

CRANFIELD UNIVERSITY

GABRIEL HENRIQUE TORRES DO PATROCINIO

THE IMPACT OF EUROPEAN DESIGN POLICIES AND THEIR
IMPLICATIONS ON THE DEVELOPMENT OF A FRAMEWORK TO
SUPPORT FUTURE BRAZILIAN DESIGN POLICIES

SCHOOL OF APPLIED SCIENCES
CENTRE FOR COMPETITIVE CREATIVE DESIGN

PHD THESIS
Academic Year: 2009 - 2013

Supervisor: Professor SIMON BOLTON
May 2013

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the degree of PhD

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ABSTRACT

About the theme: Public design policies can be explained as sets of principles established by a government intending to apply design into leveraging social, economical, industrial, and regional development. Design policy is an emerging theme in the field of design, and one that has been raising concerns from governments globally. Two aspects drive this interest: the extraordinary growth rates of the creative industries in the past decades; and the ability of Design to be a link between technology, creativity and the user, being a potential unique tool to help innovate and foster economic growth.

About the research: The research was proposed responding an observed demand of governments in emerging countries to structure policies to use design to promote industrial and social development. It was structured to analyse current national and regional Design Policies within the framework of common aspects, effective practices and trends; external factors influencing their implementation; general causes of failures; assessment methods; and the influence of coexisting design definitions and trends.

The focus is on Brazil, whose government is funding the research, the European Union, and the United Kingdom. In this context the research aims to generate a rationale for planning and assessment of Design Policies based on a review of current effective practices and identified future trends relevant to emerging markets. The main objective of the research is the identification and analysis of the constituent elements, driving forces, impacting factors, expected consequences, assessment methodologies and common failures of design policies. The intended goal is to respond to a demand for new knowledge, data, and tools that could contribute to reduce the current level of uncertainty regarding design policies.

Methodology: To acknowledge the established objectives and goal, a comprehensive review of literature was initially carried out, including many reports and other documents from governments and from the EU. Emerging issues from the review informed a two-stage study developed in Brazil. For the

first stage, in 2011, thirteen stakeholders were interviewed, from key active governmental programmes and departments. The choice of programmes and departments was validated by questions from the interview itself. The second stage, in 2012, focused on the only currently active design support programme aimed at SMEs in Brazil. During this phase, it was collected archival data and three interviews conducted. Collected data was analysed using descriptive statistic tools. The findings were then filtered using documents and archival data about European effective practices to inform the discussion and recommendations, and further used to generate a modelling framework for design policies.

Contribution: The research contribution can be acknowledged in four different levels of outcomes: a ***comprehensive review of literature*** (1), combining an assortment of very significant documents and discussing their connections and specific contributions to the field; the application of an ***interview and archive based case study*** (2) about design policies in Brazil, corroborating Case Studies as a leading research tool for the area; a ***discussion on the impacting factors and effective practices of design policies*** (3); and finally the conceptual model and framework named respectively ***Compass Model*** and ***Create DP*** (4) that set together a framework intended to reduce levels of uncertainty in planning design policies.

Keywords:

Design Policy; Design and Development; Innovation; Creative Economy; Public Policies; SMEs.

DEDICATION AND ACKNOWLEDGEMENTS

Dedication

Dedicated to the memory of my lovely mother Rená and my dear father Raul. They both raised me as an ever-curious observer, instilled with a conciliatory spirit. That's how I became a designer with some political abilities.

Dedicated to my son Raul, great companion who made my journey in Cranfield less lonely during the first two years, and keeps me motivated and inspired.

Dedicated to my sister Maria Angélica, helpful and supportive in every occasion.

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LIST OF ABBREVIATIONS

ORGANIZATIONS

ABEDESIGN	Associação Brasileira de Empresas de Design (Brazilian Design Businesses Association, BR)
APCI	Agence pour la Promotion de la Création Industrielle (Agency for Promotion of Industrial Creation, FR)
APDIG	Associate Parliamentary Design & Innovation Group (UK)
APEX	Brazilian Trade and Investment Promotion Agency
BEDA	Bureau of European Design Associations
BNDES	Banco Nacional de Desenvolvimento Economico e Social (Brazilian Development Bank, BR)
CACEX/BB	Carteira de Comercio Exterior (Foreign Trade Department, Bank of Brazil, BR)
CBD	Centro Brasil Design (Brazil Design Centre)
CETEC	Centro de Tecnologia de Minas Gerais (Technology Centre of Minas Gerais, BR)
CNPQ	Conselho Nacional de Desenvolvimento Cientifico e Tecnologico (Council for Scientific and Technological Development, BR)
COID	Council of Industrial Design (early name of UK Design Council)
DBA	Design Business Association (UK)
EC	European Commission
ESDI	Escola Superior de Desenho Industrial (Higher School of Industrial Design, UERJ, BR)
EU	European Union
FINEP	Finaciadora de Estudos e Projetos (Research and Projects Financing, BR, also known as Brazilian Innovation Agency)
ICSID	International Council of Societies of Industrial Design
INT	Instituto Nacional de Tecnologia (National Institute of Technology, BR)
KIDP	Korean Institute of Design Promotion (KR)
LBDI	Laboratorio Brasileiro de Desenho Industrial (Brazilian

	Laboratory of Industrial Design, BR)
MDIC	Ministerio do Desenvolvimento, Industria e Comercio Exterior (Ministry of Development, Industry and Foreign Trade, BR)
MINC	Ministerio da Cultura (Ministry of Culture, BR)
OECD	Organisation for Economic Co-operation and Development
PBD	Programa Brasileiro de Design (Brazilian Design Programme, BR)
PBDCT	Plano Brasileiro de Desenvolvimento Cientifico e Tecnologico (Brazilian Plan for Scientific and Technological Development, BR)
SEBRAE	Serviço Brasileiro de Apoio as Micro e Pequenas Empresas (Service of Support for Micro and Small Enterprises, BR)
SEE	Sharing Experience Europe Project (UK/EU)
STI/MIC	Secretaria de Tecnologia Industrial, Ministerio da Industria e Comercio (Secretary of Industrial Technology, Ministry of Industry and Commerce, BR)
UERJ	Universidade do Estado do Rio de Janeiro (State University of Rio de Janeiro, BR)
UNCTAD	United Nations Conference on Trade and Development
UNIDO	United Nations Industrial Development Organization
WEF	World Economic Forum

GENERAL ACRONYMS

DP/DPs	Design Policy /Policies
GNP	Gross National Product
IPR	Intellectual Property Rights
MSE	Micro and Small Enterprise
NDC	National Design Centre
NDS	National Design System
NIC	Newly Industrialised Countries
S&T	Science and Technology
SME	Small and Medium Enterprises

1 INTRODUCTION

1.1 RELEVANCE OF THE SUBJECT

Design Policies – the object of this study – are here understood as sets of principles established by a government intending to use Design as a tool to leverage social, economical, industrial, and regional development. Heskett (1999) enunciates that design policy promotes technology to achieve “*economic advantage by enhancing national competitiveness.*”

In a newspaper editorial published in 2009, former Brazilian Finance Minister Antonio Palocci recognized the importance of design to the national economy:

“The development of an innovative design and products adapted to the Brazilian consumer seems to have been more effective to safeguard our national market than any other protectionist measure.” (Palocci, 2009)

A report recently published by the Organization for Economic Co-operation and Development make evident how Design is significant as a component for innovation. The chapter “Capturing design” offers evidence through a comprehensive review of authors and documents (Vinodrai *et al.*, 2007). Others have seen design as “*one of the main routes through which ideas are turned into innovations*” (Swann, 2010), or as the link between creativity and innovation, shaping ideas “*to become practical and attractive propositions for users and customers*” (Cox, 2005).

This ability of Design to be a link between technology, creativity and the user enables it to be a potential unique tool to help innovate and foster growth in economies. An example of this is a report from the European Union that emphasises the need for adequate National and Regional Design Policies to help leverage the otherwise vulnerable markets (Cunningham, 2008).

At least two aspects of the 21st century economy should be considered crucial to the emergence of the interest in National and Regional Design Policies: (1) the significant role played by the creative industries in the world economy in the

last 15 years (UNCTAD, 2008) and (2) the increasing availability of low-cost technology for production (Velloso, 2008). The issue of competitiveness at an industry and country level has definitely moved towards innovation and, ultimately, to design.

UNCTAD published a report emphasising the role of creative industries into the current economy as “*among the most dynamic emerging sectors in world trade*” (UNCTAD, 2008). Impressive figures give support to this view, as for example the annual growing rate of 8.7% from 2000 to 2005, being the exports of creative products “*valued at US\$ 424.4 billion in 2005 as compared to US\$ 227.5 billion in 1996*”. It also says that this trend “*occurred in all regions and groups of countries*” and foresees it should “*continue into the next decade*”.

In the UK, the Cox Review of Creativity in Business (Cox, 2005) pointed to the importance of the creative sector in current economy, showing that “*In 2003, they (the creative industries) accounted for eight per cent of Gross Value Added (GVA) and contributed £11.6 billion to the UK’s balance of trade. Between 1997 and 2003, these industries grew by an average of six per cent per annum – three times the rate of the economy as a whole*” (Cox, 2005).

There has been a rapid growth of critical literature on the use of Design to leverage industry and trade development and to promote economic and social change, addressing national and regional problems (Vinodrai *et al.*, 2007; Swann, 2010; Cox, 2005; Swann and Birke, 2005; Heskett, 2009; Lee *et al.*, 2007). Several government bodies and international organisms have as well issued reports, working papers and other documents on the role of design (Rat fur Formgebung *et al.*, 2010; Commission of the European Communities, 2009a; Design Council, 2008).

However, although the subject might be earning some academic recognition, very few peer reviewed articles, theses and dissertations have been written. This discussion was recently brought into a doctoral thesis that showed hence the urgent need for producing new research-based knowledge, the generation of theories and their subsequent evidence (Raulik-Murphy, 2010).

The resurgence of an international debate about Design Policies at the level of governments and international bodies can also be noticed, particularly (but not only) in the European Union. Only in the last few years, we can count several conferences held to discuss the subject:

- Torino, the World Design Capital in 2008, promoted the conference Shaping the Global Design Agenda in November 2008;
- The French Agency for the Promotion of Design, APCI, promoted in January 2010 the 7th European Conference of *Designnovation* “Design, by all?” discussing several aspects of the planning, implementation and assessment of design policies (Schneider, 2010);
- Policy, Innovation & Design was the title of the conference promoted at the Flemish Parliament, Brussels, in March 2011 as a closing event of SEE Project (Sharing Experience Europe);
- Latin America promoted already three summits to discuss design policies in the regional context – the International Summits of Public Policies & Design, in Buenos Aires, Argentina, 2010; in Bogotá, Colombia, 2011; and Guadalajara, Mexico, 2012.

However, regardless of having its importance currently recognized, there is still little academic concern about the field of Public Design Policies. Very few PhD theses discuss design policies, among which the studies of Raulik-Murphy (2010), Choi (2009), and Alpay Er (1994). The number of papers related to the field of design policies presented in design research and design management conferences also builds up to the argument. In two recent design conferences there has been a very reduced number of papers on the subject:

- from the **50 papers** selected to take part at the 1st Cambridge Academic Design Management Conference, in September 2011, only **one (01)** dealt with the issue of Design Policies;

- at the 6th International Congress on Design Research, that took place in Lisbon in October 2011, from the **309 papers** selected only **five (05)** made reference to the subject, being only one specific about it.

Design journals don't show any better, although a few had eventually published significant material, especially Design Issues (Woodham, 2010; Dong, 2008; Bonsiepe, 2006; Amir, 2004), Design Studies (Margolin, 2007) and others such as Design Management Review (Lockwood, 2007), International Journal of Design (Heskett, 2009), The Design Journal (Raulik *et al.*, 2008), Journal of Design History (Alpay Er, 1997), Scandinavian Journal of Design History, (Korvenmaa, 2001).

This situation led the research to strengthen the collection of data from reports published by governments, international bodies (European Commission, UNCTAD, UNIDO, OECD), design-related organizations (ICSID, BEDA) and governmental or non-governmental organizations related directly to the planning or implementation of Public Design Policies (UK Design Council, SEE Project, PBD, KIDP). It also reinforced the importance of collecting data through interviews with the key stakeholders to support the development of the research.

1.2 A BRIEF HISTORICAL FRAMEWORK

There is a need to trace briefly a history of DPs in order to understand what were the basic motivations and approaches for governments to use it. References point to an origin in the 19th century, tracking its development along the 20th century through a resume of its key points.

The origins of Design Policies could be traced about two hundred years back to the first European trade and industry fairs. This idea is supported by Raulik-Murphy (2010), where it is said that *“for centuries government decisions have influenced the development of design”*, but it wasn't before the 19th century that more specific national strategies were used to promote design as in the international industry and trade fairs. Although there were references to the

Prague industrial exhibition in 1791 as the first European product and trade fair (Sayer, 2004), there are other references of such fairs being held in Geneva and Hamburg in 1789 and 1790, to display the products of national industries. The French National Exhibition of 1798 was held on the “Temple of Industry”, and products exhibited were awarded prizes of public recognition. According to Chandler (1990), this exhibition “*set in motion one of the great rituals of Progress — the belief in applied technology for the improvement of the quality of life — that distinguishes Western civilization.*”

The first event of international relevance is considered to be the 1851 Great Exhibition at London’s Crystal Palace in Hyde Park. It is said to have had over six million visitors and fifteen thousand exhibitors, and its profits were lately invested in land where the Victoria and Albert Museum, the Science Museum and the Natural History Museum were built. There was a clear and explicit intention to position the British industry as the “Workshop of the World” (MacLeod, 2004), at the same time celebrating the material progress and the rise of international trade after the end of the Napoleonic Wars. It was indeed a clear statement of the importance of design for the industrial society, where products already competed for an international market, having a significant presence on the British commercial balance at the nineteenth century. The Great Exhibition also have influenced people like Ferdinand Steinbeis in Germany, who developed many visionary projects to promoted trade and industry in Baden-Württemberg in the mid of the 19th century, among which was a large collection of industrial products that served as a reference of the world production, setting global parameters of quality to improve local products (von Alberti, 2007).

In Brazil, this subject was addressed in 1882 by Ruy Barbosa, a great orator, statesman and jurist, who talked about the urge for development of the industrial arts in the country as a matrix for economic development: “*Rare is the product where taste, art, beauty does not constitute the dominant component of value. So, as we only produce raw material, the price of our exports will always be immensely under the import of art. No other country, in my view, has itself*

qualities so crucial to be fruitfully industrial as ours, where stunning nature provides the fruit of the mechanical work with a superior material, in abundance and quality” (Barbosa, 1882, reprinted 2003).

Undoubtedly the first thoughts and planned actions of Design Policies were rehearsed on the 19th century – contemporary with the Industrial Revolution and the emergence of the activity of industrial design itself – all under this spirit of integration and commercial competition among the nations, which needed to reassure their efficacy in the trade of its industrial products (Woodham, 1997, and Raulik-Murphy, 2010). Some of these ideas were consolidated and evolved, as in the case of the World Fairs becoming an important pathway for the exchange of goods as well as technology and services – and apparently still effective today. And some other highly valued design principles, embodied in the ideas of William Morris, as well as manufacturing improvements as product modularity that helped develop more efficient assembly lines, where also developed during the second half of the 19th century, as shown by Hauffe when he cites the example of the manufacturing of Thonet 14 chairs (Mitchell, 1993, and Hauffe, 1995).

The beginning of the 20th century watched the awakening of a new profession – the title of “industrial designer” was registered at the US Patent Office in 1913 as a synonym for “art in industry”, and according to Carroll Gantz, almost at the same time was founded the American Union of Decorative Artists and Craftsmen (Gantz, 2010), after many other similar associations were founded in Europe (Woodham, 1997). These two significant landmarks in the US were contemporary of Walter Gropius and the Bauhaus, which in Germany supported the idea of industrial standardization as prerequisite for the development of civilization. And even during the most insane years that followed in Germany, the idea of design as a tool used by government to promote welfare was key to the development of the Volkswagen by Ferdinand Porsche (Hauffe, 1995).

