

THE VALUE OF DESIGN RESEARCH

DESIGN MANAGEMENT FROM THE PERSPECTIVE OF FUNCTIONAL UPGRADING

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ABSTRACT

Many companies from emerging economies attempt to upgrade their technological capabilities by participating in Global Value Chains (GVCs). Integrating into the global economy by becoming OEM (Original Equipment Manufacturer) constitutes a fast track strategy for Latecomer Firms (LCFs) focusing on upgrading their capabilities to maintain a position in the global market. Some LCFs have moved from being OEM to being ODM (Original Design Manufacturer) and OBM (Original Brand Manufacturer) by focusing on higher value added activities in GVCs. Developing and deploying industrial design capability as a dynamic capability in the business can increase competitiveness and enable functional upgrading through effective, economic and value-added products that meet user and market needs. In moving upward along the GVCs, OEM/ODM/OBM business models require different levels of design management capabilities. On the other hand, design management literature has emphasized the strategic role of design for the development of businesses without referring the upgrading trajectory of firms in GVCs.

On the basis of a literature review on the concept of GVC, this paper will argue that design management and design strategy need to be analyzed in relation to the companies' positions in GVCs. Such an approach provides a realistic perspective on design approaches of companies operating in the global economy. The paper will emphasize that there is a need for a linkage between the design management theory and functional upgrading in GVCs to develop viable strategies for the effective use of design.

Keywords: Design Capability, Design Management, Functional Upgrading, Global Value Chains

1 INTRODUCTION

As the global economy has increasingly been structured around GVCs, developing countries and their firms have gained opportunities to access international trade, production and employment. A group of lead firms ranging from Transnational Companies (TNCs), retailers to branded marketers have been playing a key role in organizing and controlling these knowledge channels and production systems by fragmenting activities of GVCs into different locations. Linking with TNCs in various kinds of contracting, licensing agreements, foreign direct investment, joint ventures or OEM contracts (Gereffi and Korzeniewicz, 1994; Hobday, 1995b; Lall, 1996; Ernst, 2002; Schmitz, 2004), LCFs can get the advantage of enhancing competitiveness, productivity and growth, transfer of new technology, capabilities, ideas, skills and knowledge (UNIDO, 2004).

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Upgrading trajectory in GVCs from OEM to ODM and finally reaching at OBM position entails a challenging route requiring to engage in higher value activities based on capability building. The organizational learning process that they have gone through has allowed them to develop dynamic capabilities to integrate and reconfigure internal and external competences to address rapidly changing environments (Teece et al., 1997).

The OEM business model enables acquisition of manufacturing and technological capabilities, but OEM alliances are mainly based on price competition and manufacturing capabilities of companies in unsteady market conditions. Upgrading from the less promising OEM to the ODM business model on the other hand requires engaging in new capabilities encompassing product, process and production design giving rise to improvements and adaptation in new product development. Although upgrading to ODM business expands the dimension of competition from price to quality and design capability, in OEM/ODM business models TNCs are owners of the product brands. Standing at the top of the value chain, OBM bears more risks while offering competitive advantage, unique identity, quality image and high profit margins. In fact, many companies have failed during this upgrading trajectory or some of them have taken a position in favor of staying within OEM/ODM model, or some of them - such as Vestel from Turkey- have followed a dual strategy as being OBM in the local market while pursuing a OEM/ODM strategy in the global market.

Despite the fact that companies require different sets of design and design management capabilities for each of these models, the design management literature does not refer to the upgrading trajectories followed by latecomer firms in trying to position themselves in the global economy.

The paradigm shift in the role of design from shaping products to shaping business strategy and work processes of organizations put more emphasis on the development of design and design management capabilities. However, the existing body of knowledge in design management does not entail the different paths followed by latecomer firms to position themselves in the global economy and the different design strategies followed by them accordingly. Considering the gap between the existing body of knowledge in design management and development strategies followed by latecomer firms, a linkage is proposed. In this paper, we aim to reveal the relevance of the functional upgrading theory in GVCs to the body of knowledge in design management.

