

## THEORETICAL AND HISTORICAL PERSPECTIVES IN DESIGN, INNOVATION AND POLICIES

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### Introduction

In the globalized economy of 21st century, many industrialized countries owe their social and economic successes to transform their conventional economies into the design oriented innovation economies. Achievements of industrialized countries indicate that there is an intensive and multidimensional relationship between design, innovation and R&D activities [1], [2], [3], [4], [5]. Asian governments, by following Japan's leadership, are encouraging and implementing design driven knowledge and technology to excel their position in competitive global market.

Economic performance of countries is related to national system of production and new developmental paradigms take into account not only the quantitative economic indicators but also social development and welfare of societies. Developmental patterns of countries depend on the implementation of policy tools such as innovation, research and development, technology and knowledge [6]. In this progress, differences in national economic structures, values, cultures, institutions and even histories contribute to the stories of development.

This paper attempts to describe the practical relationship between design, innovation and their core function in the national development. The relation of design as an economic factor in national design policies and its relation to innovation strategies were examined as the agents of national policies after Second World War. Dynamics that create differences between the developmental stories of countries are discussed in the cases of Japan and Turkey.

### Innovation and Design

An early definition of innovation is given as the successful implementation of creative ideas within an organization [7]. In the contemporary literature, innovation is emphasized on wealth creation and change by which societies can enhance welfare when they organize and manage themselves for innovation [8]. Several theoretical and empirical studies indicated that successful relations between technology, innovation and knowledge bear out economic growth [9].

Innovation has been widely referred to technology, technical change and invention; but crucial role of design in innovation was rarely mentioned [10]. OECD (1992) proposes a distinction between technological innovation and product innovation due to the implementation of technological novelty to a product or service and the marketability quality of a product or service. Innovations have been categorized as product innovations and process innovations by OECD, but technological innovations have been distinguished as a diverse category of innovation that encompasses both product and process innovations. Technological innovations are accepted as inventions that have to be transformed into

marketable products or processes to provide a commercial advantage [11]. While technological innovation employs the methodology of science, design exceeds scientific methods and defines radical new meanings [12]. Thus, while regular design activity enables to transform technological innovations into product or service innovations or contributes to the incremental improvements in the quality of product or service, design driven innovation comprises production of radically new products or services obtained by design effort with no or minimal technical novelty [13], [14].

Role of design in innovation was first mentioned by Freeman (1982) in which design was placed in the innermost part of innovation process by indicating the use of resources like R&D activities [15]. Developing countries who perform effective national policies with design, technology and innovation systems succeeded in economic growth [16].

## **Design, Innovation and National Policies**

The best known definition of industrial design was stated by the International Council of Societies of Industrial Design (ICSID) in 1969: "*Industrial design is a creative activity whose aim is determine the formal qualities of objects produced by industry. These formal qualities are not only the external features but are principally those structural and functional relationships which convert a system to a coherent unity both from the point of view of the producer and the user*" [17]. Yet economic value of industrial design has to be taken into account to understand how it has evolved to have an impact on cultural and economic systems. The council broadened the definition to encompass the services, processes and systems: "*Design is a creative activity whose aim is to establish the multi-faceted qualities of objects, processes, services and their systems in whole life cycles. Therefore, design is the central factor of innovative humanization of technologies and the crucial factor of cultural and economic exchange*" [18].

Historical and theoretical ties of design and economy appear to be strong as seen in the examples of some Asian countries that were led by Japanese economic model. Achievements of these countries depend on an anticipatory relationship between practice of design and economics on the common ground of innovation. As design is being granted in economic theories, it has a major significance in economic growth [19], [20], [21]. This begins from the concept that design has a power to add value to the artifacts with better product quality and innovation. Likewise design has situated as a policy agent that brings it to political agenda of countries. Hence design policy is used as a strategic tool by government's political and economic actions in order to achieve policy objectives for the development of society.

The relation between design and innovation as a policy is not very much in the literature, although the impact of design driven innovation was accepted as a power by many developed economies. In this respect, government intervention based on effective policies is necessary to create an environment conducive to integration of design and innovation [22].

## **Design and Innovation Policies in East and West Asia**

Design and innovation policies of Japan and Turkey were selected as the paradigms of advanced industrial country and newly industrializing country respectively. These countries were evaluated by the applied design policies, design support programmes that have been implemented on the basis of innovation activities into policy structures. Application structures of strategies by the governments and effective results of these strategies on general policy structures in sectoral and social perceptions are discussed.

## Japan

In years 1945-50's, post-war Japanese industrial strategies evolved from low wage industries like textile to capital-intensive economies in steel, shipbuilding, automobiles and consumer electronics in 1960's and early 1970's. Then in late 1970's and 1980's, a substantial growth was observed in high technology products and Japanese products confirmed their design identity by innovation and creativity. Japanese industry rose the highest level of competitiveness during 1980's. While foreign technologies were internalized and further developed, product quality has always been maintained [23]. Though the crisis in 1999 caused a decade of stagnation in Japan economy, reformation brought recovery after 2003 [24]. Today Japan is a world-wide competitive country that makes investments on knowledge technologies and service systems.

The active role of government in coordination of stakeholders in the national policies realized the leader position of Japan that became a model with its innovation policies for the other East Asian countries. 1950's and 1960's were the years of absorbing the foreign technologies and improving them with R&D activities but Japan had difficulties in formulation of its own innovative systems for the production of high quality products and processes. Due to the great need of design driven innovation the 1950's, Japanese government established the Design Department in the Ministry of Economy, Trade and Industry (METI) to encourage the design industry on a national scale.