Although during these fertile and turbulent period many nations have used design to reaffirm their identity, sovereignty or even the strength of its industry and the concept of nation itself (Woodham, 1997), it was not before the end of

the Second World War, with the efforts to rebuild the economies affected by war, that one could testify the first direct actions taken aiming to establish National Design Policies. The most remarkable was probably the case of the United Kingdom, with the creation of the Council of Industrial Design in 1944 (later named Design Council – see Woodham, 1997), followed in 1953 by the German Design Council (Rat für Formgebung). The years of 1954 and 1955 have also seen the creation respectively of the IF (Industrial Forum) Design Award and the Red Dot Award in Germany, and in 1957 the G-Mark Design Award in Japan.

Two other remarkable facts in the 1950's were the creation of the International Council of Societies of Industrial Design, ICSID (1957), and the opening of the Ulm School of Design, HfG Ulm (1953), which was closed in 1968 largely due to the conflicts between its vision of design as an agent of social change and the interest aroused by its projects for German industries (Burdek, 2006). The years 1950's have then brought to the world the prolific creation of programs for the promotion of design, important design awards, professional associations, and design schools that helped shape the field of design in the forthcoming decades.

The years 1960's and 1970's testified the flourishing of design promotion initiatives by governments, from Europe to Asia, with design exhibitions and awards growing in importance, according to Woodham (1997), as well as some investments in design education. Thus the decades beginning with the 1960's have been the period when National and Regional Design Policies have won recognition and growing importance, although somewhat slow, in the planning and implementation of industrial and innovation policies. As well as the 21st century brought in its first decade an emergence of the so-called knowledge economy, where once again design has a very important role to play (Velloso, 2008; and UNCTAD, 2008) and its strategic use as a competitive advantage to be explored.

The paragraphs above show an emerging rationale where design promotion, education, professional organization and industrial innovation appear as key

aspects of DPs developed over the last two centuries, offering also a basic historical background of the growing importance attributed to design as an agent of competitiveness and innovation. These aspects are further discussed in the literature review chapter.

1.3 DESIGN POLICIES AS A PERSONAL EXPERIENCE

As much as the Centre for Competitive Creative Design, C4D, was fruit of a policy to bring design research to a new level in the United Kingdom, the creation of the School of Industrial Design, ESDI, in Rio de Janeiro, was also a produce of policies from Brazilian modern industrialization era. ESDI was launched in 1962 in the new State of Guanabara – created with the move of the Federal Capital to Brasilia – as a government-funded independent school. Later in 1975, when the State of Guanabara was merged to the State of Rio de Janeiro, was absorbed by the State University of Rio de Janeiro, UERJ. ESDI was the first design school to offer a Bachelor degree in South America, and became the most prominent school in the country, helping to forge the country's design education and culture. With direct connection to the State Government, it was always considered when discussing national and regional policies of design – even if design has not been a frequent concern of governments.

When I joined ESDI as an undergrad student in 1979, public policies were a delicate issue – Brazil was living the last years of a long military dictatorship (that ended in 1985). So despite our natural passion for arguing the potential of design to help sorting the major social problems of the country, there weren't many opportunities to discuss it in a political level. From the mid-1990's, with the re-democratization and already as a full-time lecturer, came the opportunity to act directly in governmental projects involving the school. Later, heading the school from 2000 to 2008 (as Vice-Director until 2003, and then Director), the connection with local and national government, international design schools and organizations such as ICSID and the World Economic Forum, paved the way into design policies.

Among several other design policy-related actions, I have organized and chaired two international seminars on design policies: the first in 2004, on request of the Brazilian Development Bank, BNDES (Design, Production, Competitiveness); the second in 2008, as part of the first Brazil Design Week. From 2007 to 2009 I was a member of the State of Rio de Janeiro Design Advisory Council, and under this condition organized in 2008 a 'design agenda' for the Governmental mission to London, which brought me for the first time to Cranfield.

The first seminar resulted from a personal challenge launched by president of the Brazilian Development Bank, BNDES, the economist Carlos Lessa, during a private meeting in 2004:

- Why was design being used to foster development in several countries but not effectively in Brazil?
- Why the existing initiatives of DPs have failed?
- Were there any successful cases of the use of DPs in Brazil to foster regional development?

"I believe the topic of industrial design is deeply intertwined with the idea of a national development project" said Carlos Lessa in his opening speech (Lessa, 2004). The seminar, with representatives from Brazil, Argentina, Finland, United Kingdom, and New Zealand, addressed the development of DPs during two days, discussing international trends and local cases, and offering the opportunity to establish a debate of the segment with the bank. This was perhaps the initial step to the establishment, a few years later, of BNDES special line of credit with distinct loans for industrial design projects in Brazilian industries.

This personal experience build up an understanding of how much the field could contribute to improve the country and regional economy and the lives of citizens, and how little it has been effectively done, frequently summing up to design promotion activities. Research in the field was even less usual – and not only in Brazil – with huge gaps to be covered and almost no investment at all. This panorama helped to obtain the support of the School of Design from the University of the State of Rio de Janeiro, ESDI/UERJ, and the Brazilian

Government funding for the research, through the National Council for Scientific and Technological Development, CNPq.

1.3.1 FACTORS OF UNCERTAINTY

However, many years of practical experience in the field of design policies in Brazil brought me a perception that, notwithstanding the awareness slowly growing in some sectors of the government, there was a general environment of uncertainty. This perception, later confirmed by literature and further investigation in the field, allowed the identification of a number of FACTORS OF UNCERTAINTY in the environment of design policies in Brazil:

- **Confusion:** most actions skid on the easy path of promotion, 'evangelizing' and preaching for converted, missing the real focus of industry and society, with overall LACK OF FULFILMENT;
- **Hesitation:** government is continuously juggling with EXCESSIVE DEMAND - the challenges of diversity, inequality and extension of the country.
- **Indecision:** LACK OF ENGAGEMENT of design sector in relations with government, seen basically as provider, with no shared responsibilities;
- **Puzzlement:** design education tends to emphasise creative rather than strategic aspects of the activity, disregarding business aspects of the market, resulting in gaps and a LACK OF STRATEGIC SKILLS;
- **Scepticism:** insufficiency of skills generates LACK OF TRUST from government and business sectors in the ability of designers to address their problems;
- **Suspicion:** LACK OF CLARITY resulting from inability to identify and decode real problems;
- **Uneasiness:** design segment evidence LACK OF TOOLS to respond the demand and address government and business sectors;
- **Unpredictability:** absence of policies causes excessive DEPENDENCE ON CHAMPIONS - individuals who actively support and promote the cause;

- **Vagueness:** LACK OF HARD DATA AND ASSESSMENT to validate and support the continuity of programmes and actions;
- **Doubt:** observed LACK OF AWARENESS from government and businesses sectors and general public.

The identification of these factors was latter supported, during the development of the research, both by the data collected during the field study as well as by the studies and reports from Messias (2012 and 2010); Raulik-Murphy (2010); Miasaki & Pougy (2006); Miasaki, Pougy & Saavedra (2006); Leon (1991).

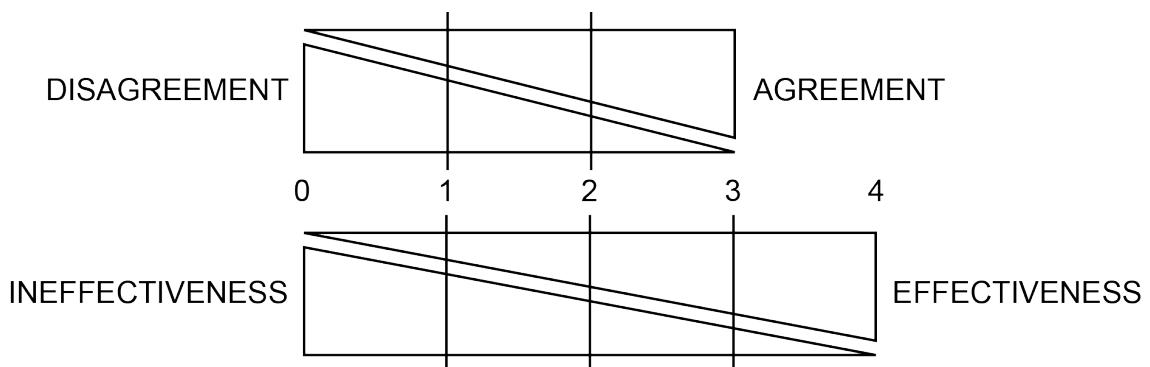
1.4 SETTING UP THE STUDY

To address the issues observed above, this research project was devised as a GENERALIZED EXPLORATORY STUDY, aimed at understanding HOW EFFECTIVE GLOBAL PRACTICES COULD INFLUENCE BRAZILIAN DESIGN POLICIES.

The objective of the study is to REDUCE UNCERTAINTY, improving the ability of Brazilian practitioners and organizations to NAVIGATE THE PROCESS more effectively.

In the process of REDUCING UNCERTAINTY, DISAGREEMENT decreases towards achieving progressively more AGREEMENT. It also induces an up growth of EFFECTIVENESS:

FIGURE 1-1: Achieving agreement and effectiveness (based on Bolton, 2013)



AGREEMENT and EFFECTIVENESS are not necessarily converging goals (represented above as distinct number of steps, or partial achievements). Agreement could be achieved without reaching the most effective results, and effectiveness could be attained aside from total agreement. Compromising situations could also be admitted, where a lower level of effectiveness or agreement are acceptable to achieve partial results, or as a step towards achieving the desired effectiveness and agreement.

1.4.1 RESEARCH QUESTIONS

A series of RESEARCH QUESTIONS were posed to drive the investigation:

- What are the COMMON ASPECTS, EFFECTIVE PRACTICES and TRENDS of Design Policies?
- What are the EXTERNAL FACTORS influencing the implementation of Design Policies?
- What are the generally recognized CAUSES OF FAILURE of Design Policies?
- What methods are used to the ASSESSMENT of Design Policies?
- How does the comprehension of design DEFINITIONS affect Design Policies?

1.4.2 METHODOLOGICAL APPROACH

The methodological approach for this research is examined in the third chapter of this volume, but it followed some basic steps:

- Establishment of a preliminary research scope;
- Establishment of the research questions that should be addressed;
- Comprehensive mapping of the knowledge available on literature about the field of design policy and some related fields as well, such as policy studies and economy;

- Establishment of the methodology of data collection and processing that conformed to the field and kind of study, allowing achieve the expected results;
- Development of a two-phase field study in Brazil to collect data from key stakeholders about how design policies were understood in the country and how they were implemented;
- Analysis and conclusions drawn from the data collected from literature and from the two phases of field study.

1.4.3 CONTRIBUTION OF THE STUDY

This study contributes to the current knowledge by putting forward:

- A panorama of current literature on design policies and correlated fields (policy studies, creative economy, innovation policy);
- An investigation carried out with key stakeholders about their perception of design policies in Brazil;
- An examination on how design policy models are developed by international cooperation, through a case study of a Brazilian design support programme focused on SMEs;
- A conceptual model to discuss Design Policies;
- A navigational model and framework, based on previous knowledge, aimed to assist the effective understanding, development, and assessment of design policies.

2 LITERATURE REVIEW

The research was grounded in a comprehensive review of literature about design policies, with topics from policy studies, economy and innovation also providing the basic knowledge needed. The current chapter brings up this extensive review, organised in major thematic groups, under which the emerging sub-themes are discussed.

- INTRODUCTION
 - Definitions
 - Policy Studies
 - Emerging Research Field
- CATALYSTS AND DRIVERS OF CHANGE
 - History
 - Economy
 - Design and Innovation
 - National Design Systems
 - National Design Identity
 - Design-driven Development
- EFFECTIVE DESIGN POLICY AND PROMOTION
 1. Frameworks
 2. National Design Policies
 3. Supporting Design
 4. Measuring Design Impact

2.1 INTRODUCTION

Design Policies is still a new field of academic study, with small amount of research devoted to the subject. Heskett (2005) observes that *“the role of government in promoting design is a theme awaiting substantial research and publication.”* This perception is shared by Alpay Er (2002), who observes that design history field was the first to highlight the theme (citing Heskett, 1980, as an example), followed by design management with the inclusion of the theme in conferences and publications (citing Butcher, 1988). According to Alpay Er, the theme has also received some attention from authors discussing design and development – with emphasis to Bonsiepe (1973) and UNIDO & ICSID (1979). Nevertheless, there has been a convergence of interests about it in the last decade, with government agencies, international bodies (United Nations, World Economic Fund, European Commission), design-related institutions (such as BEDA, the Bureau of European Design Associations), and worldwide practitioners, all having produced a vast array of text and documents.

The literature review methodology involved searching academic theses and papers, extending to other documents cited therein, and furthermore to the latest relevant documents published in the field by British, Brazilian and international organizations. To address the novelty of design policy studies, in addition to design-related knowledge, the review also explored other fields, such as public policy studies and economics – particularly the studies related to innovation and national competitiveness, creative economy, and SMEs.

Documents were chosen based on a criteria of relevance established by:

- Relevance of author to the field, measured by citations;
- Relevance of organization – documents published by British and Brazilian DP-related organizations, international organizations such as ICSID, SEE Project, European Commission, UNIDO, WEF, OECD;
- Date of publication, prioritising the latest documents to understand the current perspective and development of the field, but also mapping its evolution through time.

2.1.1 DEFINITIONS

The following information demonstrates need to clearly understand basic definitions where the study operates is supported by literature.

In 2008, the French consultancy of policy studies Louis Lengrand & Associés delivered a report commissioned by PRO INNO, the European Union agency for innovation policy analysis and cooperation. This report (Thenint, 2008) stated: *"the lack of clear understanding of the meanings of design has often led to neglect or the development of inappropriate policies and strategies in government, higher education institutions, industry and professions."*

The UNCTAD Creative Economy Report (UNCTAD, 2008) also appoints that different interpretations of terms or concepts are not unusual. The report offers as example the IDSA 'nominal' definition of design (*noun*), in opposition to an overall, 'verbal' understanding of design (*verb*) as a generic input to all manufacturing processes.

Many authors use the terms '*design policy*', '*design promotion*', and '*design promotion policy*' as though they share the same meaning (Swann, 2010; Raulik-Murphy, 2010). However, *design promotion* refers to an *ACTION*, while *design policy* relates to a *PRINCIPLE OF ACTION* (Bourn, 2001), or else, *design promotion* would be one part of a *design policy*.

2.1.1.1 DEFINING "DESIGN"

Beltagui *et al.* (2008) did an extensive study about the many definitions of design, ranging from the diversity of the activity to design processes and models. The authors offer a list of 48 references, and categorised the definitions into six major groups: (1) design defined as **PROBLEM SOLVING ACTIVITY**; (2) design as **PRACTICAL APPLICATION OF SCIENCE, ART, AND CREATIVITY**; (3) as a **PROCESS FOR MEETING MARKET NEEDS**; (4) as a **STRATEGIC BUSINESS FUNCTION**; (5) design meaning **CONFIGURING THE FUTURE**; and (6) design **DEFINING PHYSICAL CONFIGURATIONS**. They reason: *"Although there have been a number of attempts to measure design at various levels, they have often been restricted by a lack of clarity on what*

design actually is. Where other subjects would begin with an accepted meaning, there is very limited consensus on definitions of design. The definitions range from very specific and technical to very general and philosophical. The diversity of activities which are described as design leads to the lack of consensus on these definitions.”

Swann (2010) calls design “*a pervasive and multi-faceted activity*“. Besides the ‘nominal’ (as a *noun*) and ‘verbal’ (as a *verb*) meanings of the word design, it is also used sometimes as an adjective – as in ‘*designer goods*’ (Beltagui *et al.*, 2008). The professional activity of design is described by Niemeyer (1997) as having been considered over time as an **artistic** enterprise, then as **invention** (as related to enhance productiveness and committed to technological advance) and later as **management** (integrating interdisciplinary contributions). She then points out that “*such concepts had been successive as well as coexisting, generating tension between the concurrent trends*”.

Buchanan (2000a) states that “*no single definition of design, or branches of professionalized practice such as industrial or graphic design, adequately covers the diversity of ideas and methods gathered together under the label.*” He credits this to the fact that, in the twentieth century, design had grown “*from a ‘trade activity’ to a ‘segmented profession’ to a ‘field for technical research’ and to what now should be recognised as a new ‘liberal art of technological culture’*”. The same author defines design as “*the conception and planning of the artificial*”; and thus defines its extents: “*Design provides the thought which guides the making of all products, whether by individual craftsmanship or mass-production techniques: (1) material objects, (2) verbal and visual communications, (3) organized activities and services, and (4) complex systems or environments for living, playing, working, and learning.*” (Buchanan, 2000b)

Some definitions such as the International Council of Societies of Industrial Design, (ICSID) describe design as a mediator of technology and users, concerned with the more complex cultural and economic aspects of society, either regarding objects, processes or services and their systems (ICSID, 2010).