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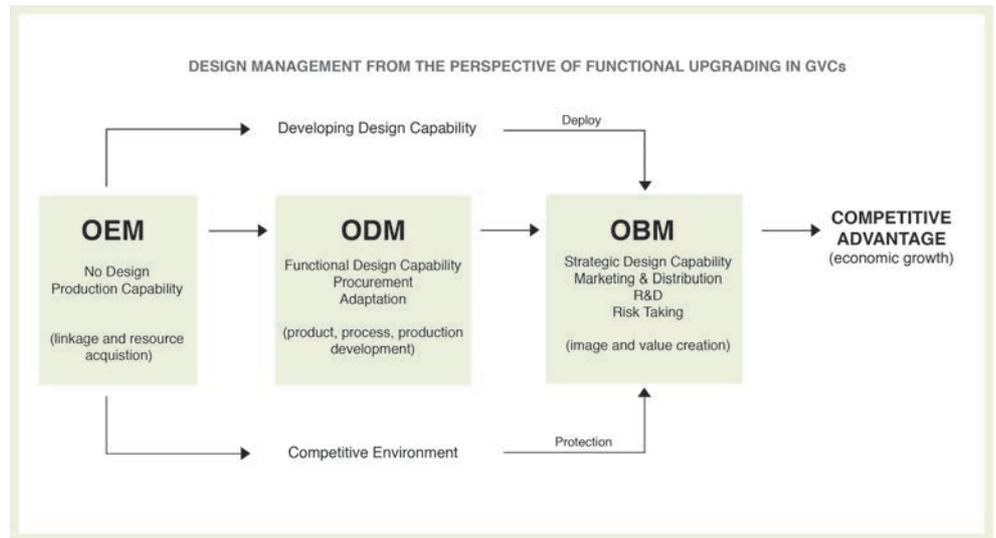


Figure 1 –Summary of the integration between design management capability and functional upgrading in GVCs.

2 ENTERING GVCs AS A FAST TRACK STRATEGY FOR LATECOMER FIRMS

Operating in emerging economies, LCFs initially intend to overcome “resource position barriers” (Wernerfelt, 1984) by adopting export-oriented strategies and entering into GVCs to access external knowledge, technologies and markets. Latecomers can turn the disadvantage of deficient resources and late arrival to new technologies into advantage¹ without reproducing entire technological trajectory. Radically different from resource base view of incumbent firms building their strategic distinctiveness on resources that are valuable, rare, non-imitable, and non-transferable (Barney, 1991), LCFs are targeting least rare, most imitable (for ex. through reverse engineering) and most transferable resources (available through consultants) (Mathews, 2002). These companies have used strategic alliances as a medium for organizational learning and knowledge transfer from contractors. Hobday (2010) defines being a latecomer firm in terms of lacking technology and market access. Latecomer is a late entrant into industry and operates from outside of the world innovation centers. Therefore, the aim of the fast follower LCFs is to catch up the world’s leader players by entering industry (posing linkage), acquiring resources (posing

¹ Alexander Gerschenkron, Russian historian, introduced a term “latecomers” to explain patterns of 19th-century industrialization in Europe. Gerschenkron argued that the industrialization strategies of latecomer nations, like Germany and Russia, were different from those followed by first movers, like the United Kingdom and France. The latecomers suffered from the disadvantages of not having the industrial base of the first movers; and of not having advanced capital markets and financial institutions. Gerschenkron (1962) argued that the latecomers were able to acquire these features rapidly once equipped with a national industrialization strategy, by bypassing earlier steps.

resource leverage) and gaining competitive positioning (learning as the outcome of repeated applications of linkage and leverage) (Mathews, 2002).

