



A design management approach in the development of small scale ceramics enterprises SMCES IN EGYPT

Prof. Dr. Kadry Mohamed Ahmed

Professor Dr.at ceramic dept.
faculty of applied arts , Helwan University

Dr. Fathy Abd Elwahab Osman

Assistant Professor - Ceramic dept.
Faculty of Applied Arts - Helwan University

Marwa Zakaria Mohamed Aly

Assistant Lecturer - Ceramic dept.
Faculty of Applied arts - Helwan University

Abstract:

Micro and Small enterprises play a pivotal role in the economical and social progress of developing countries. These enterprises are the backbone of the private sector in these countries, as they play a significant role in the economic development in general; and in the industrial development in particular. In spite of this, a large percentage of SMCEs in Egypt suffer from many problems resulting in most of them are about to stop their activity. These problems include governmental, economic, energy ...etc problems, but they generally can be divided into production problems and marketing problems that come from lacking of a clear marketing plan, as well as the funds to have one (although market information is inadequate in the first place).

The design management in the field of ceramic is defined as: the activities of designing and operating of the ceramic enterprises system that are related to the process of developing and managing the ceramic design efficiently in order to operate the ceramic enterprises focusing on the design.

So, this paper aims to embed the concept and principles of design management in the field of ceramic SMEs to improve their development in the market within the concept 'Think globally and Act locally', and to investigate the relationship between design management skills and design function of the ceramic organization.

The paper concludes that applying the design management science concepts (planning, organization and control, guidance and decision-making and problem-solving) has a great importance in the field of ceramic SMEs. Also, the paper presents a model of design management in ceramic SMEs (DMC) for future management development of the ceramic sector in Egypt.

Keywords: *Design Management, Small Scale Ceramic Enterprise, SMEs, Ceramic Design.*



• Introduction to Design Management

The design management is the mastermind and the main driver that allows companies to prepare their product for strong competition; hence, this paper emphasizes on the importance of design management and its role in the field of SMEs; and how to keep on track to meet the different aspects of the product scientific methods.

The design management is the activities of designing and operating the system related to the process of developing and managing the design efficiently in order to operate the company focusing on the design. (Eun-Young Kim and Jin-Ryeol Lee, 2004)

Kathryn Best (2006) defines design management as “the organization of the processes for developing new products and services”, while R. Chiva and J. Alegre (2007) defines design management as “the organizational and managerial activities or skills that optimize design process”.

The European Commission considers design management to be a competence that comes under the supervision of innovation management. Companies need innovation capability to be able to respond to new market opportunities and threats.

Fumihiko Isada (2010) also summarizes design management according to some factors, as follows:

- a) Concept (a policy is advocated and a concept is produced).
- b) Environment (an environment that creates a concept and innovation is supplied).
- c) Risk-Taking (decisions made and involve risk).

Brigitte B. de Mozota (2003) also indicated that design management has a two-fold objective: first, the training of managers and designers, this entails integrating managers with design and designers with management. Second, the developing methods of integrating design into the environment of corporate.

Kathryn Best (2006) defined design management inside the organization as “the relationship between design and management in linkage with technology and marketing”, Fig.1.