In a report by the Associate Parliamentary Design & Innovation Group and the British Design Business Association (APDIG & DBA, 2010), design is considered in a generous spectrum: *“We take the term design in its broadest sense, as a verb rather than a noun, as a set of tools that enables a better way of doing things – whether that means designing effective policy, designing out waste, or designing services that work for users.”* Such a broad view needed further explanation, so the same document explains that design *“Links creativity and innovation. It shapes ideas to become practical and attractive propositions for users and costumers. Design may be described as creativity deployed to a specific end.”*

A document that shaped current design policies in the UK, the Cox Review of Creativity in Business (Cox, 2005) defines design as *“what links creativity and innovation. It shapes ideas to become practical and attractive propositions for users or customers. Design may be described as creativity deployed to a specific end.”*

Other authors adopt succinct ideas, and perhaps the most concise definition of design was that offered by Heskett, as *“the conception of visual form”* (Heskett, 1997).

The ultimate conclusion of a comprehensive study cited above was quite decisive: *“Hence there is no standard definition for design.”* (Beltagui et al., 2008)

2.1.1.2 POLICY VS POLITICS

Dror (2006) expresses concern with the clear understanding of policy and its difference from politics – and how these terms have different meanings in English while there is no differentiation in other languages:

“The absence of different terms for 'politics' and 'policy' in most languages other than English reflects the difficulties of that distinction. Furthermore, modern democratic politics often pushes rulers in the direction of subordinating policy to politics and marketing, with rulers often giving priority to 'blowing of bubbles' over weaving the future. But grand policy quality depends on the ability of rulers to differentiate between policy and politics and giving priority to policy requirements before making unavoidable compromises with political reality.”

This observation suits very well this investigation, if we have in mind that what Dror describes above happens in Brazil, where the same Portuguese word *POLITICA* shares the meanings of both POLICY and POLITICS. This double meaning for a single word is also true for many other European languages, such as French (*'politique'*), German (*'politik'*), and Spanish (*'politica'*).

2.1.1.3 DEFINITIONS ADOPTED

Based on the investigation of literature, a series of definitions were adopted in the scope of this research, and are summarised on Table 2-1:

Table 2-1: Definitions

DESIGN	Creative (professional) activity that conforms/shapes objects, processes, services and their systems (ICSID, 2010).
POLICY	Set of principles that direct and limit actions in pursuit of long-term goals.
PUBLIC DESIGN POLICY	Sets of principles established by government to apply Design as a tool to leverage social, economical, industrial, and regional development. <i>“Design policy is the promoting of technology as a way of gaining economic advantage by enhancing national competitiveness.”</i> (Heskett, 1999)
PROGRAMME	Set of actions or projects put together to achieve an objective. It may, or may not, be part of a policy strategy.
STRATEGY	Plan of action configured to achieve an objective. A policy will make use of strategies to develop programmes or actions.
NATIONAL DESIGN SYSTEM	Developed after the concept of national system of innovation, it can be defined as <i>“the network of organizations, institutions and government bodies that influence design promotion and support”</i> (Raulik-Murphy, 2010).

CREATIVE ECONOMY & CREATIVE INDUSTRIES	<p><i>“Creative economy is an evolving concept based on creative assets potentially generating economic growth and development”.</i></p> <p><i>“Creative industries are the cycles of creation, production and distribution of goods and services that use creativity and intellectual capital as primary inputs, potentially generating revenues from trade and IPR.” They “are at the cross-road among the artisan, services and industrial sectors” (UNCTAD, 2008)</i></p>
INNOVATION	<p><i>“An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organisational method in business practices, workplace organisation or external relations.” (OECD & Eurostat, 2005)</i></p>

2.1.1.4 KEY EMERGING ISSUES

A review about the significance of definitions to the research highlighted three issues:

- lack of clarity resulting from the absence of a standard definition of *design*;
- limited agreement (or disagreement) around basic terms and concepts related to design policies;
- differences between the terms *policy* and *politics* missed in other languages (such as Portuguese).

Design Policies are missing a common language, and the consequences of this will impact in planning, implementing and assessing design policies, leading to inappropriate strategies.

2.1.2 POLICY STUDIES

"There is inevitable tension between science and politics, and convergence is usually a happy accident." (Weiss & Birckmayer, 2006)

To achieve an in-depth understanding of the rationale behind the development, implementation and assessment of design policies was carried out a review of public policy studies. The beginning of the investigation brought to light an 1887 article written by Woodrow Wilson, President of the United States: "The Study of Administration" (Wilson, 1887), accounted as the origin of the study of modern public administration. Wilson advocates the development of a *science of administration* as a need for a nation that went through the three periods of growth of the state: from the *absolute rulers*, followed by the control by *constitutions* and finally when the *"sovereign people undertake to develop administration under this new constitution which brought them into power."* That *science of administration*, according to the author, should dissociate from politics, being pragmatic and oriented to the best practices of business.

Wilson (1887) offers as well some practical advices that should be considered here: first, that one should not *"transplant foreign systems"*, because *"they simply would not grow"*. He exemplifies: *"We borrowed rice, but we do not eat it with chopsticks. We borrowed our whole political language from England, but we leave the words 'king' and 'lords' out of it."* Then he observes that, notwithstanding, *"we can never learn either our own weaknesses or our own virtues by comparing ourselves with ourselves."*

2.1.2.1 PRELIMINARY CONDITIONS AND DEFINITIONS

Policy is defined by Bourn (2001) as *"the translation of government's political priorities and principles into programmes and courses of action to deliver desired changes."*

An issue that deserves consideration is the clear distinction between politics and policy. Dror (2006), encourage rulers to be less concerned with politics and more with *"weaving the future"*, advising against the risks of taking one for another:

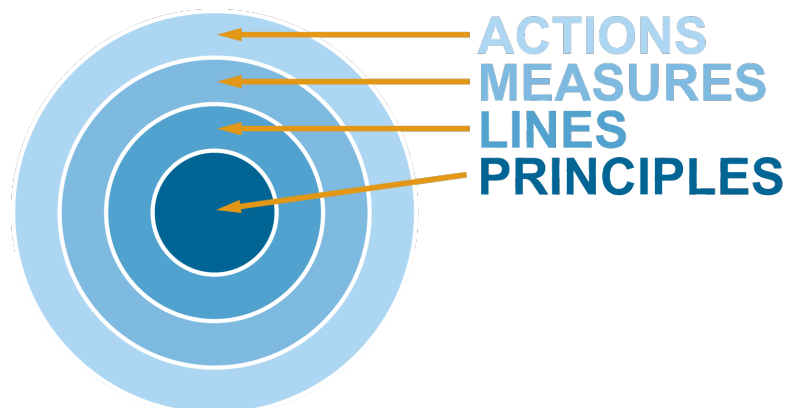
"The absence of different terms for 'politics' and 'policy' in most languages other than English reflects the difficulties of that distinction. Furthermore, modern democratic politics often pushes rulers in the direction of subordinating policy to politics and marketing, with rulers often giving priority to 'blowing of bubbles' over weaving the future. But grand policy quality depends on the ability of rulers to differentiate between policy and politics and giving priority to policy requirements before making unavoidable compromises with political reality."

Policy vs. political cycles is another issue discussed by Dror (2006). He explains that an expected cycle of a policy ranges *"from about five years to multiple generations"*, while *"political and personal cycles in democracies range from four to ten years."* This generates a contradiction that, allied to the uncertainty of policies, determines the *"fragility of grand policies"*, (...) *"determining the very significance of grand policies and making them less attractive to rulers."* To face this problem, the author recommends grand policies to be modulated into five-year phases, and also *"increasing policy continuity between governments by building consensus and institutionalizing grand policies."*

Defining adequately usual terms in policy practice is also the concern of Wilson (2006) and Page (2006). The first author discusses possible different meanings of policy – as an "overall objective", "guiding principle" or "specific action", being some definitions even "crafted for a particular purpose" (Wilson, 2006). He suggests that there are two levels of policy: one higher level of overall objectives and how they would be achieved, but at a lower level, he says *"there is often a myriad of intermediate policy decisions about the interpretation and implementation of policy which is the stuff of daily life in government departments including day-to-day operations; and it is where the success and failure often lie."*

In the daily practice of policy-making, Page (2006) calls *'practices'* the policies developed at *'street-level'*, as opposed to a *'higher-level'*, overall policy. He also offers a categorisation of policy into four levels of abstractions, from the core of PRINCIPLES, through the LINES and MEASURES, to the surface of ACTIONS (Fig. 2-1).

FIGURE 2-1: Policy levels of abstraction (Page, 2006, p.213-222)



Discussing unpredictability and the necessary degree of boldness to engage into policy-making, Goodin et al. (2006) remind us that *"policies are intentions, the product of creative human imagination."* Under this perspective, they offer advice on a new way of doing politics and policies, through networks and agreements: *"increasingly, government is giving way to 'governance'"*. The word 'government' relates to 'politics', as much as 'governance' to 'policies', showing the direction of the change pointed by the authors. The process for this change is indicated as *"networked governance"*, adding furthermore that *"policy increasingly depends on what economists call 'relational contracts:' an agreement to agree, a settled intention to 'work together on this,' with details left to be specified sometime later."* They further remind us that *"policy, like all human action, is undertaken partly in ignorance; and to a large extent is a matter of 'learning-by-doing'."*

Certain conditions should be met in order to effectively reshape the future with a grand policy intervention, according to Dror (2006):

1. *"A will to shape the future."*
2. *Some operational notions of what constitute "good" or "bad" futures.*
3. *Adequate understanding of historical processes, so that the chances of interventions having effects for the better are higher than the risks of bad outcomes.*
4. *Capacities to translate the understanding into grand policies.*

5. *Sufficient resources - political, economic, human, etc. - to achieve critical masses of intervention in historical processes so as to have a substantive impact on them.*

6. *Implementing capacities adequate to translate the grand policies into effective action and applying the resources effectively and efficiently.”*

In a similar way, Bourn (2001) reminds us that policies are primarily intended to benefit citizens. To achieve this, Bourn advises that policy should:

(A) *be forward looking*

(D) *use evidence*

(G) *evaluate*

(B) *be outward looking*

(E) *be inclusive*

(H) *review*

(C) *be innovative & creative*

(F) *be joined up*

(I) *learn lessons*

2.1.2.2 DEVELOPING POLICIES

The concern expressed by Dror (2006) about the distinction between POLICY and POLITICS was already explored by Ball (1993), when he identified an opposition between 'policy as text' and 'policy as discourse'. 'Policy as text' "involves the agency side of policy work", being in this context the result of different minds, demonstrating "why policy processes are inherently messy, ambiguous, unpredictable and conflict-provoking" (Henry, 1993). Another author relates 'policy' to 'academic systembuilding', contrasting with the "political realities of conflict and power" (Newey, 2001). Confronting text (i.e., POLICY), the discourse is forged by the circumstances - in other words, political (POLITICS).

In policy studies, the *scientific discourse* is confronted with the *daily practice*. Regarding this apparent collision Bovens *et al.* (2006) raise two big questions: how to "*maximize academic rigor without becoming politically irrelevant?*" and how to be "*policy relevant without being used politically?*"

About the relations between scientific research and policy, Young & Mendizabal (2009) reason that researchers and policy-makers are missing chances to turn research findings into lasting change. The authors observe that policy processes are complex and rarely linear or logical, demanding policy

entrepreneurs to be strategic, systematic and flexible in design, monitoring and learning of policy engagement.

Discussing policy studies learning, Freeman (2006) explores the contradictions between the positivist and constructivist models, when policy makers and administrators have the "*rational, legal, and scientific discourse*" through which they learned confronted with the "*social, managerial, and political ways of knowing which are the currency of their daily practice.*" He also emphasises the 'creative thinking' resulting from the exchange of "*information about problems and policies which are similar in essential respects, but different enough to provoke reflection.*"

Harris (1981) advocates a design-based perspective of policy-making. The author opposes what he considers to be the most frequent, analytical mode of political studies, to a synthetic mode, "*a professional and intellectual tradition quite different from economics and the natural sciences.*" He argues that "*while the analytic side of public policy is well developed, its synthetic or creative side is inadequately developed.*" When instructing how to develop this creative side Harris goes very specific, advocating the benefits of design thinking: "*This tradition is found in architecture, in urban planning and in some branches of engineering. The generic name for this approach is design.*" Following this reasoning, he concludes: "*the invention of new instruments of policy and the concatenation of instruments to produce highly desirable policies are creative and imaginative activities.*"

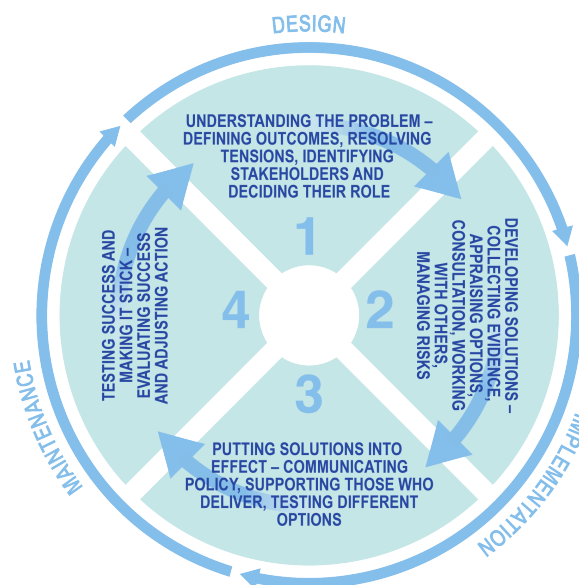
Introducing a starting point for policy planning, Dror (2006) proposes four basic criteria for planning and assessment of policies:

- Value preferences (hierarchy, priorities);
- Life cycles (of policy - measured against time to reach expected results);
- Predictability (is it going to work as expected?);
- Political and personal cycles (ex: government terms - and how this impact against the life cycle of the policy).

According to Braun (1986), the discussion and elaboration of policies should be guided by three basic criteria: (1) aim of policy; (2) type of measures; (3) target of measures. Establishing these criteria will allow generating a matrix of ideas for specific policies.

Bourn (2001) provides a model for policy-making (Fig. 2-2), detailing the phases of design, implementation and maintenance into four key steps from planning to assessment.

FIGURE 2-2: Model for Policy-Making (after Bourn, 2001)



Freeman (2006) cites the European Union Open Method of Coordination (OMC) and management by benchmarking as bearing this same logic "which informs contemporary ideas of governance as steering." According to its Wikipedia entry definition, the EU OMC approach relies on mechanisms such as "guidelines and indicators, benchmarking and sharing of best practice". Controversial, and sometimes viewed as a potentially intrusive "Unidentified Political Object" (Zeitlin, 2005) or as a "Trojan horse" (Hughes, 2001), it is nonetheless recognised as a quite useful tool to compare procedures and policies and contribute to inform and assess such policies - an "important new addition to the EU's policy-making toolbox", as Hughes calls it (Hughes, 2001; Coyne & Pierini, 2001).