The development track of Asian firms indicates that integrating into the global economy by becoming OEM constitutes a fast track strategy for LCFs focusing on upgrading their capabilities to maintain a position in the global market (Ernst, 2008; Hobday, 2010; Mathews, 2002; Forbes and Wield, 2002). Some LCFs have moved from being OEM to being ODM and OBM focusing on higher value activities in GVCs. The fast track strategies of LCFs particularly have begun with East Asian (Korea, Taiwan and Singapore) firms by developing capabilities and learning technology from the best (Ernst, 2008; Lall, 2000; Hobday 1995 a, b).

This learning, developing and growing strategy by linking with GVCs have been followed by Latin American, East European (Hobday, 1995a,b; Enos et.al., 1997) and Turkish firms (Aktaş ve Akçaoğlu, 2005; Tokatlı, 2007). As Kim (1997) claims that Korean firms such as Samsung move “from imitation to innovation.” There is also abundant evidence that Emerging Multinational Companies (EMNCs) such as Mahindra Group (India), HTC (Taiwan), LG Electronics (Korea), Lenovo (China), Mavi Jeans (Turkey), Temsa (Turkey), Vitra (Turkey), Haier (China), Arçelik (Turkey) aim at creating global businesses and global brands by developing technology, innovation, design and marketing skills (Chattopadhyay et. al., 2012).

A great number of companies founded in developing countries have linked with GVCs as an OEM contractor to cope with the initial resource position barriers. The acquisitions of manufacturing capabilities by pursuing export strategies followed by upgrading strategies in which firms are adopted niche market-oriented strategies and consistently invested on design and innovation to become a global brand.

3 UPGRADING STRATEGIES IN GVCs

The rising emphasis on the development of emerging economies and their firms has increased the importance of GVCs analysis as a strategic tool for competitiveness of firms and nations. GVCs analysis focuses on tangible and intangible value added activities within a value chain from conception to end use including design and product development, ‘manufacturing, ‘marketing and sale’ ‘disposal and recycling; technological and industrial upgrading of companies in product specific value chains (Porter; 1980; Unido, 2004; Gereffi and Fernandez-Stark, 2011). In some chains, knowledge-intensive activities such as product design, development and technology are modularized and separated from the whole chain system and performed in different geographical locations. In addition to low cost manufacturing, this modularization create opportunity for LCFs to enter global market and develop value added activities and new capabilities (design and marketing skills).

In GVCs analysis, upgrading concept from bottom to top describes economic and social upgrading trajectory of countries and dynamic movement of companies between the stages. Basic dimensions of GVCs methodology - input-output structure (all process of a product or service), governance (entire network controlled by lead firm), institutional context (local dynamics, government policies) and geographical consideration (location of network) – significantly influence upgrading and innovation capability of enterprises (Gereffi, 1995).

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Lead firms are key actors governing value chain organization and strategy in these networks.

Within this framework there are four types of upgrading in GVCs (Humphrey and Schmidt, 2002): *process upgrading*, which entails production systems or superior technology for efficient production; *product upgrading*, or moving into more sophisticated product lines; *functional upgrading*, which embraces acquiring new functions; and *chain or inter-sectorial upgrading*, where firms move into new industries.

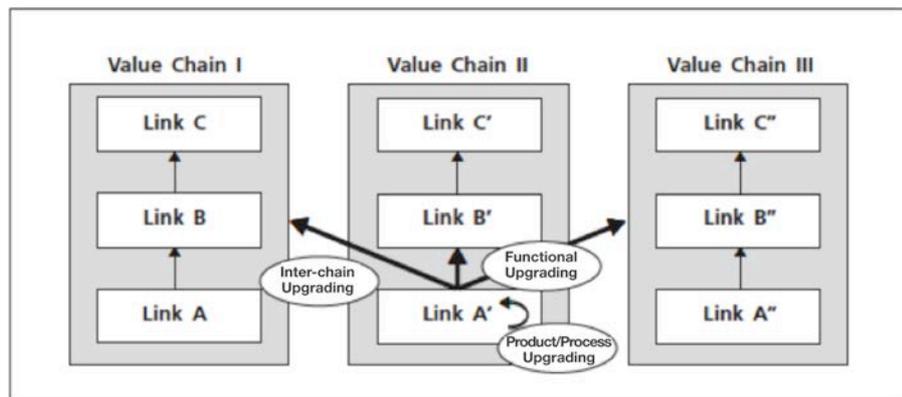


Figure 2. Upgrading or innovation trajectories (Source: UNIDO, 2004).

