

Development by design

A Contextual Study towards an Innovation & design policy in Mexico.

Francisco Porras Pérez-Guerrero

*National University of Mexico (UNAM), Postgraduate Course on Industrial Design.
Circuito Escolar, Ed. Diseño Industrial 2° piso, Ciudad Universitaria,
Mexico 04500 D.F., MEXICO fporras@servidor.unam.mx; panchoporras@gmail.com*

Abstract: The fundamental objective of this paper is to generate a theoretical framework on the country's current situation and future trends to formulate a set of proposals towards creating an innovation policy in Mexico. Therefore, starting from the premise that State power is essential in the development of design in emerging countries, the strategic and systematically institutionalization of it is emerging as an alternative that catalyzes supports, regulates and promotes projects in all areas of industrial and economic activity. The final report contains recommendations and suggestions for the Mexican Government, manufacturing industry, design companies and the design education sector. It is now a convergent time to lead the will and interests of all participants, to build a real opportunity for a design community to discuss, engage more intelligently and actively participate in providing the design that best serves the local reality and expectations of our country.

Key words: *Innovation, design Policy, design Strategy, Developing countries*

1. Introduction

The fact is that the world's technology, economy, society and culture are changing and with it, we face new challenges. Nevertheless we rarely think about the important relation between the future and design, and what is most important about designing our future. In the right sense, to talk about the future means to talk about something that yet does not exist. Some people look at the future as a simple extension of the past, they assume positions as either good or bad, white or black; they perceive it as hope or hopelessness, they see it as disjunctives rather than possible convergences; as in between alternatives, and less likely, they think about the future as a consequence of the conscious and responsible men actions.

Future, development and competitiveness, just as design, are all prospective concepts by nature. Design is future oriented, is about the process of planning, analyzing, changing, innovating, building, configuring and deciding within a near goal. All these concepts lead us into action; in that sense, all our actions or inactions "design" or shape the future. For this reason, it is important to think under the truth that the future can also be designed, undertaking a strategy to think about what we want, and the impact of our present actions which determinate our future and development.

In the 21st century, the world is undergoing a rapid conversion to a knowledge-based society. Since conventional industries producing substantial commodities are no more a driving force for further economic development, nations in each continent are seeking ways to reinforce their strategies, technologies and infrastructures. Countries have to face the reality of an economic globalization in which international trade is

becoming more and more rigorous. Countries must not only produce goods that are competitive in price, but must also produce goods and services that are competitive in quality. In order to compete successfully, countries and companies will have to pay close attention to its creative skills and ability to innovate. In order to innovate, they will need to invest in areas such as research & development (R&D), market research and Design.

Very often, design is associated only with the aesthetic aspect of objects, whereas in reality, its application is much broader. A restricted and outdated idea like this should be laid aside and replaced by redefined concepts of design as a larger process to successfully unfold the discussion of the future importance of design industry. This document starts from the belief that design is a driver tool for sustainable innovation and differentiation, complementary to R & D, and that awareness increase and design use will bring on competitiveness[9]. The potential of design lies partly in its broad nature, allowing a wide range of considerations to be taken into account at product development, services and systems; and in its bridging capacity, connecting technology with the user, engineering with the commercial, and the transforming creativity into innovation. Design with its capability of creating higher values in the entire spectrum of industries, should now be recognized as power source for national growth and as a plan performer that maximize its effects in industries.

Nevertheless, as Jacques Giard points out, Design does not exist in a contextual vacuum. Design is always connected to a broader context that includes political systems, economic models, and cultural milieus [1]. This paper studies the Mexican context seeking to offer a departure point of what would it be necessary to activate and change in Mexico to enable the country's development through the creation of a National Innovation Policy based on design. Latin America in general has always stepped outside the border of International Design practices but today, we face national and global challenges that request immediate and efficient answers; design and innovation are increasingly seen as part of the answer. Despite many efforts for promoting and supporting design have emerged on recent years, Mexico is a complex country submerged in many social and economic dilemmas such as poverty, lack of adequate shelter, poor health facilities, lack of education, malnutrition, inequality, and migration[3]. In consequence design is still viewed as an expense rather than an investment. Recently, many design policies around the world are experiencing an increasing pressure to show meaningful results, not only in raising interest for design, but also in making a significant contribution to national economic development. Many of them did not really work because they lacked political dimension in their implementation. Therefore, it is important for us to offer a new perspective to implement the idea of a national design policy in agreement with Gisselle Raulik statement:

“We don't need global design policies. Design policies need to be locally relevant, but they also need to take into account local needs, local cultural knowledge and sensitivity, and local infrastructures.”