This quality of the OMC - comparison - is valued by Freeman (2006) in his conclusions as a significant way of learning in public policy: "*comparison may be a source of explanation, of accounting for why things happen in one country and not in others, or why they happen in different ways*"; "(...) *it is the closest the policy sciences come to experimental logic*"; and "*may serve as a means of evaluation, a way of judging policy or practice and asking how it might be improved.*"

Another tool for development is investigated by Weiss and Birckmayer (2006): how policy makers can make use of social experiments to try a prospective policy in small scale, controlled situations – into the community and out of the laboratory. The authors however pointed the research timing vs. the policy agenda as its main disadvantage. Bouncing from positive evidence to quasi-sceptical warnings, the authors highlight how small-scale trials could "*illuminate the understanding of publics and elites and infuse policy discussion with insight.*" But they warn that "*The notion of basing policy strictly on experimental evidence is wrong-headed.*"

Linking to the same reasoning of Weiss & Birckmayer, Crawford (2006) argues that modelling can "*help decision makers and observers make 'rational' judgments about complex and technical public policy questions.*" However, the author points that this process might be in some cases deceptive and distant from reality in policy planning. This criticism is directed to systems analysis, which is said to tend to overemphasise the quantitative, measurable aspects, disregarding other factors. The example given is the nuclear weapons policy in the arms race. Lack of real world 'hard data' in this field might lead to wrong analysis and ultimately to exaggeration. As the author reminds us, "*assumptions drive the conclusions.*"

Rein (2006) explores the subject of ambiguity and vagueness in public policies. Criticising the academic literature about public policy, the author mentions the use of ambiguous concepts and theories such as "*sustainability*", the "*informal sector*" and "*organizational learning*". He aligns '*ambiguity*' with other major problems faced in policy planning, like '*conflicting aims*' (ex: the conflict between participation and deliberation) or '*unattainable objectives*' (p.391-394). Even though, Rein

(2006) argues that sometimes ambiguity can also potentially be used as a problem-solving strategy, particularly when conflicting parties could agree in more abstract and generic fields. He concludes: *“The world of action and research are linked, because once a vague concept is accepted in the field of practice, and resources become available, then the academic community becomes involved in the evaluation of outcomes and in the design of future policy.”*

Regarding problematic issues, Rein explores the "reframing" approach as yet another form of problem solving. According to the author, certain problems are sometimes offloaded as a strategy to withdraw attention from it. This same approach can be used to value or to re-introduce subjects that have been overlooked, reframing it under more favourable circumstances.

2.1.2.3 EXTERNAL FACTORS

DeLeon (2006) evinces how external factors influence the development of policy research. On the mentioned factors, the most impacting for Design Policies are: the Second World War for having brought *“the ability of the social sciences to focus problem-oriented analysis to urgent public issues”*; and the Energy Crisis of the 1970's, evidencing a dependency model (of energy) that paired developed countries with "third-world" countries, consequently arousing awareness on the issue of renewable energies and the consequences of relying so much on fossil fuel. Following the same reasoning, the world financial crisis beginning in 2008, and all the social impact associated, could be added as the current most impacting factor on DPs.

Majone (2006) points out how globalisation impact national agendas, arguing that these later might improve quality when submitted to international pressure: *“Deepening economic integration may actually improve the quality of policy making by making national leaders more aware of the international impacts of their decisions, more willing to engage in international cooperation, and more open to ideas and suggestions coming from their foreign counterparts, from international institutions, and from non-governmental organizations.”* The author also highlights the growing significance of international bodies, such as OECD, the International Monetary Fund and specialized agencies from the UN - as well

as nongovernmental organizations - exercising influence over national agendas. *“Exchanges of information among policy makers of different countries are useful for assessing the extent of policy externalities, understanding the mechanisms through which they are transmitted, and planning remedial action.”*

2.1.2.4 ASSESSING POLICIES

Policies need to have its impact valued and assessed, either for convincing administrators, the public, for strategic or political reasons. Discussing the impact of policies, Van Den Bosch & Cantillon (2006), identify and describe five methods of assessment commonly applied to public policies: "social experiments" (1), "difference-in-difference" (2), "before and after" (3), "cross sectional" or "comparative method" (4); and "model-based" evaluations (5). Although the last method uses simulations instead of situations from the real world, all the others try to get samples from "users vs. non-users".

That brings some difficulties into the methods, which according to the authors usually relate to the question of getting appropriate comparative groups of individuals to be researched. They also highlight however the fact that "all methods reviewed only help to discover impacts that the researcher is looking for" and that many other consequences might not be taken into consideration with these methods.

Bovens *et.al.* (2006), also on the subject of evaluating policies, identify two opposite traditions: the first, a '*rationalistic*' approach, positivist in its essence, which emphasises neutrality and tries to detach itself from the influence of politics. The other, '*argumentative*', is identified as '*post-positivist*' or '*social constructivist*', and sees itself "*as a contribution to the informed debate among competing interests.*" The rationalistic approach uses theoretical models to establish ideal goals against which are compared and measured the outcomes of the policy. The Organisation for Economic Co-operation and Development OECD is cited as a reference institution that is setting the standards of rationalistic approach to policy evaluation.

2.1.2.5 KEY EMERGING ISSUES

Five key issues emerging from political sciences contribute to the study of DPs:

- Government giving place to networked governance;
- Vague concepts used to provide political support;
- Policy cycles conflicting with political cycles;
- Comparison as a method of policy development and assessment
- International factors increasingly impacting on policies;

The trend of networked governance demands less control and more agreement. Vague concepts, although many times used to build uncompromising situations, are also considered instruments to achieve partial agreement. There is an intrinsic conflict between cycles of *policy* and *politics*, further enhanced by the lack of differences between the two terms in other languages, potentially causing disruption and discontinuity. International exchange of ideas is an increasing factor of impact in policies, that together with the recognition of comparison as a method of policy development and assessment, and of design thinking as a tool for policy-making, ultimately emphasize the importance of research about DPs.

2.1.3 EMERGING RESEARCH FIELD

Heskett (2005) observed that *“the role of government in promoting design is a theme awaiting substantial research and publication.”* Similar remarks can be found in Alpay Er (2002), when he does considerations about the theoretical development of the field of design policy and how little attention it has received from academics in the last decades. The last decade – and especially its second half – indicated a shift in this trend.

Along the process of scanning documents in the field of national design policies three PhD theses were located. These researches were coincidentally developed in UK universities – and the authors came from developing countries: Brazil (Raulik-Murphy), South Korea (Choi), and Turkey (Alpay Er).

This reinforces the perception of the UK as a central actor in the field of design policies, and “the strong brand value of the Design Council”, as observed by Choi (2009). In a meeting with Gisele Raulik-Murphy, vague information was given about another PhD research in the field being developed in Spain, but no further information was available and it was not possible to locate any academic product of this research.

Table 2-2 shows these three theses, ordered by date, and its principal characteristics or contribution to knowledge:

TABLE 2-2: PhD Theses about Design Policy

Author	Title, University, year	New knowledge
Raulik-Murphy, G.	A Comparative Analysis of Strategies for Design Promotion in Different National Contexts, University of Wales Institute, 2010	Categorisation of design promotion strategies
Choi, Y.	A Comparative Study of National Design Policy in the UK and South Korea, Institute for the Contemporary Arts, Lancaster University, 2009	Design support programmes for business/industry
Alpay Er, H.	The Emergence and Development Patterns of Industrial Design in Newly Industrialised Countries with particular reference to Turkey, Institute of Advanced Studies, Manchester Metropolitan University, 1994	Evolution and categorisation of national design systems

Gisele Raulik-Murphy and H. Alpay Er were contacted and contributed significantly by sending their own theses and papers, and Raulik-Murphy has been in frequent contact since 2009, bringing the opportunity to discuss different phases of the research in several occasions.

2.1.3.1 GISELE RAULIK-MURPHY (2010)

The thesis “A Comparative Analysis of Strategies for Design Promotion in Different National Contexts” was submitted in 2010, and it examines the following topics:

- Competitiveness as main rationale for design policies;

- “strategies for the promotion of the use of design for business advantage”:
 - initiatives by individuals – introduce design to small communities
 - government programmes – foment the use of design by industries
 - official public policies – foster the use of design resources

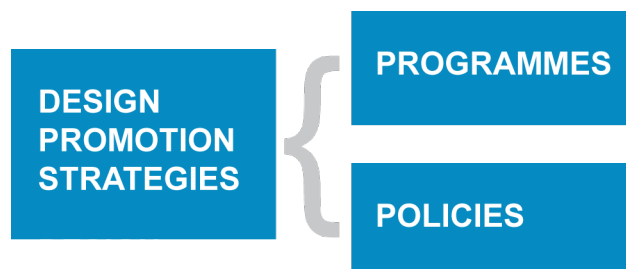
Discussing design support for SMEs, the author highlights: *“One of the lessons from this research project was the understanding that encouraging companies to use design is not a sustainable strategy. This activity (named ‘design support’ in this thesis) is not enough to advance the use of design in a country. There is a need to combine it with design promotion, to support it with design education and to align it with other government policies.”*

Testifying that the research about design policy is currently *“just starting to unfold”*, it is observed that most publications available only report the achievements of programmes and actions, with biased outcomes: *“The perception of good practice in the field depends on these publications, which often omit investments made and problems encountered.”*

The author also calls attention to the fact that design policies, although frequently focused into industrial policy, exports, and economic development, are being claimed to “a more user-centred and ethical approach (...) rather than only benefiting economic development” – particularly in developing countries.

Offering an explanation to the existence of more or less successful national design **policies** or just design **programmes**, the author considered these two alternatives to be different strategies for design **promotion** (Fig. 2-3).

FIGURE 2-3: Different strategies of design promotion (after Raulik-Murphy, 2010)



Raulik-Murphy developed a triadic model of design policy components (Fig.2-4), centred on GOVERNMENT, reflecting actions on EDUCATION, aimed at DESIGNERS; PROMOTION, aimed at GENERAL PUBLIC; and SUPPORT, aimed at BUSINESSES.

This model was discussed with the author and updated during the early stages of this research (Fig. 2-5), intending to better represent its underlying relations. The updated was presented with Raulik-Murphy, who endorsed the proposed update.

FIGURE 2-4: Design Policy components (Raulik-Murphy, 2010, p.110)

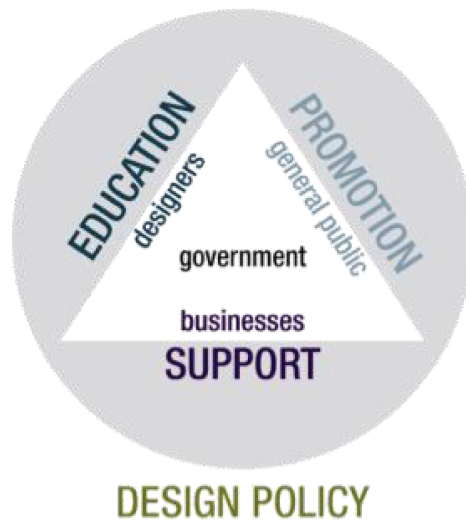
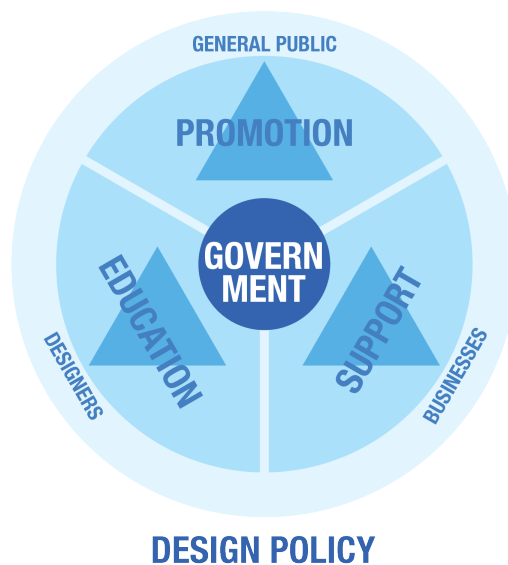


FIGURE 2-5: Design Policy components (based on Raulik-Murphy, 2010)

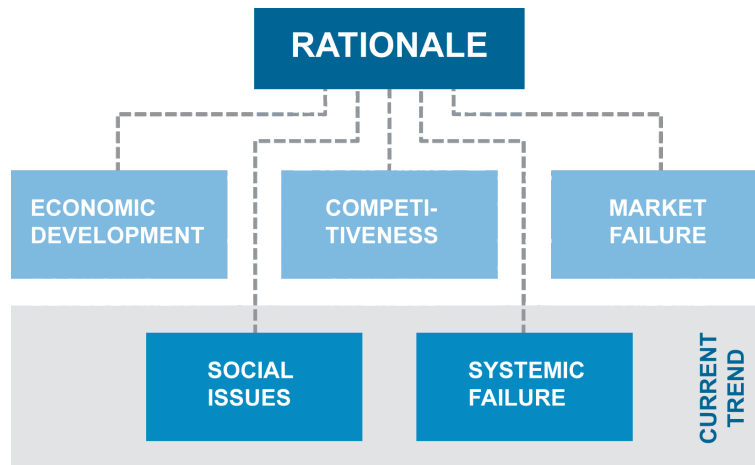


A simple economic rationale is offered to explain the expansion of design policies: emerging from industrial policy, and endorsing the use of design to promote competitiveness and economic development, while government programmes address market failures.

A growing interest is accounted *“in strategies at policy level as opposed to isolated programmes”*, as well as a shift from the focus on use of design in industrial policies to a broader use *“for the improvement of national infrastructures, services and systems.”* However, *“the current most important paradigm shift in the field of design promotion strategies is their integration into cross-disciplinary policies for innovation and sustainability.”*

- Design promotion (programmes and/or policies) is present in the most competitive countries – *“77% of countries on the highest stage of development – according to the World Economic Forum Competitiveness index 2006-2007 – have design promotion programmes in place, compared to only 4% of countries on the lowest stage.”*
- Design education: The research also introduces evidences indicating that strategies aiming to support design education can have a significant overall impact on design promotion plan.
- National context: *“national contexts were paramount in the shaping of design policies.”*
- The research pointed to seven cohesive principles for design promotion strategies:
 - Design policy
 - Design programmes (**support / promotion**)
 - Design education
 - Professional design sector
 - National design system
 - Rationale (shift from **economic development, competitiveness** and **market failure** to address **social issues** and **systemic failures**)
 - National context

FIGURE 2-6: Current trend for Design Promotion Strategies Rationale
(after Raulik-Murphy, 2010)



“The analysis of RATIONALE showed that advanced economies have started to broaden the scope of their design policies, covering issues such as social inclusion, sustainability and urban development” (...) “the potential of design to contribute to solutions that will improve people’s quality of life is still not actively exploited by governments.” (...) “It is the advanced economies that have been exploring ways to associate design with other government policies such as environment, health care and education.”

FIGURE 2-7: Emerging scope of Design Policies (after Raulik-Murphy, 2010)



Stating the importance of national contexts – defined as the specific social, economic and political context of a country – five external factors that may affect

design policies are highlighted:

- Political system
- Bureaucracy
- Public procurement
- Consumer's sophistication
- Geographic issues

Emphasizing that the current literature tends to overlook the national context, Raulik-Murphy's also found evidence that governments frequently also disregarding it: *"design programmes are transferred between countries, systematically (through official agreements) or not (inspired by examples or by an informal exchange of ideas)."*

2.1.3.2 YOUNGHOK CHOI, 2009

The thesis *"A Comparative Study of National Design Policy in the UK and South Korea"* explores business support programmes, especially those aimed at SMEs. At the same time it determines the recognition of design by governments and businesses as a "crucial tool" to boost competitiveness and innovation, the research also finds to be a failure when it comes to the use of design by SMEs:

"SMEs – the crucial engine for economic growth – still often face difficulties in effectively using design and, importantly, many SMEs still neglect design as a strategic tool."

The research also finds indicatives of how much *"design is crucial and may hugely affect global competitiveness."* The most competitive countries *"are working to improve awareness of the importance of design, increasing global competitiveness, and raising people's quality of life."*

Choi's research has also identified trends of design policies, moving towards economic, social and cultural aspects.

Commenting the national design centres from the UK and South Korea (the countries focused of the research), it is said they *"tended to be a reactive follower rather than a proactive leader."* The causes for this are identified as the

vulnerability deriving from the lack of autonomy and the subjection to government funding. Choi's arguments regarding the UK Design Council find echo in several authors, such as Maguire & Woodham (1997), Heskett (2005), Alpay Er (2002), and Bello de Aranaga (2005). The criticism is also directed to the "*anachronistic support of declining industries lagging behind global industrial trends*" – however, one can argue that traditional and highly specialised industry niches might have its own market appeal, being competitive from the quality and specialisation of products. So, the criticism to *anachronistic support* must consider several aspects that are not clear from the data available.

Resulting from the comparative study undertaken (in the UK and South Korea), Choi identified drivers, key features, and barriers or failures that might compromise design policies:

Drivers:

- Design contribution to business success and competitiveness;
- Businesses need to understand the importance of design.

Key features:

- Well-developed content;
- Strong brand value of national design centres;
- Highly qualified Design Associations (UK);
- Funding support (South Korea);
- Simple delivery structure (South Korea).