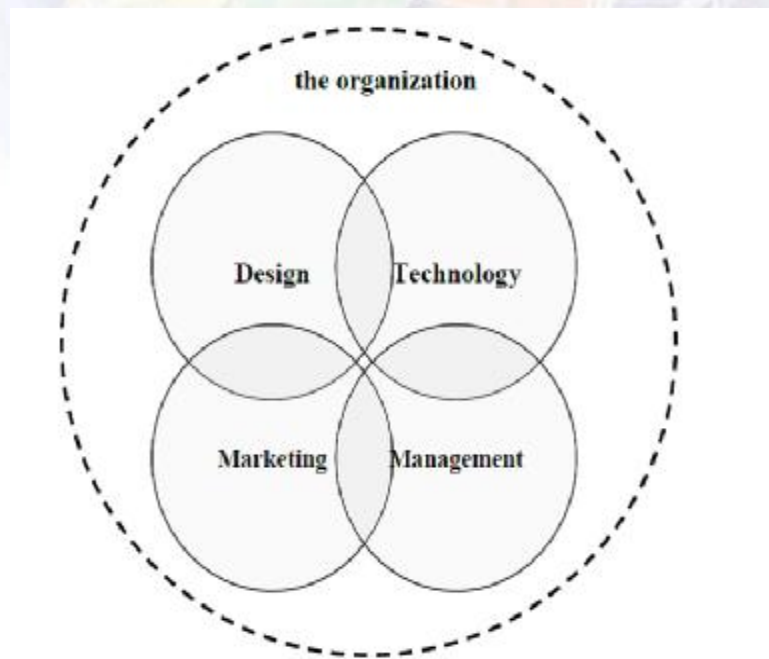




Fig. 1 Design management relationship

One of the most important aspects of design management is a thorough knowledge of the company and its competitors, which represents an input for the innovation process (Rothwell and Gardiner,1989). Another design management aspect is to provide an environment conducive to good design; as the environment controls whether a good design can be substantially realized or not. One of the important aspects of environment concerns the building of an innovative working environment.(Fumihiko Isada ,2010)

Eun-Young Kim and Jin-Ryeol Lee (2004) categorized elements of the design management into 5 elements, as follows:

- **Strategy & Purpose:** The purpose of design is significant not only for the design management, but also to the whole company management. The strategy and purpose are considered the most critical above all elements when the design management is related to the company management.
- **Personnel & Organization:** The effective selection, positioning and management of the designers are also an important element that cannot be excluded. The role of the design manager is significant since the individual personnel are a basic unit composing the organization, and a factor deciding the future of the organization.
- **Organizational Culture & Presence:** "The Company way" Is about the undefined company rules and company culture. The understanding of the organizational culture is a critical element for the effective design management.
- **Project:** The successful management of the design project on a short-term level is a momentous factor since it can function as an important bridgehead to secure the competitive edge through the design and design-oriented company operation on the long run.
- **Practice & Process:** It is a supportive factor assisting the design management in the course of carrying out the design and it includes integrated management of design, management and support of information and idea, development and support of human resource and financial support. It refers to a sequence process from beginning to end, from long to short terms.

According to Dickson et al.'s (1995) there are five main design management skills: basic, specialized, involving others, organizational change and innovation skills as shown in fig.2.

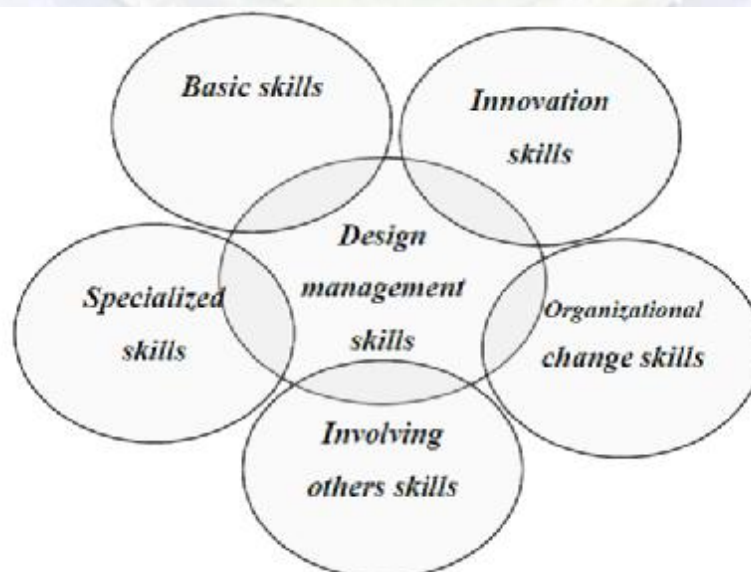




Fig. 2 Design management skills

• Design Management in SMEs

From the SMEs management perspective, design is often perceived to be costly, time-consuming, and unnecessary. Because products are assumed to be sold mainly based on their technical characteristics, small firm owners may have a narrow view of design, limited to styling only. Design is seen as just another activity at the far end of the product development process, while other activities, such as attending to short-term customer or retailer demands, are prioritized. (Hans Berends et al., 2011) "SMEs managers could consider implementing elements of the new governance regulations proposed within their countries". (Anita Van Gils,2005)

Small manufacturing firms, however, often fail to recognize the benefits of good design practices, and make limited use of outsider designers in their product design processes or for narrowly defined aesthetical activities only. (Utterback et al., 2006). Hans Berends et al. (2011) found that the creation and design management skills of outsider designers appear to be complementary to the manufacturing capabilities and custom knowledge available in small manufacturing firms. Yet, the small firms that worked with outsider designers only involved them in an integrated role, suggesting that small firms need to experience collaboration with outsider designers first, to fully appreciate their potential contribution.