In Japan, design has been promoted by various organizations. Japan Industrial Design Promotion Organization (JIDPO), established in 1969, has managed overall design promotion, including the implementation of design award systems for the development of innovative industries. Japan Design Foundation (JDF) has primarily coordinated international design collaborations while commercializing design by connecting good design products of the local small and medium size enterprises (SMEs) with international markets. Regional design centers are supported either by local governments or by private economic organizations. While they provide connections between design firms and local industries, they also organize design education programmes and design events to enhance the design recognition. Private design promotion corporations manage various design promotion businesses like design publication, support of SMEs for design development and execution of design events [25].

Japanese design promotion which played an important role in the structure of industrial based R&D and technology development activities have applied consistently as a policy for fifty years. Innovation has always been looked at as a key factor and high investment rates have maintained for R&D. The economic recovery began in 2002 achieved by METI's several policy start-ups that integrate design policy, innovation and R&D strategies. Innovation capabilities has enhanced by open innovation by university reform. The primary idea is to improve cooperation among local industries, universities and government. Universities were called upon to establish their policies on managing their intellectual property rights (IPRs). The knowledge and technology produced in universities transferred to companies [26]. Though Japan economic development suffered from the recession of 1990's, the country is a serious contender for world leadership in innovation in contemporary design.

## Turkey

Industrial design in Turkey started in the context of modernization attempts mostly introduced by developed Western economies. Early initiatives of industrial design was the result of a comprehensive modernization project that embraces social, cultural and economic

aspirations [27]. In 1960's, high demand for consumer products that symbolize the modern life was answered by the establishment of a wide industrial base behind protective barriers under import substitution. Turkish production was based on copying the foreign samples and selling to a high-demand market free of competition. Design was not a desired agent of industrial production nor the government considered it as a required policy for national development [28]. In investment-driven industries, design was introduced as part of technology transfer through licencing agreements. Meanwhile innovation was not a self-produced mechanism to be transferred into marketable consumer products.

In Turkey, industrial design education started at the end of 1960's by American initiation. That imported start was away from a genuine demand from domestic industry and market for product design [29]. The first design promotion activities that took place in 1970's were not motivated by government policies, but appeared as bottom-to-up design propagations by design schools and industry [30]. As not being supported by government policies, results of these progresses faded away. Some innovative experiments in automotive industry was stopped because of difficulties in production line and lost competition against licenced investments.

Beginning from 1980, a dramatic change in industrial policy to liberalism modified the texture of production, at the same time the drift of industrial design in Turkey. Export-oriented strategies necessarily opened a space for design for the survival of production sector due to competitive pressures of barrier-free global market. However, design was still not an object of discourse in industrial policies.

Effects of export-led strategy with an increasing liberalization were felt more in 1990's. Turkey became the part of European market by customs union in 1996 and obliged to compete with technology, design and innovation. 1990's were the years of increase in design promotion activities mainly realized by Industrial Designers Society of Turkey (ETMK) founded in 1988. 1990's were also the years which the national innovation system was started to be discussed to enable coordination of institutions and mechanisms.

When the national crisis due to weak banking system hit Turkish domestic market in 2001, manufacturing sector relied on export market and tried to overcome lower-wage economies by innovation and branding strategies. In spite of impediments of global crisis in 2008, 2000's were the take-off years of industrial design in Turkey. As the most conspicuous governmental initiative in Turkish history, Turkish Design Council (TTK) was established in 2009 by the decision of the Council of Ministers in order to make design driven national economic policies. Since the beginning of 2000's national identity of design has been the central issue and its relation with national innovation system is the concern of policies.

## **Conclusion**

This paper has attempted to describe the close relationship between design, innovation and their place in national development. Design thinking in a society requires maturation similar to development of its economy, administration and services. However, as seen in the historical examples, governmental support as the main coordinator keeps its importance in this progress. A comprehensive design policy requires the integration with national innovation system that are driven by R&D activities coordinated and motivated by governmental system. Realizing that design is one of the main driver of innovation, there is a need to rebalance innovation policy to include a greater appreciation and focus on design.

There have been major differences between countries in the way which they have organized and sustained the introduction, development, improvement and diffusion of design and innovation on new products and processes within their national economies. Both Turkey and Japan have started their modernization attempts in the same period when economic and

political predominance of developed economies were broadened over the world. However design awareness in society and government is much more earlier in Japan. When Turkey was establishing its closed-system domestic market, Japan has already realized the necessity of building national design identity. Japan appeared to lead the rest of the world in innovativeness, international competitiveness and economic growth. Japan is currently still seen as a model for economic growth by many other countries. However, no society is free from economic, political and cultural dynamics when building its design identity. By being in the meeting point of different dynamics like politics, geography, culture, and religion, Turkey is a distinct country that suffers the effects of its heterogeneous structure through crises, discontinuities and paradoxes. However, its natural complexity also creates an opulent infrastructure for the national design identity.

New development theories encompass the share of knowledge in the form of networking between users, academia, R&D centers, investors, manufacturers, and marketing departments who may play equal roles for dissemination of design and innovation [31]. Hence systematic links between design and innovation policies that respond the social, cultural, political and economic conditions of the countries will be built by the governments in the new developmental paradigms. Japan has started to adapt to new developmental policies by promoting communication between academia, private sector and policy makers. Turkey needs more experience for implementation of design promotion activities to be integrated into other policies while a lot has to be done to build the national design identity by exploring cultural values for design driven innovation.

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