Failures:

- Structural failure: complex delivery structure (UK);
- Structural failure: superimposition of activities with other agencies (South Korea, although this aspect has also been criticised on regard of the UK Design Council – among others, by Maguire & Woodham, 1997)
- Educational failure: under-skilled design agencies and designers;
- Structural failure: geographical distribution of design services making difficult to deliver adequate services everywhere;

- Communication failure: weak public relations campaign;
- Political/Operational failure: market for business support programmes is saturated;
- Political/Operational failure: very strict criteria makes it difficult to select enough eligible businesses (UK, Designing Demand programme);
- Political/Operational failure: insufficient funding (South Korea);
- Operational failure: inefficient monitoring, insufficient assessment, complicated and immature evaluation process.

The awareness about failures and barriers faced by two of the most considered design programmes in the world, both with a history of successes (or at least a strong image internationally), provides a valuable tool for the development of design policies.

The study developed four *“models for alternative design policies with particular reference to the national business support programmes in design”*:

- National design policy led by national design centres;
- National design policy led by a government department collaborating with national design centres;
- National design policy led by a government department and implemented by regional support agencies;
- Absence of a national design policy – non-governmental organisations (NGOs) lead initiatives based on their own interests.

The models were validated through questionnaires, considering the time scale that would be necessary to implement any model. The visual representation of the four models, shown in the figures below, also appear in Choi *et al.* (2010).

FIGURE 2-8: Model 1: National design policy led by national design centre
(Choi et al., 2010)

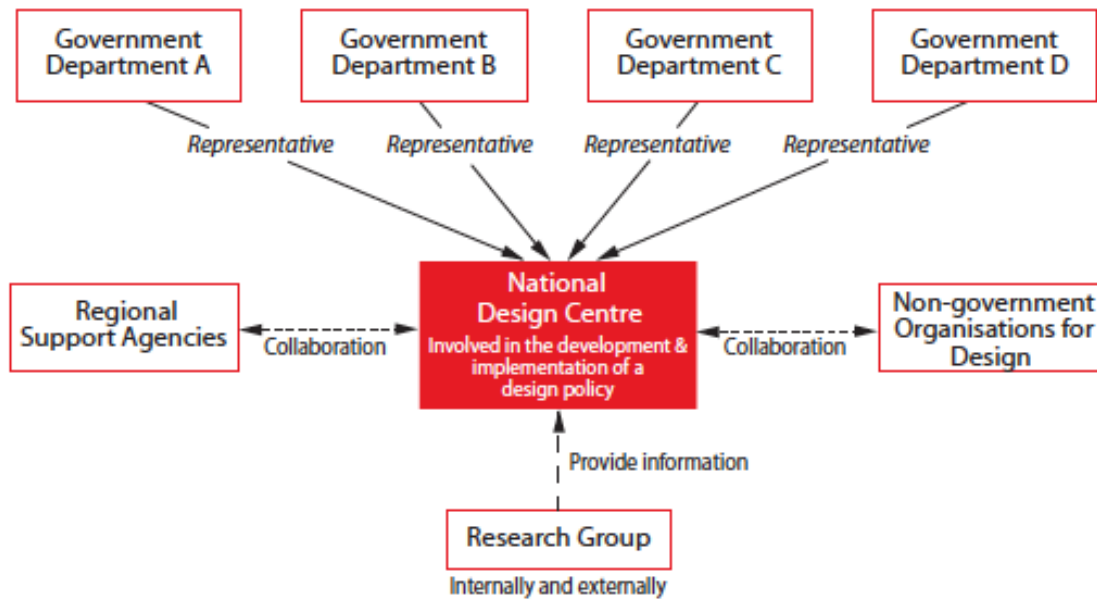


FIGURE 2-9: Model 2: National design policy led by a government department in collaboration with a national design centre (Choi et al., 2010)

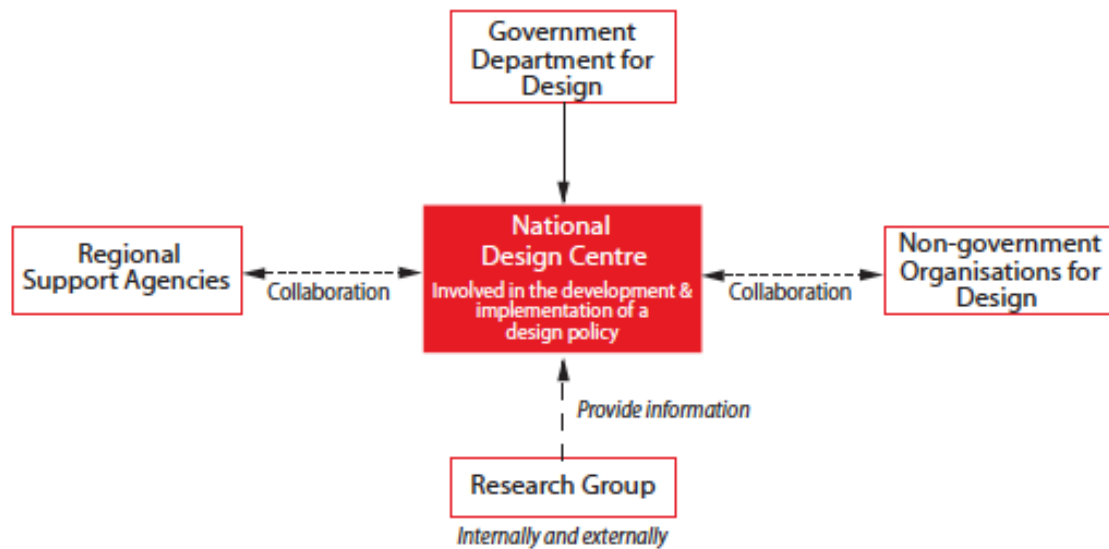


FIGURE 2-10: Model 3: National design policy led by a government department and implemented by regional support agencies (Choi et al., 2010)

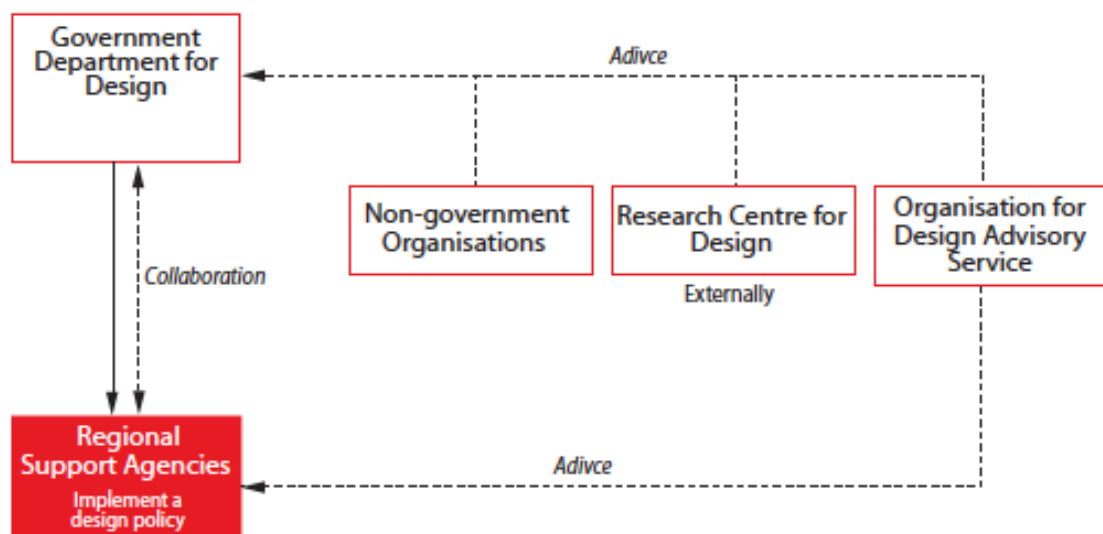
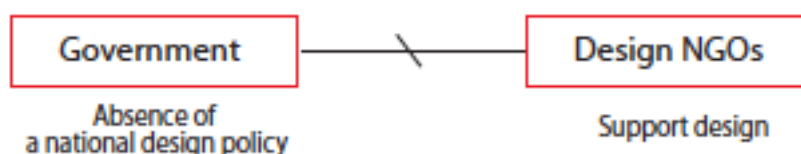


FIGURE 2-11: Model 4: No national design policy; activities, instead, are led by design NGOs (Choi et al., 2010)



The research has also appointed, as Raulik-Murphy's, to the importance of national and regional context, and regarding the four “alternative models” developed, concluded that *“there are no single best structural model”*, although highlighting that *“government-led and/or national design centre-led support are both important and necessary.”* A concern about the degree of government intervention on the design policy has also emerged in the research, as “detrimental” of “effectiveness”, stating (the respondents to the research) that *“national design centres should lead the development and implementation of design policy.”*

2.1.3.3 H. ALPAY ER (1994)

In his thesis *“The Emergence and Development Patterns of Industrial Design in Newly Industrialised Countries with particular reference to Turkey”*, the author

concludes that there are not significant differences between industrial design in industrialized market economies and newly industrialized countries (NICs). He states that it was *“not possible to identify a particular ‘developmentalist’ role for industrial design in NICs”* as suggested by Papanek (1972) and Bonsiepe (1973). Motivated and used in NICs by corporate commercial interests, industrial design could have, according to the author, an impact in the development of these countries, *“but this will be a by-product of its principal competitive role in a commercial context.”*

The role of design in these countries, however, was found to be less related to innovation and more likely to be a *“product modification activity.”* This product modification could be related to adaptation (or import substitution), when it comes to the internal market, or to cost reduction in export-oriented products. The development strategies associated with these different market orientations on NICs (import substitution/internal market or exports) also determine differences in the development of the design activity (*“different market orientations of an industry lead to different development patterns of industrial design”*). In those environments developing an exports-oriented economy, *“the extent of the involvement of industrial design was greater and more systematic than it was in the domestic-oriented ones.”* Hence the statement of the author that the production for exports is *“the most important single factor stimulating the development of industrial design at different levels in NICs.”*

Seven factors that stimulate the adoption of industrial design by the companies were identified by the study:

- Consumer demand sophisticated and diversified, with high purchasing;
- Competition by price and quality;
- Economies of scale (reached exporting);
- Development of indigenous technological capability;
- Investment in new technology with resources generated by exports;
- ‘Learning by exporting’ in marketing, quality control and project management;

- Competitive advantage over local competitors as a by-product of exports experience.

Contrary to Bonsiepe (1977), Alpay Er (1994) claims that *“the lack of technology or technological dependency does not constitute a significant barrier to the development of industrial design.”* His research points to the globalisation of markets and manufacturing industry as the drivers for the development of design in NICs.

Regarding the relation of governments and design, it is stated that its development is closely related to the absorption of design as an integral part of the government long-term development strategies, *“rather than to the extent that they give direct support to design institutions, and promotion.”*

The research produced a “New Model of Development for Industrial Design in NICs” (attached to the last page of the questionnaire on APPENDIX 1). This model presents seven major stages or phases:

- Proto-design
- Embryonic
- Emergence
- Mushrooming 1
- Mushrooming 2
- Spiderweb
- Sovereignty

Each stage is detailed in six different categories:

- Development strategy
- Sectorial scope of industrial design
- Industrial design at firm level
- Government design policy
- Industrial design education and research
- Industrial design discourse

This model was used in the preliminary study as a reference for the interviewees to explain their perception of the situation of Brazilian design in the model.

From the study and the development of the model, the author highlighted the three most significant factors he believes to establish a pattern of development of design in NICs, which should be taken in consideration if one intends “*to develop a successful strategy for industrial design at national, or corporate levels, or to use design as a 'development' tool in developing countries.*” These factors relate to design policies and to design education:

1. Design policy should be incorporated into general development strategies;
2. Design policy should be industry-specific;
3. Design education should be strategically linked to export activity.

2.1.3.4 KEY EMERGING ISSUES

The analysis of specific academic research about DPs rised seven key issues:

1. Competitiveness as main rationale for DPs;
2. Design support is not sustainable in isolation;
3. Growing interest in policy strategies rather than isolated programmes;
4. Importance of national context for effectiveness of DPs;
5. Strategic importance of design support to SMEs for economic growth;
6. Importance of monitoring and analysis failure to improve DPs;
7. Export-oriented economy favouring development of design;

As already suggested by literature about economy, competitiveness is not only the main rationale for DPs, but also export-oriented economy favours the development of industrial design. A trend is observed towards developing DPs rather than isolated programmes, observing the peculiarities of the national context despite the international collaboration and information exchange in the area. The strategic importance of design support to SMEs is also stressed, although observing that all design support must be associated with promotion and education actions. Finally, the importance of monitoring and analysing failures is reported as an important asset for the development of effective DPs.

2.2 CATALYSTS AND DRIVERS OF CHANGE

Literature identifies the historical factors – or catalysts – accountable to make governments bring forth Design Policies as an instrument to foment growth, as well as the key drivers motivating these policies. Those catalysts and drivers enlighten how DPs evolved along the years, and what factors repeated along history are still effective today.

2.2.1 HISTORY

Understanding the early origins of DPs, its early drivers and connections with manufacture, industrial and science & technology policies, enlightens the debate about past and current errors and achievements, and contributes to the establishment of a rationale for DPs. Korvenmaa (2004) advises that when examining history, we must get back the *fire*, not the *ashes* (citing Jean Jaurès, a French socialist leader from nineteenth century – *“Take from the altars of the past the fire - not the ashes”*).

2.2.1.1 EARLY ORIGINS

Wield (1986), trying to establish an origin for public design policies, mentions that “since the nineteenth century there have been increasing pressures on governments to intervene in the planning, coordination, and control of science and technology.” Alpay Er (2002) also traces to the nineteenth century the origins of DPs in Britain: *“With its early beginnings in the 1830s, the government involvement in design in Britain was largely a response to the successful use of style for economic advantage by French in a mercantilist context.”*

Tracing history of DPs from much earlier accounts, Heskett (2010) recalls that rulers historically obstructed innovation, *“widely regarded as dangerous in that it undermined existing skills and the stability of society.”* He identifies initially two separate historical drivers for policies: (1) identity or image, and (2) economic benefit. Alpay Er (2002), commenting Heskett, says the first use has examples going from the Roman empire to fascist governments (and could be categorized

today as 'nation branding'); the second is related to gaining competitiveness in international trade.

Heskett (2010) credits the ideals of Mercantilism, in the end of eighteenth century, to have broadened the government's intervention on the national economy, laying the foundations to what we know as industrial policies. Moreover, he highlights some key measures common to mercantilist practices that may seem quite contemporary:

- a. stimulate trade competitiveness;
- b. foster local industry;
- c. investment in infrastructure;
- d. investment in education;
- e. promotion of national products.

From as early as the late sixteenth century, Heskett (2010) credited France to have applied favourable measures *"to stimulate luxury production and raise standards"*, building ever since and sustaining a supremacy in the trade of luxury goods up to current days. He also acknowledged to France the implementation, in mid-eighteenth century, of design education *"considered in its own right, not as a subsidiary branch of other arts."*

Heskett (2010) contrasts this with the situation in Britain, while in the lead of technological advancement at the beginning of the industrial revolution, copying designs was a common practice, resulting in a lower quality of products and little competitiveness. As stated by Sir Robert Peel, addressing the House of Commons in the 1830s: the *"death of original design talent in Britain"* had led *"to the disreputable practice of copying successful designs, both native and foreign."* The same copying culture is identified later in the nineteenth century in the United States, configuring a pattern of industrialisation initially based on copying that has extended for over two centuries. This pattern can be identified in the second half of the twentieth century in several countries of East Asia, and more recently, in the efforts of China to change its emphasis from Made in China to Manufactured in China.

With the industrialisation, examples such as Josiah Wedgwood's ceramic manufactory are cited by Heskett (2005) to have commissioned "*academic trained artists*" to "*generate concepts of form and decoration*" even though demonstrating "*little or no idea of how aesthetic concepts could be converted into products.*" Two new groups were then brought on the scene: style consultants that helped to spot trends, and draughtsmen, who interfaced 'style' or 'art' and 'manufacture'.

Giving an account of the schools established in the United Kingdom after recommendations from the Select Committee on Design and Manufacture in 1835, Heskett (2005) observes the tension aroused between art and industry. In these schools, teachers were artists - "*the only people capable of teaching*" this subject - and "*the schools in fact evolved as art schools.*" Once again the intention of supplying industry with trained designers "*proved fruitless.*" The author goes on stating that these tensions between art and industry were also not settled by the Bauhaus and its ideals of "*harnessing mechanical production to spread the power of art throughout all levels of society.*" In fact, "*the ideal of the artist-designer as change-master of modern society has been little realized in practice.*" (Heskett, 2005)

History helps to bring light to the fact that these tensions between art and industry might still be accounted today for several symptoms affecting public design policies, when governments, repeating what has been done centuries ago, try to tame these complex relations to generate growth and foster competitiveness.

