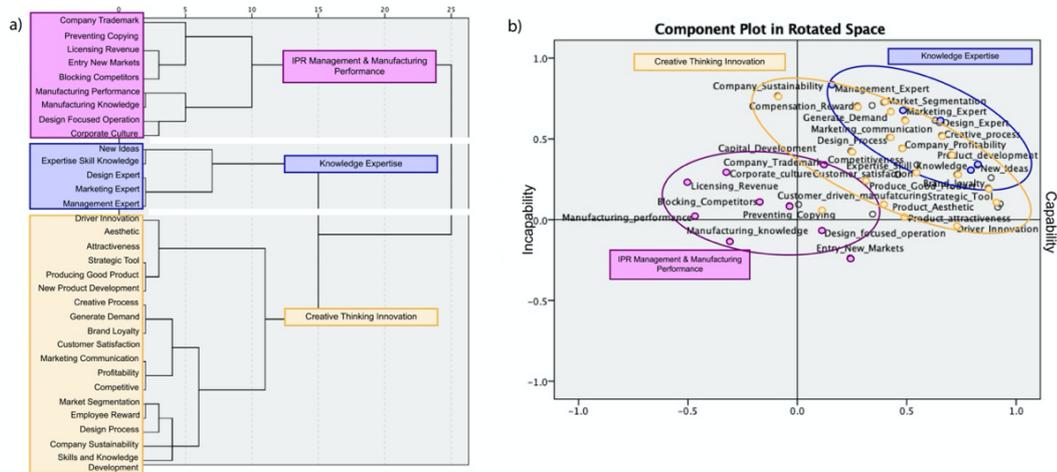


Fig. 3. Dendrogram analysis using the Ward method (Rescaled Distance Cluster Combine)

Figure 3 (a) demonstrates a dendrogram of HCA, while figure 3 (b) illustrates a scattered plot obtained via PCA for the cluster structure of 32 data variables. The analyses demonstrated the three major subgroups necessary amongst Bumiputera manufacturers to enabling themselves to be more successful in this industry. The subgroups include (1) Intellectual Property Right (IPR) management and manufacturing performance; (2) knowledge expertise; and (3) creative thinking innovation. These findings revealed the importance of human capital growth together with its vital aspects concerning knowledge expertise and creative thinking innovation among the Bumiputera manufacturers. The stakeholders of an organisation should be aware of these elements and have them embedded in their corporate strategy to ensure a successful transition from OEM to either ODM or OBM mode. The lack of design utilisation as a strategic tool to enhance innovation can lead to the declining performance of these Bumiputera manufacturing companies. However, it can be prevented by increasing their knowledge expertise and creative innovation to develop the technical skills required to meet the corporate goals and ensure long-term sustainability. Hence, the development of the 'Action Process' framework was undertaken as a guide for the Bumiputera SME furniture manufacturers to assess their design competencies.

4.1 Development of the 'Action Process' Framework

The integration of design management skills required in an organisation, such as planning, scheduling and managing design activities during the detailed design process, can be beneficial for the organisation. The integrated design management ensures the production of projects according to the strategic goals of the business. Therefore, the main aspects to ensuring successful completion of integrated design management among the Bumiputera SME furniture manufacturers include effective planning and managing design through the iterative nature of the process along with the growing need for project stakeholders.

Thus, the 'Action Process' acted as a strategic tool allowing the Bumiputera SME furniture manufacturers to identify and improve their strategic planning. The cohesive design strategy assisted by the process of design management displayed the relationships between elements the design strategy and good results which led to the establishment of strategic organisational objectives. Besides that, the 'Action Process' also demonstrated that manufacturers can achieve effective commercialisation through integrated design management. The framework provides an insight guide to project management, which is useful in demonstrating best practices and pitfalls in project management.