The traditional approach to design policy implementation and scope must be redefined towards a new structure responding to new local context, needs and challenges. Mexico can turn to be a developed country within a generation, with a growing middle class and a significant improvement on poverty standards; however, we need to organize ourselves around the will for development and thereafter adopt technical and political measures.

2. Methodology

This document is a fragment of the Master Degree Thesis entitled “The institutionalization of design as a strategic tool for development in Mexico” developed at a two year research program held on the National University of Mexico. This paper aims to:

- (1) Contribute to value design as a bridge to innovation across several dimensions, including economics, society and culture, and sustainability.
- (2) Consider Mexican Regional development and local context in the light of Global best design policies and practice.
- (3) Render some suggestions towards creating a design policy implementation system based on networking and emergent structures that enables design practices to catch up with business conditions, academic theory and local needs.

The first phase of the study involved building a conceptual framework based on the current best practice literature in design, design management and exploring through a comparative study of design policies, the relation between design and innovation, as well as the role of innovation in the economic theories for development. The second phase consisted on a quantitative and statistical data research presented in a Mexican contextual model. The study concluded with a set of proposals for the proper integration of design in the creation of an innovation policy for Mexico.

2.2 Research Limitations

As a first idea, the comparative study of international design policies would comprise a much more detailed form but due to time and resource constraints, it is not possible to replicate the full study during the IASDR 2009 conference, therefore I consider that richness and depth of the presented data will provide a better focus and understanding of the Mexican local context.

3. Results and Discussions

3.1 The meaning of Design

Design is a multifaceted and broad concept with no commonly agreed definition. Very often, design is associated with the aesthetic aspects of objects only, but as understood in this project and most of the design policies initiatives around the world, design meaning is much broader. The following relevant definitions describe this issue:

“Design is one of the basic characteristics of what distinguishes us as human beings” [17]

In this sense, design is embedded in all human beings and it is not exclusive of a specific group of people or profession. Stripped up to its essence, it can be defined as the human capacity to give a form that did not exist in nature to our context, to serve our needs and give sense to our lives. Similarly, as stated by Herbert Simon in *The science of the Artificial* [32]:

“Design is to change existing situations to preferred ones”.

Richard Buchannan describes:

“Design is a Liberal Art and an Integrative discipline. [5]”

By “Liberal Art” we understand the discipline of thinking that is shared by every men and women in their daily life and that it can only be mastered by those who practice it with great distinction and are able develop innovative applications to new areas. Finally, the International Council of Societies of Industrial Design (ICSID) states [18]:

“Design is a creative activity whose aim is to establish the multi-faceted qualities of objects, processes, services and their systems in whole lifecycles. Therefore, design is the central factor of innovative humanization of technologies and the crucial factor of cultural and economic exchange.”

From the definitions and meanings referred to above, we can conclude that the nature of design today is about:

- A creative process of managing (information, materials, processes and needs, etc.),
- Allowing an user centered approach and qualitative research,
- It is considered a bridge between creativity and innovation and part of an interdisciplinary teamwork
- As a holistic and strategic activity.

This is very important to state in Mexico and other developing countries context, due to the limited common view for designers as merely form givers. To change the understanding of design has been the first and part of the most difficult tasks to take if there is to be an official initiative for design support and promotion policy. This means a huge task as it involves re-educating designers themselves.

3.2 The potential of design for innovation and competitiveness, the entry point for design policy in Mexico.

Globalization with all its economic, political, social, and cultural implications already is here. Whether we like it or not, the actual international financial crisis has showed us just how bounded we are, and that embracing it is the only way we have. The world is turning and we are staying behind. Along with the changes at global level, it is clear that a “passive policy” of liberalization is no longer sufficient and that a range of “active policies” are needed [10]. From an economic perspective, these policies recognize that liberalization offers economic opportunities. Nevertheless, these opportunities will only be successfully exploited if sufficient capacity is developed to enable a range of actors to engage success with new market conditions. A free market system has consistently showed us that global economy primarily serves the benefit of powerful corporation and financial institutions of the first world. However, the world is changing; new powers and a new ways of capitalism are emerging. Ways that to approach development will have to be developed to cope with environmental problems and to change the ever expanding consumption and production belt. Furthermore, a broader perspective reminds us that economic growth is only a means to reach the more significant goals of human and social development [35].