Raulik-Murphy (2010) brings a different perspective to the history of DPs, associating its origins to the first European trade and industry fairs, about two hundred years ago. Stating that "*for centuries government decisions have influenced the development of design*", the author concedes it wasn't before the nineteenth century that more specific national strategies were used to promote design as in the international industry and trade fairs. Although there were references to the Prague industrial exhibition in 1791 as the first European product and trade fair (Sayer, 2004), there are other references of such fairs being held in Geneva and Hamburg in 1789 and 1790, to display the products of national industries. The French National Exhibition of 1798 was held on the

“Temple of Industry”, and products exhibited were awarded prizes of public recognition.

The first event of international relevance is considered to be the 1851 Great Exhibition at London’s Crystal Palace in Hyde Park. It is said to have had over six million visitors and fifteen thousand exhibitors, and its profits were lately invested in land where the Victoria and Albert Museum, the Science Museum and the Natural History Museum were built. There was a clear and explicit intention to position the British industry as the “Workshop of the World” (MacLeod, 2004), at the same time celebrating the material progress and the rise of international trade after the end of the Napoleonic Wars. It was indeed a clear statement of the importance of design for the industrial society, where products already competed for an international market, having a significant presence on the British commercial balance at the nineteenth century. The Great Exhibition also have influenced people like Ferdinand Steinbeis in Germany, who developed many visionary projects to promoted trade and industry in Baden-Wurttemberg in the mid of the 19th century, among which was a large collection of industrial products that served as a reference of the world production, setting global parameters of quality to improve local products (von Alberti, 2007).

Undoubtedly the first thoughts and planned actions of Design Policies were rehearsed on the 19th century – contemporary with the Industrial Revolution and the emergence of the activity of industrial design itself – all under this spirit at the same time of integration and commercial competition among the nations, which needed to reassure their efficacy in the trade of its industrial products (Woodham, 1997, and Raulik-Murphy, 2009). Some of these ideas were consolidated and evolved, as in the case of the World Fairs becoming an important pathway for the exchange of goods as well as technology and services – apparently still effective today. And some other highly valued design principles, embodied in the ideas of William Morris, as well as manufacturing improvements as product modularity that helped develop more efficient assembly lines, where also developed during the second half of the 19th

century, as shown by Hauffe when he cites the example of the manufacturing of Thonet 14 chairs (Mitchell, 1993, and Hauffe, 1995).

2.2.1.2 TWENTIETH CENTURY

The title of "industrial designer" was registered in the US Patent Office in 1913 (as already pointed on section 1.2), close to the founding of professional unions and associations in the United States and in Europe. In the UK, Maguire & Woodham (1997) highlight the Society of Industrial Artists (SIA), established in 1930, among the organisations that worked for the promotion of design and its relations with industry. The society identified itself as representing designers working for industry, publishing or advertising, and proposed to organise *"the resources of Design as vital factor in British Industry and so to assist the advancement of British Trade, both at home and abroad"* (citing Milner Gray). However, it *"leaned towards graphic rather than industrial design"*. The author calls attention for the efforts to integrate designers to the industrial sector, exemplifying failed attempts to bring fine artists into manufacturing companies - and their inadequacy to the sector resulting from the lack of technical knowledge about the processes. Once more the art and industry opposition described by Heskett happening in the nineteenth century repeats itself.

Although during these fertile and turbulent period many nations have used design to reaffirm their identity, sovereignty or even the strength of its industry and the concept of nation itself (Woodham, 1997), it was not before the end of the Second World War, with the efforts to rebuild the economies affected by war, that one could testify the first direct actions taken aiming to establish National Design Policies. The most remarkable was probably the case of the United Kingdom, with the creation of the COID - Council of Industrial Design in 1944 (later named Design Council).

Immediately after the end of the war, in 1946, the COID organised the exhibition "Britain Can Make It" in London, at the Victoria & Albert Museum, to promote British industry and help its recovery. Maguire & Woodham (1997) report some early names suggested for the exhibition explicitly identifying it as a post-war effort: "Design for Reconstruction" or "Design for Peace", among several others.

The exhibition received around 1.4 million visitors to view almost 5000 items produced by British industries. Discussing the long-term effects of the exhibition, the authors identify some early problems faced by the COID, stating that the *“Information Division became more prominent than the Industrial Division, propaganda and publicity proving to be less problematic areas for visible activity than the constant friction and rebufs engendered by attempts at liaison with manufacturing industry.”* Thus *“the evangelical message of Good Design was easier to preach than to radically influence either industrial or social attitudes.”* Heskett (1997) states that the exhibition was set to highlight *“the role of design in creating a hopeful vision of the future.”* The author notes, however, that it *“aroused expectations it could not satisfy”*, pointing to an over-optimistic approach of design potentialities that should be a constant reminder of the causes and consequences of failure of design policy actions. A more pragmatic approach to design policies with social purpose was developed in the United Kingdom in 1942, described by Heskett (1997) as *“industrial mass-production to provide basic furniture for ‘bombees’, people whose homes had been destroyed by bombing, and for newly weds”* - part of a wartime effort.

The years 1950's have seen important DP-related institutions being raised in Germany: in 1953 was created the German Design Council (*Rat für Formgebung*) and also the opening of the Ulm School of Design, HfG Ulm; in 1954 the IF (Industrial Forum) Design Award; and in 1955 the Red Dot Award. Japan instituted the G-Mark Design Award in 1957. Another far-reaching fact was the creation of the International Council of Societies of Industrial Design, ICSID, founded by twelve national professional design associations from different countries in London in 1957. All these institutions would have a relevant role shaping the field of design in the forthcoming decades.

Langdon (1984) reports also three conferences discussing DPs in the 1950's and early 1960's:

- Design Policy in Industry, organised by the Council of Industrial Design, Royal College of Art, 1951;

- The Management of Design, Victoria and Albert Museum and The Royal College of Art, 1956;
- Who Designs America? The American Civilization Conference, University of Princeton, 1964.

Echoing major themes and discussions in the field of design in the late 1970s and early 1980's, when design had imposed to itself the unattainable task of discussing only the grandiose problems of global scale, Langdon defines the scope of another DP conference, held in 1982 at the Royal College of Art:

“Growing awareness of critical world problems of natural resources, energy supplies, pollution and the imbalance between rich and poor has led to a wider audience becoming interested in the issues with which design research has been concerned over the past decade. There is an increasing demand for understanding of, and involvement in, the policy decisions and design processes by which we influence and control our environment - both natural and technological.”

The years 1960's and 1970's testified the flourishing of design promotion initiatives by governments, from Europe to Asia, with design exhibitions and awards growing in importance, according to Woodham (1997), as well as some investments in design education. Thus the decades beginning with the 1960's have been the period when National and Regional Design Policies have won recognition and growing importance, although somewhat slow, in the planning and implementation of industrial and innovation policies. As well as the 21st century brought in its first decade an emergence of the so-called knowledge economy, where once again design has a very important role to play (Velloso, 2008, and UNCTAD, 2008) and its strategic use as a competitive advantage to be explored.

2.2.1.3 EARLY DESIGN SUPPORT IN BRAZIL

Writing about national design policies in Brazil (or the absence of it) in the early 1990's, Leon (1991) says that “The word design does not belong to the repertoire of the government.” She identifies a contradiction in this fact with the official discourse of the Brazilian government, of promoting an accelerated rise towards modernity – inconceivable without design, as stated in the article. The

quality and productivity programme launched at the end of 1990 to promote competitiveness in the industrial sector didn't mention the word design anywhere, reinforcing the argument that design was not part of the national agenda. On the other hand, it is said that countries with high economic growth were also promoting investment and clear policies in the design and technology sectors – citing the Asian examples of Japan, South Korea, Hong Kong, Singapore, Taiwan, Thailand and China. The neoliberal policies adopted by the Brazilian government at the time were heavily criticised by some economists, arguing that in countries as USA and UK, where they were adopted, promoting international competitiveness was combined with the adoption of measures to protect local industries. Some isolated regional initiatives however, emerging in the states of Parana and Rio de Janeiro, were described as the only promising movements to bring design into the agenda of development.

Barroso Neto (1998) in a comprehensive account of the activities of LBDI (Brazilian Laboratory of Industrial Design, 1984-1997) discloses the origins of design support activities in Brazil during the military dictatorship governments. These actions occurred within a context of a closed market (under a doctrine of import substitutions) intended to improve local industries, and were related to the industrial policy. The implementation was carried out to a considerable extent through programmes and policies of science and technology:

“The federal government through some agencies, including CNPq, FINEP, STI / MIC and Cacex / BB, resumed - albeit modestly - the support to design discontinued during the second half of the 1970s, first with punctual actions, and from 1982 with the implementation of a specific program to support design.”

This design program from CNPq can be considered as one of the first nationwide instruments of action in design, strategically planned, and aimed at simultaneously attacking the problems identified at both levels of supply and demand for design. There was actually a precedent, the ‘program 06’ of the Ministry of Industry and Commerce that 10 years before (1972/73) had offered support, in various parts of Brazil, to the development of large design projects

as a way to stimulate the fledgling design groups constituted in some research centres, including the CETEC in Belo Horizonte and the INT in Rio.”

The LBDI offered support to industry, developing research, promoting workshops and conferences, and also designing some products. Barroso Neto (1998) evinces how neoliberal doctrines adopted during the early 1990s contributed to the end of the programme, privatizing research centres under the belief that technological research should be self-financed. In the report, the name of the German designer Gui Bonsiepe is highlighted as a very important early stakeholder in design policies in Brazil. Bonsiepe was part of the early planning of the national policies that inserted design in the context of industrial and S&T policies, and later coordinates the first phase of LBDI.

2.2.1.4 KEY EMERGING ISSUES

From the topics related to the origins and historical aspects of DPs, two significant factors were highlighted:

- National image and competitiveness as early drivers of DPs;
- Continuous tension between design and industry (perpetuating tension between art and industry from previous centuries);

History proves that patterns tend to be repeated, as the most impacting driver for DPs being national competitiveness. Most significant, however, is the old tension between *art* and *industry* influencing the difficult dialogue between *design* and *industry* – which is ultimately a dialogue between *quality* and *growth*.

2.2.2 ECONOMY

“Mutations in our economies generate a demand for design” – says Borja de Mozota (2003). She warns that *“Designers are not conscious enough of this macroeconomic determinism”* and it is *“dangerous for the profession to disregard macroeconomic issues.”* Moving on the subject, she observes that designers now *“participate in world competition - the global village - which holds that a good concept is good everywhere.”* This later statement could be argued, saying that good design is not necessarily good everywhere, as noted by Papanek (1985).

Design and economy were subjects brought together by design authors as Papanek, Bonsiepe, and Heskett – the later himself an economist – from the 1970's. Schumacher (1973), cited as having influenced Papanek, is referred by Heskett (1977) for his ideas with “*emphasis on the needs of people, rather than products*”, favouring employment rather than productivity.

For Schumacher (1973), the system of nature “*tends to be self-balancing, self-adjusting, self-cleansing.*” But on the other hand, “*technology recognises no self-limiting principle*”, and consequently causes unbalance when interacting with the natural system.

Writing in the early 1970's (but perhaps not that far from current reality), Schumacher (1973) points to the disruptive nature of the emergence of a “*dual economy*” in developing nations. He estimates that 15% of the population from developing nations live in the “*modern sector*” while the other 85%, living in small towns or rural area, are deprived of this condition, generating continuous social and political tension in what he calls a “*process of mutual poisoning.*” The efforts to foster development, however, most usually lean towards the fifteen percent already privileged areas. “*Development*” - he advises - “*does not start with goods.*”

To confront this situation Schumacher (1973) advocates that investments should be focused on regional or district development, granting the creation of workplaces locally (and not in metropolitan areas), with simple production methods and easy access to material supply, financing and (local) market insertion. Schumacher also proposed the adoption of *intermediate technologies*, accessible to local populations, rather than high - and costly - technologies.

2.2.2.1 THE ROLE OF GLOBALISATION

During the Napoleonic wars in the Iberian peninsula, Brazil, then a Portuguese colony, sheltered the Portuguese court. To keep up with his 'regal needs', the King Dom Joao the Sixth promoted in 1808 the 'opening of the ports' of Brazil to the external trade (particularly with England, the crown's ally against Napoleon) - so far the colony was only permitted to trade with or through Portugal (Sandroni, 2009). The 1990's decade became known as a new opening of the

ports to Brazil. After decades of a conservative-protective market, based on imports substitution, there was an outbreak of liberal economic policy, steered by president Collor de Mello's team of economists, and later by his successors presidents Itamar Franco and Fernando Henrique Cardoso. One of the arguments offered was the need to turn the Brazilian industry internationally competitive. Undermined by a vicious internal market, where innovation consisted on copying the 'forbidden products' from strong international brands, besides an internal trade volume that equaled many European countries exports, Brazilian industry became indulgent. But another detrimental consequence was the ageing of the country's industries - the high taxation of imports also affected machinery and all manufacturing technology essential to thrive and be able to compete. This movement was set in the context of the 1990's globalisation of markets - defined by Goyal (2006) as "*the integration of economies of the world through uninhibited trade and financial flows, as also through mutual exchange of technology and knowledge*", supported by an "*increased mobility of persons, goods, capital, data and ideas*". Although the general strategies were the same, each country added some particular measures to support the process: while India devaluated its currency almost 20 percent (Goyal 2006), Brazil adopted a new and overvalued currency, the Real (Gennari 2001) – that was ultimately force to devaluation after a crisis in 1998/1999 (Averburg & Giambiagi, 2000).

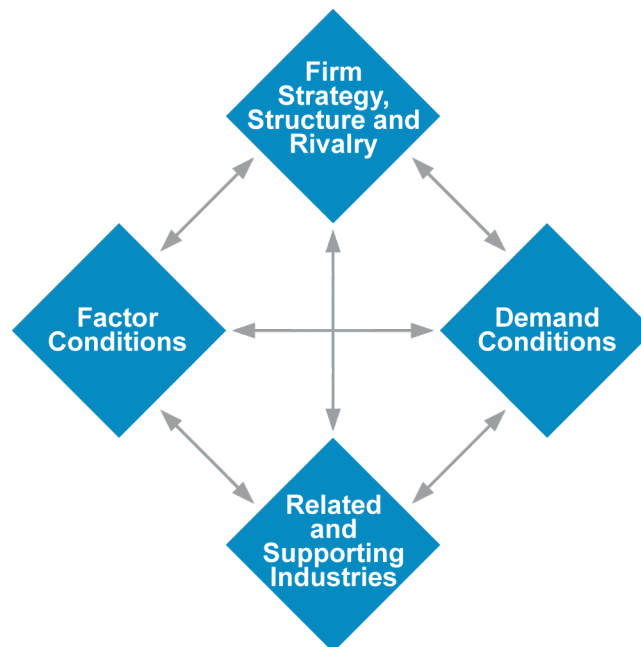
The implications of globalisation for design were major - Shen et al. (2006), discussing HCI (human-computer interaction), mentions the impacts on "*internationalisation, localisation, 'glocalisation', iconisation and culturalisation*" of products. Heskett (2005), has a generally positive impression about the role design could and should play in globalisation. Despite the general concerns about the "*large corporations taking over the world*", he points that "*innumerable small and medium companies are increasingly involved in global trade, representing a very broad spectrum of products and services that cannot be depicted in terms of crude stereotypes of capitalism*" (Heskett, 2005). He also points that globalisation brought to design "*a shift from standardized products to standardized components that can be flexibly configured to provide a variety of*

forms and satisfy a range of needs” (Heskett, 2005). Buerdek (2005) also mentions how design was incorporated to the strategies of globalized companies, and the new dynamic it imposed to the market, with the growth of American (mostly) and European design companies opening offices in Asia (Idea, Frogdesign) to respond properly to this new reality.

2.2.2.2 INNOVATION AND COMPETITIVENESS

Michael Porter (1990) authors a frequently cited reference work in economy, discussing *“The Competitive Advantage of Nations”*. Observing that *“no nation can be competitive in everything”*, Porter refers to productivity as *“the only meaningful concept of competitiveness at the national level”*. He proposes a model – the Diamond of National Competitive Advantage (Fig. 2-12) – where the determinant factors are summarised.