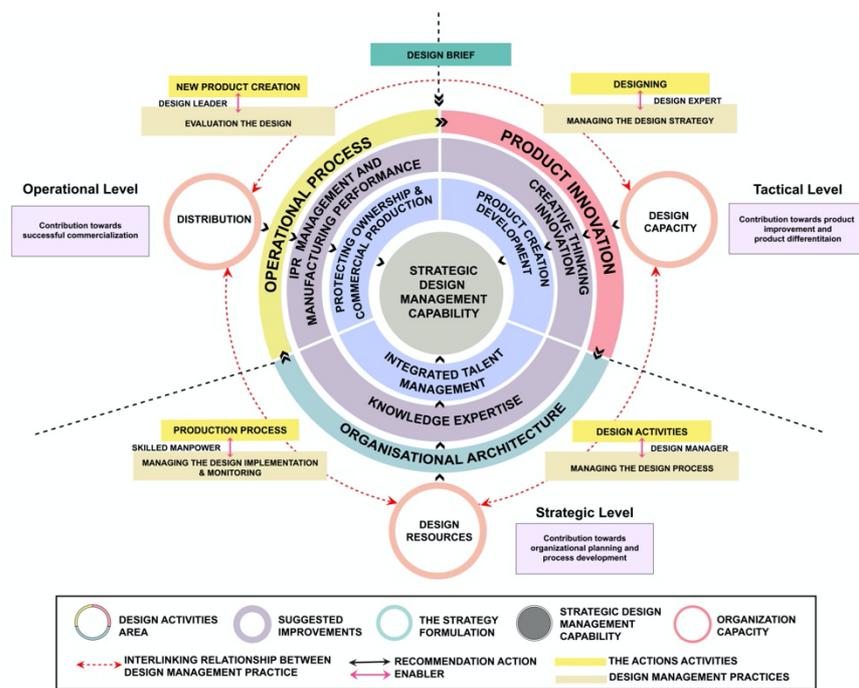


Fig. 4. The 'Action Process' framework for a strategic design approach.

Figure 4 illustrates the role of 'Action Process' in a successful transition from OEM to ODM or OBM. The implementation of this framework in their organisations allows Bumiputera manufacturers to focus on improving production efficiency and resource management. This framework also allows manufacturers to implement a knowledge-based

integration focusing on expertise, experience, implicit employee awareness and ownership rights to create or improve new product growth.

Moreover, the Bumiputera SME furniture manufacturers should have adequate capability within the design capacity and resources before commercialising their product in the market. The current study revealed that successful new product development requires design capability to forecast early product development and its impacts on the product life cycle (PLC) with accurate predictions. Based on such information, a product development department could create a superior design to fit their customers.

The designer must respond to the design manager's brief project by identifying opportunities in a specific scenario, as well as executing and correctly identifying tasks.. This process will result in a functional and/or aesthetic component of the new product, as well as potential innovation. Throughout the 'Action Process', the consumer's articulation and understanding alongside the market demand among internal partners are vital for the product development team to align with the core values and visions of a company.

Strategic planning begins with the company product growth's initiative targets and a clear view of the connection between these product targets and business objectives. Having said that, Bumiputera SME furniture manufacturers do not have product advancement goals, nor do they have their goals clearly defined and communicated within the organisation cycle. Therefore, the full utilisation of skills and experience could contribute to a productive future of the company.

As for business growth, markets and competition, the manufacturers concentrate more on integrated talent management as an organisational strategy. However, the effectiveness of this approach could differ for each stakeholder involved, in terms of marketing, sales and product creation. Each stakeholder should practise effective thinking and evaluation to determine the strategy to achieve the organisation's objectives and to meet the expectation of the stakeholders. In brief, the success of the distribution product in the market depends on the business strategy, project objectives and identified end-goals.