Margaret Bruce et al. (1999) proved the important of segmentation of small businesses by design management experience levels, this way, skill levels can vary which can influence the company's attitude towards the design management process, either positively or negatively. So, companies must take steps to identify these levels of experience and to tailor the level of aid needed accordingly. Margaret Bruce et al. (1999) focuses on analyzing the following three key themes within small businesses:

- **Sourcing:** this category refers to the method by which the company sources the designer, including personal recommendation, recommendation from a government agency source or past experience.
- **Briefing:** this category refers to the method which the company uses to brief the designer, including verbal and written methods.
- **Evaluation:** this category refers to the method which the company use to evaluate the design process, including the pure cost of the design against sales ratio, and evaluation of the design in terms of meeting the brief.

S. Burke and W.F. Gaughran (2006) found that SMEs shy away from formal projects and long-term initiatives and instead only participate in small-scale, once-off initiatives. They added that regional policies such as waste disposal costs, amount of legislation, and cost of raw materials impact on companies differently from country to country.

S. Burke and W.F. Gaughran (2006) concluded that the practical steps taken by SMEs have been positive, however many of their negative steps are due to current waste legislation and rising costs of waste disposal. They added that the synthesized approach from the investigation of six ISO 14001 compliant engineering SMEs identified the following common sequential steps: (1) environmental policy, (2) initial environmental review, (3) gap analysis, (4) objectives and target setting, (5) systematic review and ranking of processes, (6) implementation of environmental management programs.

M. Entrialgo et al. (2000) suggest that SMEs firm's entrepreneurial intensity is influenced by the nature of its strategic management practices and by its competitive strategy. Moreover, it is important to note the greater impact of the competitive strategy compared to the strategic



practices on the degree of entrepreneurship. From the strategy's point of view, SMEs firms competing by means of an innovation based differentiation are more entrepreneurial.

M. Entrialgo et al. (2000) concluded that the notion that control systems are capable of rewarding creativity and the pursuit of opportunity through innovation is an important part of the entrepreneurial process. As for the competitive strategy, the SMEs competing using innovation differentiation develop a greater degree of entrepreneurship, compared to the firms competing using cost leadership.

-

- **Design management in ceramic industry**

R. Chiva and J. Alegre (2007) investigated the relationship between design management skills and design function ceramic organization, they have considered three different ways of organizing the design function, solely in-house, solely outsourcing, and a mixture of the two. Regarding design management skills, R. Chiva and J. Alegre (2007) research was based on five main design management skills: basic, specialized, involving others, organizational change and innovation skills. They indicate that the in-house approach obtains the highest degree of design management skills and the external approach to the design function achieves the lowest degree of design management skills. Consequently, the in-house approach seems to be the best option to improve design management in ceramic industry especially in SMEs. However, this is so, mainly due to the source of external designs in ceramic industry. Ceramic companies have different degrees of design management skills, depending on the approach of design function organization, and this also depends on the industry itself, as the design management research should be contextualized or analyzed in its organizational context.

According to European Commission (2008) SMEs in all ceramics markets do not have the resources to compete well enough. In some areas such as purchasing, production or logistic, large firms can exploit economies of a better scale than SMEs. In the sub-sectors with lower margins, this favors larger firms which, in many cases, dominate the sub-sector as a result. Consequently, many SMEs stand away from these markets and this powerful competition, while move into other markets that better suit their resources. At the same time, some large firms lack the SMEs flexibility and by so, they choose to operate in very specialized markets, and hence operate in markets that better suit their resources. The relationship between SMEs and large firms can be a symbiotic relationship rather than a competitive one. Furthermore, the features classically assigned to the SMEs as strengths, are not exclusive to them. Large firms can be, or have the potential to be, just as innovative and flexible if they choose to and have the required competencies.

-

- **Embedded Design management in ceramic SMEs in Egypt**

A design management in ceramic SMEs model (DMC) is created to embed design management in ceramic SMEs to improve their development in the market within the concept 'think globally and act locally'. The model shown in fig. 3 divides design management in ceramic SMEs into four departments inside the institution, starting with organization vision which is put by the general manager, who is often the owner in the case of ceramic SMEs.