FIGURE 2-12: The Diamond of National Competitive Advantage, or Determinants of National Competitive Advantage (Porter, 1990)



- FACTOR CONDITIONS. Nation's ability to innovate with skilled labour, infrastructure, knowledge.
- DEMAND CONDITIONS. A strong domestic demand will challenge local industry and prepare it for international competitiveness.
- RELATED AND SUPPORTING INDUSTRIES. Local supply chain's efficiency and internationally competitive.
- FIRM STRATEGY, STRUCTURE, AND RIVALRY. *"The conditions in the nation governing how companies are created, organised, and managed, as well as the nature of domestic rivalry."*

Porter advises, however, that the attempt to explain national competitiveness leads to the wrong question. The fundamental questions should be:

- *"Why do some companies based in some nations innovate more than others?"*
- *"Why do some nations provide an environment that enables companies to improve and innovate faster than foreign rivals?"*

To maintain a nation competitive, local companies need to increase productivity continuously *"by raising product quality, adding desirable features, improving product technology, or boosting production efficiency"*. This 'recipe' provided by Porter clearly points to design as a major competitive factor, capable of providing the necessary advancement advised.

In another paper, Porter states that *"Among the world's core economies, statistical evidence indicates that innovation plays a dominant role in medium-term economic growth"* (Porter et al. 2002). The role of the government is emphasised and considered *"fundamental to prosperity"*, addressing issues as *"investing in specialized human resources, building innovative capacity, facilitating cluster development, and stimulating advanced demand via regulatory standards."* Commenting on the performance of Latin American economies, the authors say that the low performance reflects *"their difficulty in emerging from a Factor-Driven to an Investment-oriented stage of development."*

Brazilian economist, academic, and former Minister of Finance, Bresser-Pereira (2008) portray economic growth as an outcome of a national development

strategy, and driven by consensus: *“Effective economic development occurs historically when a nation is strong, and the different social classes are able to cooperate and formulate an effective strategy to promote growth and face international competition.”* Observing the internal relations that drive economic growth, Bresser-Pereira (2008) states that *“there is a strong correlation between the level of economic development of each society and its institutions, or, more generally, between the economic, the institutional, and the cultural instances existing in all societies”* The author interprets the raise of living standards as a catalyst for economic development, but as well *“the high correlation between economic growth and the achievement of other major political objectives.”*

2.2.2.3 INNOVATION AND SMEs

The Inter-American Development Bank commissioned a study (Loossens, 2008), to identify *“the role of innovation, intellectual assets and entrepreneurial drive in the growth process of High Growth SMEs in Brazil, Chile and Mexico.”* The study highlighted common aspects shared by the companies studied in the three countries, identified with their high-growth ability:

- (1) *“the ambition and management capacity of the entrepreneurial team”;*
- (2) *“relevant previous work and/or educational experience in the same sector as the present venture and very often in a foreign country”;*
- (3) *“importance of contact networks”;*
- (4) *“a symbiotic relationship between the venture and one or more large firms”;*
- (5) *“innovation as a differential competitive factor”*
- (6) *“creation and leverage of intellectual capital”*
- (7) *“creative ways of financing.”*

A study from OECD (De Backer & OECD, 2008), discussing the role of SMEs in open innovation, raises potential problems: *“When collaborating with larger companies, SMEs especially may face larger risks because they typically have fewer resources and limited expertise in IPR issues.”* According to the study,

this is the cause for SMEs being four times less willing to collaborate in open innovation processes than large companies. The authors observe, however, that open innovation may help SMEs to overcome the challenge of the globalised market: *“Open innovation may speed up the internationalisation of innovation in smaller (high-technology) companies if they do not need to set up full-scale R&D facilities locally. New “infrastructure” in the form of innovation intermediaries (some of them government-sponsored) may help SMEs to develop and integrate global innovation networks.”*

The Brazilian National Strategy of Science, Technology & Innovation 2012-2015, (Secretaria Executiva do MCTI, 2012), assigns a significant role to SMEs and their innovative potential, underlining the importance of provisioning financial and technological support to boost their development.

2.2.2.4 BRAZIL AND COMPETITIVENESS

The former Brazilian Minister of Finance Antonio Palocci introduces a view of design providing a *‘market safeguard’* against foreign competition, highlighting innovative and user-oriented characteristics of locally designed products:

“The development of an innovative design and products adapted to the Brazilian consumer seems to have been more effective to safeguard our national market than any other protectionist measure.” (Palocci, 2009)

The potential for growth and need to move forward from a commodities-based economy is explored in a report from HSBC Bank & The Economist Intelligence Unit (2010). The report states that Brazilian economy, after *“a decade of macroeconomic prudence”*, emerged as *“a sturdy platform for investment, growth and foreign expansion, and businesses have factored this change into their long-term strategies.”* But there is still a need to improve – the country *“has yet to move beyond the relatively easy task of supplying commodities to a customer that is desperate to buy.”*

The country competitiveness is weighted in the World Economic Forum Global Competitiveness Report (Schwab, 2011). Brazil is positioned in 2011/2012 as having improved five positions from previous year report, ranked in 53rd place in

the overall competitiveness index. *“The country benefits from several competitive strengths, including one of the world’s largest internal markets (10th) and a sophisticated business environment (31st), thus allowing for important economies of scale and scope. Moreover, the country has one of the most efficient financial markets (40th) and one of the highest rates of technological adoption (47th) and innovation (44th) in the region. On a less positive note, Brazil still suffers from weaknesses that hinder its capacity to fulfil its tremendous competitive potential. The lagging quality of its overall infrastructure (104th) despite its Growth Acceleration Programme (PAC), its macroeconomic imbalances (115th), the poor overall quality of its educational system (115th), the rigidities in its labour market (121st), and insufficient progress to boost competition (132nd) are areas of increasing concern.”* (Schwab, 2011)

TABLE 2-3: Position of Brazil in the ranking of Innovation investment, conditions, and performance (after Schwab, 2011, p.35)

Enabling environment	
Competition	132
Quality of math and science education	127
Quality of education system	115
ICT use	63
Gov't procurement of advanced tech products	52
Intellectual property protection	84
Venture capital availability	52
Investment	
Company spending on R&D	30
Quality of scientific research institutions	42
University-industry collaboration in R&D	38
Availability of scientists and engineers	91
Performance	
Capacity for innovation	31
Utility patents per million population	60

2.2.2.5 EMERGENCE OF THE CREATIVE ECONOMY

Economy has always been shaped by culture - production, consumption, labor, migration, all are intertwined aspects considered in this socio-economics approach by authors such as Zelizer (2011). Since the nineteenth century, however, some economists begun to notice that the economic relations were shifting from industrial production towards intangible knowledge assets. But it wasn't until about two decades ago that the economists (Drucker, 1993; Freeman, 2004; Florida, 2002) started to announce the creative economy era.

Freeman (2004) brings out the foresight of nineteenth century German economist Friedrich List (List, 1841), who argued about a knowledge economy based on intangible aspects of production - or creative economy, as it became known in the beginning of the twentieth-first century: *“The present state of the nations is the result of the accumulation of all discoveries, inventions, improvements, perfections and exertions of all generations which have lived before us: they form the intellectual capital of the present human race, and every separate nation is productive only in the proportion in which it has known how to appropriate those attainments of former generations and to increase them by its own acquirements.”*

List identifies a direct dependence relation between material and mental capital: *“The augmentation of the national material capital is dependent on the augmentation of the national mental capital and vice-versa.”* His terminology is updated by Freeman (2004) from the use of ‘material’ vs. ‘mental’ capital to the contemporary debate about the interaction between ‘tangible’ and ‘intangible’ investment.

List strongly criticised and condemned Adam Smith for adopting an exclusively material view of capital, missing its human factor or ‘mental capital’, ultimately disregarding knowledge power – such as teachers and doctors – as ‘non-productive’. Smith is also criticised for his rejection of the ‘artificial methods’ of stimulating some non-competitive industries, relying solely on “the natural course of things.”

“At the national level, the analysis points to the conclusion that long-term infrastructural investment in ‘mental capital’ and its improvement is crucial for successful economic development, and for competitive trade performance.” (Freeman, 2004)

To assert the rise of a post-capitalist, knowledge-based economy, Peter Drucker (1993) explains that *“The basic economic resource – ‘the means of production,’ to use the economist’s term – is no longer capital, nor natural resources (the economist’s “land”) nor ‘labor.’ It is and will be knowledge.”* This new society, according to Drucker (1993), is divided *“by a new dichotomy of values and of aesthetic perceptions, (...) between ‘intellectuals’ and ‘managers,’ the former concerned with words and ideas, the later with people and work.”*

Reinforcing this statement, Florida (2002) says that *“the advanced nations are shifting to information-based, knowledge-driven economies.”* He believes creativity is the key driver for this shift, allowing *“the creation of useful new forms out of that knowledge,”* and announces *“Today’s economy is fundamentally a Creative Economy.”* Explaining his creativity-centred view of the new economy, it is said that *“‘knowledge’ and ‘information’ are the tools and materials of creativity. ‘Innovation,’ whether in the form of a new technological artifact or a new business model or method, is its product.”*

The use of this term – creative economy – is credited by Florida (2002) to have initially appeared in a Businessweek magazine article from August 2000 (Coy, 2000), and he also mentions the figures depicting its global impact appearing in John Howkins book, “The Creative Economy” (Howkins, 2002). Different from Florida, who defines creative economy in terms of occupations, Howkins defines fifteen sectors of the “creative industry” – here counted design – that *“produce intellectual property in the form of patents, copyrights, trademarks and proprietary designs.”* (Florida, 2002)

The Businessweek magazine article (Coy, 2000) mentioned by Florida (2002), states that *“the Industrial Economy is giving way to the Creative Economy,”* pointing to new challenges the corporations would face. Concepts as virtual value

are explained in the new context where ideas are the real asset. After all it is *“an economy based on ideas rather than physical capital.”*

The insertion of the design industry in the creative economy occurs, according to UNCTAD (2008), because *“it cuts across the artisan, manufacturing and services components of the value chain, interacting with technology and qualifying for IPRs.”*

2.2.2.6 KEY EMERGING ISSUES

Five subjects stood out from literature:

- demand for design driven by macroeconomic issues;
- innovation- and competitiveness-based rationale for supporting local companies;
- effectiveness of design as an economic safeguard;
- common factors emerging from innovation-driven high growth SMEs;
- emergence of design as component of Creative Economy;

The role of design in the current macroeconomic environment is evinced by literature about innovation, competitiveness, and the rise of creative economy. Literature also substantiates the need to support local industries, and specially SMEs, to fully develop their competitive role.

2.2.3 DESIGN AND INNOVATION

2.2.3.1 NATIONAL SYSTEMS OF INNOVATION

Friedrich List (1841) is credited as *“the original source of the national competitiveness school”* (Freeman, 2004). He is also reputed as predecessor of the concept of National Innovation System. According to Freeman (1995), List *“advocated not only protection of infant industries but a broad range of policies designed to accelerate, or to make possible, industrialisation and economic growth.”* Furthermore, List considered *“skill and competence as the foundation not just of lasting economic achievement, but of a better society”* - adding a social dimension to economic growth (Heskett, 2010).

Freeman (2004) credits List for recognizing *“the importance of new investment embodying the latest technology”* as well as *“the importance of learning by doing”* in industry. List also highlighted, in Freeman’s words, *“the importance of importing foreign (...) technology and of attracting foreign investment and the migration of skilled people as a means of acquiring the most recent technology.”* He also *“clearly regarded the development of the appropriate institutions and ‘mental capital’ to enable manufacturing to flourish as a matter of many decades.”* *“Finally, List stressed very strongly the importance of an active interventionist economic policy in order to promote long-term development, and as we have seen, rejected the philosophy of the ‘night-watchman state’ decisively.”*

Despite originated in List’s concept of *National Systems of Production*, the term *National Systems of Innovation* (NSI) was initially adopted in the 1980’s in Europe and the USA, mainly influenced by Bengt-Ake Lundvall (1985) and Christopher Freeman (1982, 1995). Lundvall states that nowadays *“the concept informs policy makers in many countries, including the biggest economies in the world such as the USA, Japan, Russia, Brazil, South Africa, China and India, but it is also referred to in many small countries. Both policy makers at the national level and experts in international organizations for economic cooperation such as OECD, Unctad, the World Bank and the EU Commission have adopted the concept.”* (Lundvall, 2007) Emphasising the importance of the work about

national systems, Lundvall argues that it helps *“to develop taxonomies where national systems are grouped according to how they are structured.”*

Korvenmaa (2007) describes how the term National System of Innovation was intended to build a network of shared responsibility that would foster innovation and development. The Finnish government took the challenge to use design as a tool to promote development, generating wealth and quality of life in the same way it has been used during the post-war years. One of the tasks was to integrate the design system into the bigger framework of a national innovation system. As a result of the actions taken, design *“entered the highest level of politics and became integrated in the nation-wide strategies of innovation policy”* leading the country to the rank of the most competitive nation in the world for several years.

Lundvall (2007) discusses the evolution of previous *“simplistic ideas of competitiveness”* based on product price (supported by low wages and currency devaluation) towards an innovation-based approach that *“link innovation to economic performance.”* He points to the impact of the systemic approach instead of a linear approach as a positive move among policy-makers. But he also criticises the use of universities as *“immediate sources of innovation”* as he discusses what happened in the USA involving the relationship between the pharmaceutical and biotech industries and universities. *“Innovation implies qualitative change. If we stick to the idea that only quantitative as opposed to qualitative concepts can be accepted as scientific we have actually ruled out innovation as analytical object.”*

Talking about developing economies, Lundvall (2007) stresses that NSI must consider low-tech industries and primary sectors as well (such as agriculture), and that policies exclusively focused on Science and Technology must be avoided. Furthermore, he mentions the difficulty of getting access to data from companies in developing countries, and emphasises the importance of integrating industry and the educational system through more pragmatic approaches like problem-based learning.

Freeman (2004) advocates technological leadership as a long-enduring and hard-to-beat factor of development, *“likely to persist over long periods and to re-assert itself repeatedly*. Oppositely, he warns that *“technology gaps could be sustained over long periods.”*

The linkage between knowledge, applied research, production and market is frequently disregarded, advises Freeman (2004), threatening the development of innovative countries: *“what has perhaps not been sufficiently recognized is the extent to which policies for science and technology are intertwined with policies for trade and industry. The ‘coupling mechanisms’ between the education system, scientific institutions, R&D facilities, production and markets have been an important aspect of the institutional changes introduced in the successful ‘overtaking’ countries.”* Citing Williamson (1975) and Philips (1980), he accuses traditional competition theory of failing to perceive the synergy of the S&T system with productive sector.

Also addressing innovation systems in developing countries, the Oslo Manual, an OECD study on innovation (OECD & Eurostat, 2005) underlines two other critical issues related to the large number of MSE and informal businesses:

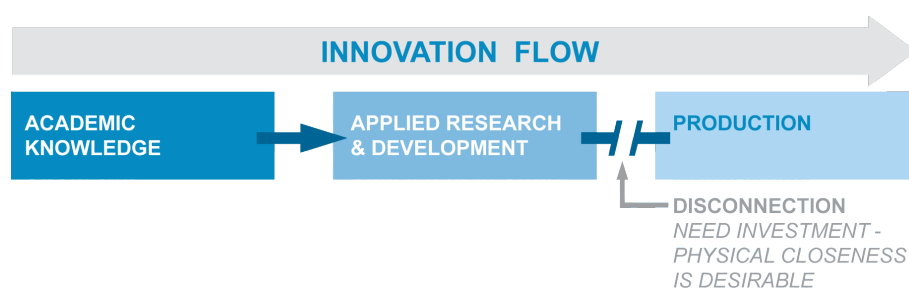
INSTABILITY: *“Instability in micro and small businesses may mean that some have good potential to upgrade national innovative performance and function as cradles of innovators, while some lack resources and support for any innovation. Macro level uncertainty limits any long-term innovation activity.”*

INFORMALITY: *“Developing countries’ economies rely significantly on informal practice. Informality is not a favourable context for innovation. The sometimes great creativity invested in solving problems in the informal economy does not lead to systematic application and thus tends to result in isolated actions which neither increase capabilities nor help establish an innovation-based development path.”*

Wield (1986) enunciates the importance of substantial governmental investment in the implementation of innovation (the final phase of innovation, according to Braun, 1986). It is said that the initial phases of innovation, however more risky,

were traditionally considered to be essential to growth, and consequently received government support and investment. One common failure of government-supported innovation policies is identified in the way science parks operate: they are conceived to link academic knowledge with applied research and development of products for industry - however they are usually not physically linked to production. This is also observed in some companies, according to Wield, but if you want to promote a steady flow of innovation, both academic research, industrial research and production should be linked, and its physical closeness is desirable. The disconnection observed in the innovation flow (Fig. 2-13) is considered by Wield a systemic failure that should be addressed by innovation policies.