Therefore, the Bumiputera SME furniture manufacturers must consider investment in design activities to produce better results through quality enhancement and product aesthetics to meet the market demand. The organisations must invest in the overall design, planning and manufacturing cycle to achieve an effective process.

a. Strategic Planning Level

The 'Action process' is divided into three stages; (1) strategic, (2) tactical and (3) organisational to systematise processes within the firm. Contrary to organisational strategy, the design is the core competence in the intoxication strategy, including the concept of global mission, strategy and design-related policy. Design management acts at the corporate strategy level as a source of competitive advantage, catalyst for the scope and direction of change in an organisation. At this level, design management could also affect the structure, finance and human resources in developing the company strategy. Meanwhile, the nature of the product is crucial for the dynamic prospect of the furniture industry. In loose networks, the company could examine the effects of product design. However, during the process design, the impact of the product design is often ignored. Hence, as a practical step, businesses should plan the right design for their products to begin the reverse logistics process. A manufacturing company must have the expertise to assess the reliability and quality of the components.

At the tactical level, the design often relates to the administrative, team competency processes and systems of specific units. The tactical level generally refers to short-term results, such as selecting product return management adjustments integrated with the organisation. Moreover, the design can also be utilised at this level to create innovative product ideas and look for new business opportunities. However, the integration of the business strategy with the emerging product models to satisfy potential market needs remains a challenge at this level. Thus, the product return activities at this stage could lead to the prediction of return, product return management and overall production planning. In short, this strategy consists of strategic decision interpretation that translates into concrete plans and resources using supporting tools.

On the other hand, the operational level focuses more on the production of physical products, services and tangible experience, specifically to achieve economic efficiency with successful commercialisation. Hence, the operational level is essential in the process of design. Each process has its distinct action, characteristics of tasks and duration of time. Through this predetermined method, the production of a design can be identified easily and effectively.

b. Enabler

In certain organisations, excellent design management practices are demonstrated through excellent critical performance factors and routine tasks that consistently add value to the deliverables. Previous literature researched various perspectives where the enabler functions were assessed in: innovation culture within organisations; development of a potential innovation assessment tool; the impact of creativity and innovation work on output; creation of knowledge in open innovation teams; and increase in the success rate of open innovation. Furthermore, holistic research discovered the demand for multiple enablers for innovative work.

The established enabler can set out specific performance metrics and standard planning formats. Successful project plans must be tested by enforcing relevant results. Besides that, these indicators applied to efficient control management, reliable progress-monitoring method, periodic assessment, reporting, review, completion of practical cost and time forecasting of the project. In summary, the enablers in the furniture manufacturing companies can be categorised into four dimensions: design expert, design manager, skill manpower and design leader.

5 Conclusions

Design management is an integrated activity that unites the company to deliver clear messages to people inside and outside the company. Links between the design and long-term goals can be established in this approach through coordinated design resources to achieve the objectives of the business at all levels of organisational activities. Therefore, it is important to consider various aspects of design and plan management to be used in improving the performance of an organisation. These design management implementations must be used in the development of a design as an important and inseparable part of the design process, also in the entire process. Although design management extended its roles and responsibilities, the current methodologies used by manufacturers still lack in design and evaluation of design

management capabilities. The design and evaluation processes allow the formation of important relationships between organisational objectives, business strategies and design practices. Having said that, this study presented the creation of 'Action Process' aimed at enhancing the new methods. As a result, the comprehensive 'Action Process' structure was developed as a strategic tool, enabling the analysis of more common design management skills and obligations, together with the evaluation of strategic level management capabilities.

The framework provides new dimensions of competence to meet key roles and skills that are being emphasised in recent literature on design management. As a result, in order to effectively lead and manage the design process, the company must identify enablers at each level of the process and monitor design goals at all levels. In short, this study highlighted the requirement of managing the mediating artefacts and information, managing the divisions of labour and power, transforming the organisational culture, managing the rules and constraints imposed on the design process, product synthesis, together with guiding the designers.

Therefore, the creation of a methodology for this design is necessary for the development and implementation of production. The integration of design and production in an appropriate manner, the creation of mechanisms for the analysis of use, development of these designs for the production of furniture in the furniture industry and the understanding of its challenges in the implantation need to be considered. Moreover, the production process should be facilitated and accelerated using the existing organisational capacity to produce new product design development. It might also contribute to the organisational strategic objective, enhance innovation, foster company growth and generate competitive advantage through this framework.

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