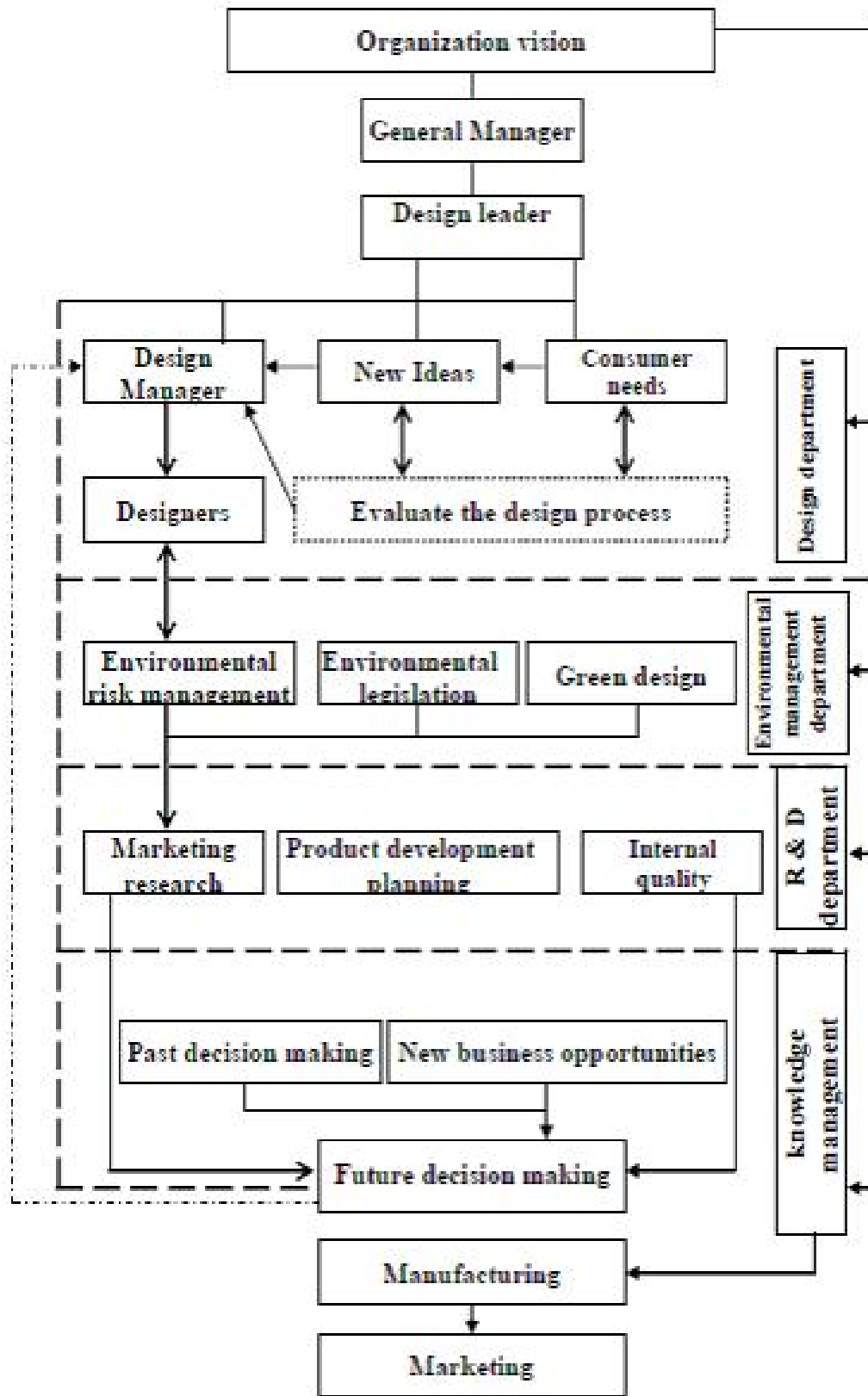


Fig. 3 The model of **DMC** SMEs

Then the design leader who has put the design vision related to organization vision.



The first department is the Design Department, which includes determination of the consumer needs to create new ideas presented to design manager. While the design manager puts the mission that applies the vision under continuous evaluation of the design process, then the role of the designer is to create the content which relates to the consumer needs and new ideas vision.

The second department is the Environmental Management Department, this department includes the awareness of three environmental insights that reflect the organization policy in manufacturing and marketing, which are: green design, environmental risk management and environmental legislation.

The third department is the Research and Development Department, which includes the internal quality that is concerned with the quality standards that must be relied on when developing new design ideas, as well as the marketing research that gathers information about the product under study and design aspects of the market study / marketing research, finally the product development planning which find new ideas and fundamentals to the design or the product development.