Today, design is increasingly considered a strategic tool for user-centered innovation. As such, it is a holistic and multidisciplinary problem-solving approach that takes user needs, aspirations and abilities as its starting point and focus. The potential of design to make products, services and systems related to environmental and social needs has received increasing attention [20]. In the recent years, as declared by Michael Thompson:

"More and more governments are recognizing the potential synergy between design and innovation. Design is becoming a strategic force in adding value to regional competitiveness and economic well-being. It also has something to say in other areas such as healthcare and wellness. Obviously design cannot ignore mankind major challenges: climate change, the global environmental emergency, international migrations and conflicts."

Practically all developed countries have some national initiatives in support of design, although with a varying of maturity levels. The objectives and orientation of design initiatives in different countries most of the time depend on the traditions and strengths of each country, as it influences the understanding of design [9]. Several countries aim to raise exports, or to become a design hub or cluster of international importance.

In México, the entry point for a design policy is set in the country needs to increase its industrial product competitiveness. Some of the more contemporary examples of the countries that have been able to

achieve sustainable economic growth are the south Asian countries known as the “tigers” like: Korea, Taiwan, Singapore and Hong Kong and some other also well known as Thailand and Malaysia [4]. On the second place we find China, a country that during the last two decades has not only changed its own structure, but the whole world. It is not a coincidence that behind these successful examples we find well defined National development plan and the inclusion of strategic design policies and have inspired other developing countries governments to give better attention to design.

Mexico needs a more ambitious and focused policy; that emphasizes design as a strategic tool for economic progress, improving competitiveness and job creation combining economic growth with sustainability and social responsibility for life improvement. In broad sense, a design policy is a form of the government political and economic intervention into public sectors to influence the development and implementation of design in society [16].

3.3 Uncovering Mexico– The Future is built today

In the closing years of the 20th century, most developing countries adopted increasingly liberal strategies of economic development. They opened domestic markets to international trade, gave market forces greater play in the allocation of resources, and privatized many state owned enterprises. However, liberalization has not delivered the expected rates of economic growth and the gap between rich and poor countries has continued to grow. This is true for the case of Mexico. It is believed that presenting the following data extracted from several economic and competitive reports and translating it into a design perspective by itself, has inherent value.

Mexico is great, not only for its heritage, cultural, and natural diversity, but also because of its size which, together with an ocean area places Mexico as the 15th largest country in the world. Located in the Western Hemisphere, Mexico is part of North America together with Canada and the United States, countries with which it also comprises the world’s largest free trade area: more than 420 million people whose production of goods and services has a value of more than US\$13 trillion. To the south, Mexico borders on Guatemala and Belize, its doors to access to Central and South America. Together with these countries, Mexico comprises Latin America, and we maintain close cultural relations and increasing commercial linkages. With access to the Atlantic and Pacific Ocean, México is a perfect hub, harbor and center of logistics operations of commerce, trade and migration.

Mexico is the 11th place in population with 110 million habitants. It is estimated that in the next three decades (2030) the number of people of working age in Mexico will reach 88 million, and the economically active population will rise to 69 million. This middle age population represents a great opportunity to have an overwhelming source of human resources that the country needs for its transformation. Unfortunately, currently we are not producing the jobs needed and during the last decade, amid a stagnant economy and a mediocre growth, the phenomenon of informal commerce and migration has risen to alarming levels. It is estimated that Mexico needs to produce around 800,000 jobs per year to fulfill this demand so any innovation and design policy should be scoped to encourage entrepreneurs and create new opportunities, companies or new markets [30].

On the other hand, informality, the short-term solution to the problem of unemployment has not only contributed to the depreciation of the various branches of the industry, but reinforces the stagnation of the Mexican economy. Not to mention that now, for every formal employment in our economy, there are 1.5

informal jobs on average. Of course informal economy solves a problem for those who are directly involved a goal that is not minor in both political and social terms, but in turn, harms the whole society. In this sense, informality repels innovation and design by the risk that (a patented product) is copied and imitated outside the law. In this way, some of the most profitable industries with a high potential for value, wealth and employment creation in the country are prevented by the fact that the informal economy exists. Fortunately, the need of design and innovation worldwide has pushed the industry to consider the use of design even without a clear understanding of what does that means and recent efforts to protect copyrights have started.