From a dynamic perspective, upgrading is based on capability building started with production and export activities as Link A represents OEM, known as full-package production. At this level, manufacturers focus on acquiring technological capabilities and efficient production to overcome high competition in unsteady market conditions based on low-cost production. Market dynamics are important factors, usually low-income markets tend to stimulate processes upgrading, while high-income markets tend to stimulate product and functional innovation (UNIDO, 2004). Depending on the governance structure of the value chain, global firms outsource some stages of innovation related to new product development. For instance, global brand leaders for laptops (like HP and Dell) use design services provided by so-called ODMs, mostly from Taiwan, for new product development. Entering ODM (Link B) business moves competition from price to quality and functional design capability that entails talented designers, detailed industrial design, development of new concepts, prototype creation, process design, production design, following global and product trends, sufficient funds for investment, intellectual property rights protection for designs (HKTDC, 2008). The OEM and ODM models are both business-to-business (B2B) models in which products are sold under the buyer's brand by using its distribution network and marketing skills. Moving upward along the value chain by investing to become a business-to-customer (B2C) OBM (Link C) business bears more risks but offers competitive advantage, unique identity, quality image and high profit margins. Basically, the main functions of OBM business model are product design and development, manufacturing and marketing. In a long period of time, successful LCFs consistently have developed themselves after entering GVCs by acquiring new functions. As OEM position entails economies of scale manufacturing and manufacturing capabilities, ODM model embraces industrial design capability, and OBM business model entails structuring own marketing and distribution network (Hobday, 2010; Dicken, 1998; Kaplinsky and Morris,

2000). While many companies have failed during this upgrading trajectory, some of them have established their strategy in favor of staying within the OEM/ODM model due to the requirement of high investment in branding, difficulties of competition between existing brands, lack of internal expertise and management capabilities (HKTDC, 2008).

In following upgrading strategies from low value added activities to high value added activities, firms have required to develop dynamic capabilities, such as acquiring technological capabilities by absorbing knowledge from lead firms, leveraging resources and investing in industrial design and design management capability, and brand building.

4 DESIGN MANAGEMENT CAPABILITY AS A DYNAMIC CAPABILITY

Many LCFs focusing on upgrading strategy, particularly East Asian firms have established new product development capabilities from OEM/ODM alliances. The capability view stated that a set of ability to develop core competencies are dynamic capabilities² that enable firms to integrate build and reconfigure internal and external competences to address rapidly changing environments (Teece et al., 1997). In this context, firm capability is the main source of competitive advantage to obtain, learn and develop value added activities. Capability view has organizational and strategic routines that firm capability is defined as integration capability of value added activities from diverse backgrounds into organizational procedures and management (Grant, 1996a, b). Specific and identifiable processes in the companies such as product development or strategic decision-making are defined as dynamic capabilities (Eisenhardt and Martin, 2000).

In the context of organizational strategy, Rosensweig (2011) have offered a model combining design process, design management and dynamic capability view, and analysed the effectiveness of design thinking in supporting design as a dynamic capability to increase competitiveness through effective, economic and value-added products that meet user and market needs. Similar to the Rosensweig's (2011) design capability approach as a deployed capability into the organization within the design-thinking concept, Mutanen (2008) has focused on the developmental actions of design activity by replacing the idea 'design as ready' with 'design as developing' to perform design as a collective organizational capability for the strategic use of companies. According to Mutanen (2008), design is part of a broader capability development process in which transformational periods that firms have gone through are expert-centered, outsourcing design to a design professional; tool-centered, design as individual ability within the context of new product development; process-centered, integration of design into product development and; strategy-centered, able to manage design as a collective activity in the context of brand management and business development. The remarkable point of Mutanen's study is to indicate the relationship between transformational periods and design

² Arend and Bromiley (2009) have investigated different perspectives of dynamic capabilities view and summerized contributions of Teece and Pisano (1994), Teece, Pisano and Shuen (1997), Eisenhardt and Martin (2000), and Teece (2007) in their paper as figures.

management capabilities of companies. In this paper, we consider that these transformational periods of firms are OEM, ODM and OBM business models in the GVCs.