The fourth department is the Knowledge Management Department, which includes the thorough study of past decision making and gathering information about new business opportunities to formulate the future decision making. The future decision making is considered the post bone of the design management and product development, which feed-back to the design manager to put in account this decision in future mission.

These four departments are meant to provide the best quality in both manufacturing and marketing to improve the organization's competing ability.

Conclusion

We can summarize the conclusion in the following important points:

Applying design management science concepts (planning, organization and control, guidance and decision-making and problem-solving) has a great importance in the field of ceramic SMEs.

There is a reciprocal relationship between organization's design management departments and reaching a ceramic product with the required level of quality and development.

Small and medium-sized company products can fairly compete simply within the local markets and cannot in any way compete in the global market due to the high prices of the company's products in comparison with its global counterparts.

The strategic management of SMEs to face the competition of foreign products depends on the following three factors:

- 1 - Continuous development to reduce the cost and increase the quality of production.
- 2 - Taking advantage of the ideas and applications of the competing products and adapting them to the circumstances of the company and in accordance with competitive products in the same field.
- 3 - Continuous training of specialists in design and production.



References

- Anita Van Gils, Management and Governance in Dutch SMEs, European Management Journal Vol. 23, No. 5, pp. 583–589, 2005
- Brigitte B. de Mozota, Design management: using design to build brand value and corporate innovation, Allworth Press, New York, 2003
- Dickson, P., Schneider, W., Lawrence, P., Hytry, R., 1995. Managing design in small high growth companies. Journal of Product Innovation Management 12 (5), 406–415.
- European Commission ,Sector Competitiveness Studies, Competitiveness of the Ceramics Sector, 2008, from: <http://ec.europa.eu>
- Eun-Young Kim and Jin-Ryeol Lee, A Study on Establishment of Concept and Elements of Brand Design Management, 2004, from: <http://www.iasdr2009.org/> HYPERLINK "http://www.iasdr2009.org/" HYPERLINK "http://www.iasdr2009.org/" HYPERLINK "http://www.iasdr2009.org/" HYPERLINK "http://www.iasdr2009.org/"2009 HYPERLINK "http://www.iasdr2009.org/" .org/" HYPERLINK "http://www.iasdr2009.org/" HYPERLINK "http://www.iasdr2009.org/" HYPERLINK "http://www.iasdr2009.org/"2009 HYPERLINK "http://www.iasdr2009.org/" HYPERLINK "http://www.iasdr2009.org/" HYPERLINK "http://www.iasdr2009.org/" HYPERLINK "http://www.iasdr2009.org/"2009 HYPERLINK "http://www.iasdr2009.org/" HYPERLINK "http://www.iasdr2009.org/" HYPERLINK "http://www.iasdr2009.org/"2009 HYPERLINK "http://www.iasdr2009.org/" HYPERLINK "http://www.iasdr2009.org/" HYPERLINK "http://www.iasdr2009.org/"2009 HYPERLINK "http://www.iasdr2009.org/"
- Fumihiko Isada , A Case Study of Strategic Design Management , In: V. V Das et al. (Eds.): BAIP 2010, CCIS 70, pp. 636–640, 2010.
- Hans Berends , Isabelle Reymen, Rutger G. L. Stultiens and Murk Peutz, Syntens, External designers in product design processes of small manufacturing firms, Design Studies 32 (2011) 86-108
- Kathryn Best, Design Management: Managing Design Strategy, Process and Implementation, Ava Academia Publishing, 2006
- Margaret Bruce , Rachel Cooper and Delia Vazquez , Effective design management for small businesses, Design Studies 20 (1999) 297–315
- M. Entrialgo, E. Fernández and C. J. Vázquez, Linking entrepreneurship and strategic management: evidence from Spanish SMEs, Technovation 20 (2000) 427–436
- R. Chiva & J. Alegre , Investment in Design and Firm Performance: The Mediating Role of Design Management. Journal of Product Innovation Management 26:424-440, 2009.
- Rothwell, R., Gardiner, J.P., The strategic management of re-innovation. R&D Management 19 (2), 1989.
- S. Burke and W.F. Gaughran, Intelligent environmental management for SMEs in manufacturing, Robotics and Computer-Integrated Manufacturing 22 (2006) 566–575
- Utterback, J., Vedin, B.-A., Alvarez, E., Ekman, S., Sanderson, S. W., Tether, B., & Verganti, R., Design-inspired innovation. Singapore: World Scientific Publishing, 2006.