Another factor has to do with a significant increase in the migration of Mexicans to the outside world, with millions of people looking to improve their way of life. It is currently estimated that between 1980 and 2003, the annual net loss of population through emigration to the United States is almost thirteen million people, over 10% of the population born in Mexico¹. This is more relevant if we consider that not only we are losing manpower in the field but also many of the most educated and skilled Mexicans leave the country because of the impossibility of finding a system that promotes the application of their knowledge. The brain drain is so intense because there is nothing to attract the scientists to stay in the country. From this, it is here where the design studies and education must reinforce its participatory, integrative and interdisciplinary character. Design may be a hinge that joins the technological knowledge with a practical and even commercial application.

In addition, Mexico has also experienced different production patterns. Particularly in the 1970s and early 80s, foreign buyers often brought in samples designed abroad and requested local manufacturers to produce them accordingly. We call this system Original Equipment Manufacturing (OEM) or in Spanish terms known as “maquiladoras”. As a consequence, manufacturers were mostly engaged in OEM production and place little emphasis on developing their own expertise in design and innovation. According to a study entitled "Industrial design and Innovation in Mexican Enterprises", where 297 managers and entrepreneurs of SMEs, were asked the definition of innovation, it was found that only 2% of them directly related it to the word design, which in some way reflected the great lack knowledge about the discipline.² This important if any design support and promotion program or scheme is to be implemented.

Over the past decade, our country has implemented public policies that have consolidated its macroeconomic stability. Even so, we must create incentives for the industries to add value through knowledge and design as a way to create their own brands and products. Fortunately, the fact that recently there has been a return of “maquiladoras” from China suggests that Mexican macroeconomic stability is a negligible advantage and that still maintains a degree of competitiveness. Recently, large corporations have led its investment to Mexico in the sectors: Automotive, Aerospace & Transportation (Bombardier), and Chemistry, bio technology. [26]

Nevertheless, despite the fact that Mexico is the country with the largest number of free trade agreements worldwide: 234 bilateral treaties and 122 multilateral treaties, as well as the only one with treaties that cover two of world’s largest markets: North America and the European Union; Mexico in many sectors lacks of products and brands. In total, Mexico’s network of agreements covers 44 countries, which has

¹ Comisión Reform USA-SRE, México. Estudio binacional México-Estados Unidos sobre migración (1997) y estimaciones de Conapo.

² Julio FRIAS-PEÑA*; Christopher O'BRIEN. “*Industrial design and Innovation in Mexican Enterprises*” * Doctoral Student, University of Nottingham, UK. School of Mechanical, Materials, Manufacture Engineering and Management. Coates Building, University Park, Nottingham. E-mail: jfrias@itesm.mx

enabled us to significantly increase our participation in the world's business in the last 15 years. Mexico has focused its efforts on diversifying the markets for its products and services, and through free trade agreements and reciprocity and partnership agreements, has established fruitful ties with the economies of Europe, Asia and Latin America. However Mexican products and brands are unknown to the world outside some furniture, handicrafts, raw materials, food and service sector. In this sense, we must first walk into improving quality and good design as the first step towards innovation.

Mexico is a dual and contradictory country. Other examples of the major constraints that it faces for its growth are very clear: the lack and poor quality of infrastructure, the quality of education, the oligopolistic structure of the transportation system and communications networks, as well as a lack of investment projects that generate domestic demand, as could well be massive investment in oil and electricity. To all this, design is not the overall solution to the problems but can certainly help to boost the economy and break the crippling inertia.

The few Mexican businessmen, who have understood the new economy, possess companies whose core feature relies on the use of intellectual & reasoning ability of its staff. These are companies that provide services, and not industrial firms engaged in the manufacture of goods. They use technology to produce better, and invest in R&D, engineering, and design, to manage their brands and market their products as if they were services. [2]

4. Rethinking Design Policies. Human capital, context and complexity

“Human capital, social capital, and economic growth are all intricately bound in a series of complex relationships.” [3] Any development and innovation strategy has to aim the training and education as a starting point. This fact is fundamental if we consider that human capital is companies' primary source of wealth, innovation and competitiveness, and that a nation's productivity is directly related to its people's capacity to learn. In an era of rapid technological changes, the ownership of natural resources or geographic benefits is no longer as relevant as before. Nowadays, ideas are what counts, not the objects. In the same way, innovation and not only form is what design must address.