Based on the studies, we can define that 'developing and deploying firm's design capability is a firm-specific organizational knowledge and strategic business resource that emerged as a result of long-term operations of planned and consistent studies from previous experiences with the aim of generating this knowledge into an organizational capability.'

Design is playing a major role in value creation both for users and manufacturers by contributing to a product's functionality or utility, aesthetics, social prestige, identity and pleasure, quality and performance, reduce manufacturing costs and customer life-cycle costs (Veryzer, 2005; Roy and Potter, 1990; Walsh et. al., 1992; Boztepe, 2007). To meet the particular needs of a local market, firms require ability to understand cultural change and convert knowledge into new products by using design capability. In this respect, design plays a key role in the competitiveness of firms and nations, the extent to which it should be managed as a strategically important process.

5 CONCLUSION

In the functional upgrading trajectory of firms operating in GVCs, building design and strategic design management capabilities has become more important in transforming businesses from OEM to OBM model. OEM firms are usually focused on acquiring technological competencies and manufacturing capabilities in price elastic markets. While technology follower LCFs effort to build advanced technological capabilities, they often miss out the need to build design capability. However, Forbes and Wield (2002) argue that particularly "technology-followers should be concerned with new design", because product development in LCFs is mainly related to development and design rather than research and development. It is possible for firms to push out the design frontier without pushing out the technology frontier competitors by investing in design capability to meet the particular needs of local and global markets. The most important role for R&D in technology-followers is the development of a technology base for establishing an effective design leadership to move upward along the value chain. The power of design and branding capabilities in a mature industry (white goods) can be illustrated with three examples- Haier, Arçelik and Mabe (China, Turkey and Mexico, respectively) were evolved from the production of simple goods to the higher value-added market segment by moving up the value chain (Bonaglio et.al., 2007).

Key features of East Asian innovation are based on incremental innovation by improving products and processes, and developing better product models (Hobday, 2010). For example, consistent investment on design and innovation are one of the key competencies behind the success of Fenix case from Hong Kong. Three obstacles were identified in transforming Fenix business from OEM to OBM namely insufficient design and innovation, poor country image and limited financial resources (Chyr et. al., 2008). These examples indicate that LCFs can pursue a fast track strategy for developing and upgrading their businesses by exploiting the benefits of design and innovation. Ernst (2008) emphasized the importance of 'soft innovative capabilities' for the development of emerging economies and claimed that "technology is easy part to change and learn; the difficulty is social, organizational and cultural aspects." In brand

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building journey of Vitra from OEM to OBM, throughout different developmental stages, the company entail different design management capabilities: in emergence phase design utilized for 'modification', then design structured as a new product development 'process' and finally design used as a 'strategic process' in establishing a strong brand (Topaloğlu and Er, 2011).

These studies indicate that capability building is a dynamic process in which companies can change strategies, upgrade themselves to new positions and business models. Design management literature emphasize that the level of design management capability plays a major key role and contributes to the businesses as a strategic resource for the creation of product, process and business innovations. However, these theories have developed without referring the business models or positions of companies operating in global economy as OEM, ODM and OBM. Since there is a need to establish a theoretical relationship between design management and functional upgrading, this paper argues that design management and design strategy issues need to be analysed in relation to companies' positions in GVCs. The development and integration of design management theories could lead to more realistic and effective policy development for latecomer companies to use design strategically.

This paper is an attempt to integrate the theories developed in the field of design management and patterns of latecomer development such as functional upgrading in GVCs. Following such integration, further research would be needed for models to maintain latecomer companies of various sizes and sectors use design strategically.

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