At the moment what the country needs to develop is to define a sustainable path towards the future, and based on it; take the appropriate actions to make it possible at a reasonable time. This is a political problem and in certain way it is also cultural. We must think about what we want as a country, as a society and as individuals. Designing the future of Mexico is not only the work of designers or any other isolated discipline but the duty and responsibility of society, academia, industry and government. Furthermore it is fundamental to state that not all designs and design activities are related to innovation but is a first step towards an overall innovation policy. To consider a more optimistic scenario for the future of Mexico, it is necessary to implement reforms and policies that change the current state of our systems. What underlies the problem is a structural condition that needs to be solved through a structural solution. It is during the implementation phase of the policy and not in its initiative where we face the mayor challenge. In other words we need to look for new innovative structures that enable us to implement the intended changes with flexibility, diversity and as fast as possible.

4.1. Difficulties for industrial design development in Mexico

In addition to the described context, Mexico shares with some other developing countries some common barriers for the development of design industry. Some of these problems are listed below:

1. Conservative concepts form leaders of the company
2. Deficiency in manpower of design manager level
3. Deficiency in experienced designers
4. Deficiency in design promotion capabilities
5. Deficiency in interaction among designers, officials and design educators
6. Deficiency in concepts of design internationalization
7. Unclear industrial design policy
8. Deficiency in design departments in companies
9. Deficiency in experienced international design companies
10. Deficiency in fees of product development.

Some of these problems are deep rooted in the history and evolution of design practice. [6] Some have just emerged as signs of the paradigm shifting. However, the way in which we face them, the traditional strategies which we follow to try to solve them is what we need to changed. For a discipline who claims to be creative, innovative, and strategic thinkers, in relation to design policy and design centers matters, we have been too conservative. Designers and policy makers have used traditional hierarchical structures to implement and build their systems and with; we should ask, if we are not building white elephants.

5. Proposals & Suggestions Design Rigor and Relevance. New Economy, New Structure

In the new economy workers do not use their body strength, but they generate and process information, they improve products and services that are delivered to consumers in the shortest possible time. The new economy is not confined to local markets [34]. Thanks to the reduction of transaction and communication costs, companies can produce goods and services to markets located in different places on the planet. The combination of communications, design, manufacturing and marketing technologies, has transformed the world. The profitability of companies in these fields comes not from the production of goods, but from the added value that the company generates through its process and design.

In Mexico, the social, political and economic rights and problems are closely related. As we have seen the present context demands structures that combine flexibility, agility, diversification, specialization, innovation, and networking. Knowledge is a public good. Education is undoubtedly a very important and necessary factor, but the real innovation catalyst is the economic competition. An educated population is the main asset that can not only overcome the challenge of growth, but also of equity.

In Mexico, in higher education matters, we continue to produce professionals in the humanities science, but very few engineers or technologists. In any case, the problem in education is part of a larger problem in which we have not defined where we want to go. Nor have we understood the reality of today's world leaves us little choice. We are disconnected from the reality that surrounds us. This is the main reason to promote channels that enhance change and encourage us to take action and this is also why need to organize ourselves is increasingly urgent.

6. Conclusions

Through all these data, we have see that today, no economy grows disconnected from the rest of the world and innovation has become a core factor of economic growth and competitiveness [27]. The so-called "new economy" is the one based on knowledge and the use of technology by a larger amount of people. The changes there are bound to be so dramatic that we do need to design a democratic, global dialogue with and between

these cultures and societies, so that they can all learn from each other and from some of the best practices worldwide. Under this new economy is that the design thinking and discipline around the world has gained strength and has participated in the generation of successful products and businesses.

The Mexican economy has transformed significantly over the last 15 years, becoming increasingly open and outward orientated. The current economic crisis provides a platform for Mexico to introduce a wide range of urgently needed structural reforms. These reforms are required to prepare Mexico for increases in global competition and enhance its sustainable development. "Development by Design", just as designing the future; is about an intentional process; planned and organized that has a great social legitimacy [22].

Understanding the link between time and the design process will enable us to see that Design is about change, but it is also about continuity. The new design policies will have to consider the local context, be more flexible, be more innovative, lighter and agile, more diverse and more networked [23]. Creating good design policies is not a simple thing to do. We don't need a one-size-fits-all design policy but rather several interactions between stake holders; cooperation not competition is the future [29].

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