FIGURE 2-13: Innovation flow disconnection
Based on Wield (1986)



Braun (1986) emphasizes the importance of technological development in today's world as a national competitive advantage. It is even considered in terms of a “*new mercantilism*” where instead of gold reserves, governments sought for a “*new symbol of affluence: advanced technology.*”

Policies are discussed considering a development of the innovation process through four different stages, numbered from zero (0) to three (3). The stage “0” (zeroth), or the ‘ambience’, is constituted of tangible and intangible aspects that surround the environment where innovations are expected to be generated; the first stage would be ‘emergence’, and it is advised that normal loan finance would have aversion to this phase, because of the intrinsic risk it conveys; the second is the ‘development’ stage, where the network of supportive activities is needed; the third and last stage, which traditionally didn’t got much attention from in terms of government support, is that of ‘implementation’, where marketing and starting up

production are the main concerns, and which “is the most expensive and also exposes the greatest weakness in the scientific/technical first-time entrepreneur,” deserving therefore some special attention.

An interesting aspect of this model of innovation process relates to its initial (zeroth) stage: although related to infrastructural aspects, he also brings intangible aspects into consideration, such as “*personal honours and social hierarchies, the aura of success, public opinion.*” In other words, Braun considers intangible or aspirational attributes to be part of an innovation model, calling attention to the desire to innovate.

About the planning of innovation policies, Braun (1986) advises that “*Policy measures should not only be designed to stimulate innovation, they should also aim to remove difficulties at specific points of the innovation process.*”

2.2.3.2 INNOVATION, DESIGN, AND CREATIVE INDUSTRIES

Miles & Green (2008) highlight the role design is expected to have in business competitiveness and innovation systems: “*When innovation research was focused primarily on manufacturing R&D, ‘design’ warranted little more than a footnote. However, there has been a growing appreciation of the importance of design for UK firms. Design is now recognised as an important contributor to business competitiveness, especially in the low-technology businesses and SMEs that dominate the UK economy (Cox Review, 2005; DTI, 2005).*” The authors also observe performance of creative industries as a whole, situating them “*at the forefront of major technological changes*”, and posing a “*big challenge for both policymakers and managers*”.

One of the problems detected by Miles & Green (2008) was the question of hidden innovation in creative industries - “*which is not recorded using traditional innovation indicators.*” It was identified in four different groups: those excluded from traditional measurement; the innovation in organisational forms or business models; the novel combination of existing technologies, processes and contents; and the innovative problem-solving that results in one-of-a-kind solutions.

Some of the recommendations made by Miles & Green (2008) highlight the importance of obtaining and recording data about the creative industries. It brings attention to the need of more specialised surveys - shifting *“focus to the innovations rather than keeping it on the firm.”* Another recommendation regards reaching smaller firms (microbusinesses): *“Many creative firms are microbusinesses; a complete understanding of the innovation performance of the creative industries requires information about these smaller firms to be collected.”* Knowledge of best practices also need to be more frequently recorded and shared with policymakers. These aspects reinforce some arguments about the need for proper metrics and data collection from the sector as one significant aspect of policies for the field of design (as for the other creative industries). The establishment of solid databases that are constantly fed with living data and case studies and best practices from the field are a valuable tool for planners and policy makers. *“Managers also need to know what strategies are being adopted by other creative firms (and in other relevant sectors) to discover opportunities for new approaches in their own firms and networks.”*

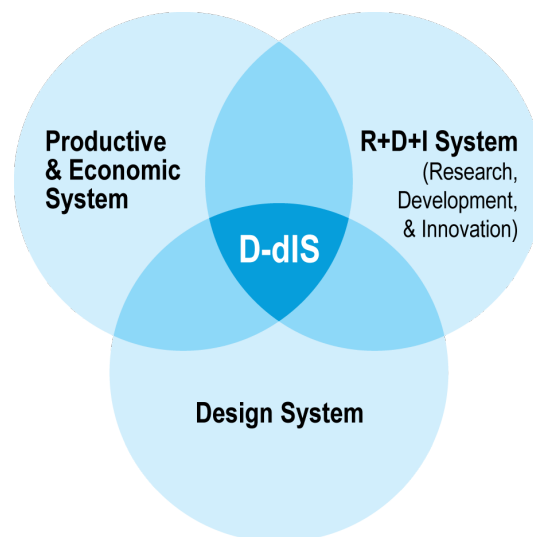
The role of design in innovation is discussed by Borja de Mozota (2003), citing previous studies by Lovering (1995) and Guimaraes (1995), stating that *“Design participates in the innovation and transfer of new technologies, as well as in the revitalisation of a region.”*

The European Commission concern with the importance of design as a potential innovation driver is also reflected in other recent publications. *“Design is an important source of user-centred innovation and competitiveness for European companies - but one that is insufficiently used, in particular by SMEs”* – states Thenint (2008). INNO-GRIPS, the Global Review of Innovation Intelligence and Policy Studies from European Commission Enterprise and Industry, aiming at establishing a framework for design policies in European countries, promoted discussions that led to the establishment of a set of one hundred recommendations organised in sixteen categories of *“Essential ingredients for an inspiring and enabling European design support policy”* (Thenint, 2008). Also the latest recommendations of the European Design

Leadership Board, Design for Growth and Prosperity (Thomson & Koskinen, 2012), advise the strategic inclusion of design in Europe's innovation systems. Among twenty-one recommendations in six different areas offered in the document, six are focused in design and innovation.

Mollenhauer & Korvenmaa (2007) defined a visual model for a Design-driven Innovation System (D-dIS) using a Venn diagram where three different systems are integrated: (1) the productive and economic system; (2) the research, development and innovation system; and (3) the design system.

**FIGURE 2-14: Design-driven Innovation System (D-dIS) model
(after Mollenhauer & Korvenmaa, 2007)**



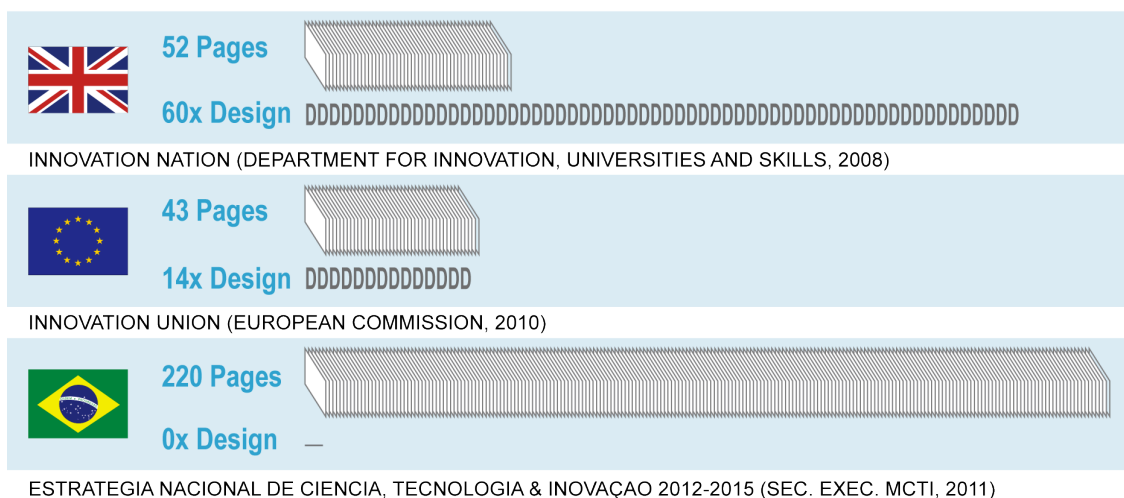
Another recent publication by the Commission of the European Communities, *Design as a driver of user-centred innovation* (CEC, 2009), claims that design, although being recognised as an innovation tool by both Frascati and Oslo manuals (respectively OECD, 2002 and OECD, 2005), is not considered in its less technological activities, such as service design.

The same publication states: *“Design is increasingly considered a strategic tool for user-centred innovation (...) as an innovation activity is complementary to*

R&D in that it transforms research into commercially viable products and services, and brings innovation closer to user needs.” (CEC, 2009)

A revealing quantitative comparison can be drawn from the latest documents related to innovation policies issued by the European Union (European Commission, 2008), United Kingdom (Dept. for Innovation, Universities and Skills, 2010), and Brazil (Secretaria Executiva MCTI, 2011). The frequency of appearance of word design was calculated in the three documents, excluding the use of the word without reference to the design activity (e.g., as a verb), and including other Portuguese synonyms in the Brazilian document (such as “*desenho industrial*”). The results, shown on the figure below, evince the importance attributed to design in Europe compared to the total absence of mention to design in the Brazilian policy document.

FIGURE 2-15: Official documents introducing innovation policies, their number of pages, and number of mentions to design.



2.2.3.3 KEY ISSUES

Four key issues are featured in literature about innovation policies:

- National Innovation Systems and economic growth;
- linking knowledge, applied research, production and market;
- SMEs role in innovation;

- role of design in innovation policies.

Literature enlightened the origins and purpose of the idea of National Innovation Systems, aimed at sharing responsibility through a network of stakeholders to foster growth. This network is mean to support the linking of knowledge, applied research, production and market. This same concept was later applied to figure out an equivalent design system (Moultrie, 2009). The SMEs role in innovation is described, among other factors, by its potential as “*cradle of innovators*” (OECD & Eurostat, 2005), offering yet another argument to support SMEs. While recent literature emphasises the importance of design for innovation, the different role design plays in innovation programmes in Europe and Brazil is made clear through a comparative of official innovation policy documents.

2.2.4 NATIONAL DESIGN SYSTEMS

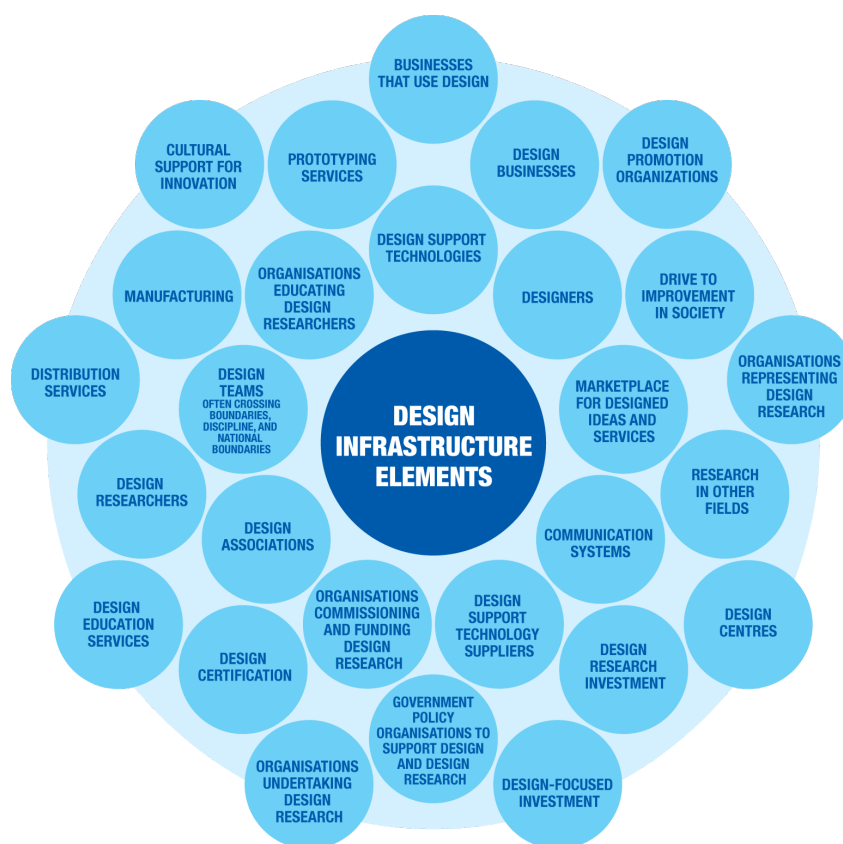
2.2.4.1 INTRODUCTION

Moultrie (2009) asserts that the concept of National Design System was based on National Innovation Systems. It could be defined as the whole group of stakeholders involved in the country's Design industry: governmental agencies involved in the planning or implementation of DPs in all levels; design centres; professional or academic design associations; educational institutions; design-related R&D centres; design practitioners; other NGOs acting on design promotion. Other players involved come from the domain of creative industries, as supported by Cox (2005) and UNCTAD (2008). Mollenhauer & Korvenmaa (2007), state that using *"Design System as a tool makes possible to identify and visualize stakeholders, their connections and performance, drawing and giving boundaries to specific and delimited activities driven by design"*.

Love (2007) approaches the subject from the perspective of national design infrastructures. He proposes the development of a *"foresight tool"* intended *"to identify preferred areas of investment in design infrastructure to maximise socio-economic and technological developmental benefits"*.

According to the author, design infrastructures are comprised by many elements that connect in complex relationships, as shown in the figure 2-16.

FIGURE 2-16: Typical design infrastructure elements (based in Love, 2007)



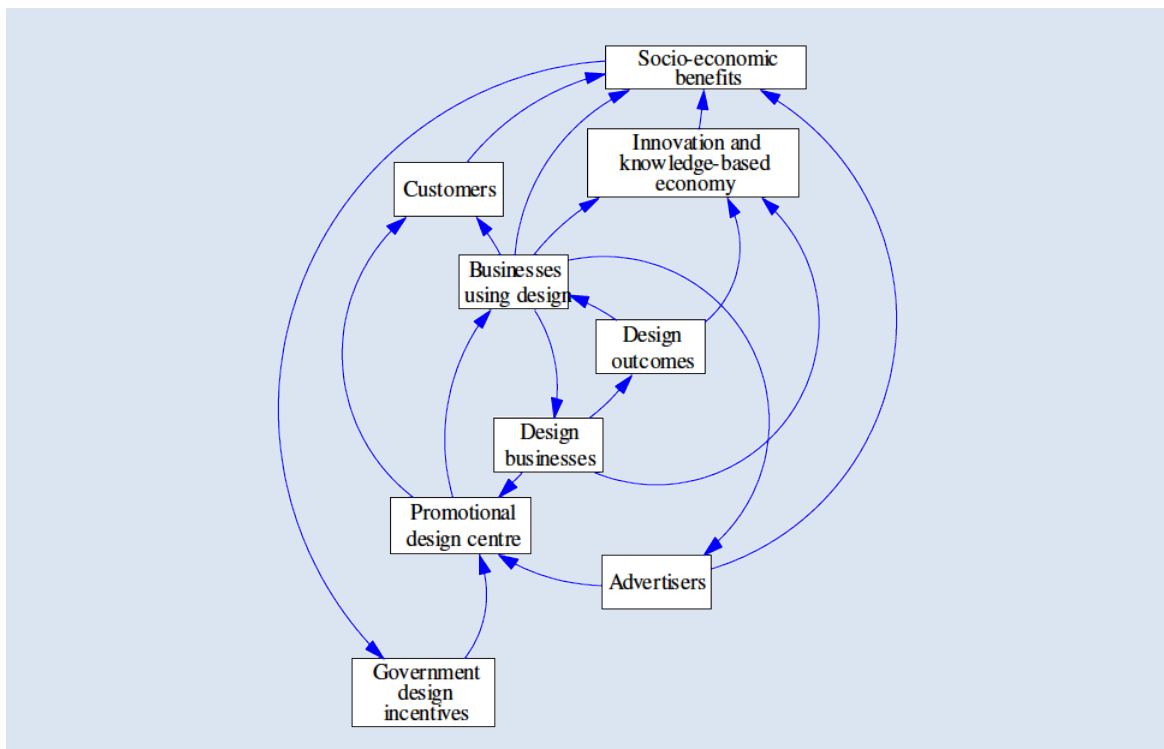
Design infrastructure are said to be “typically more critical than intellectual property (IP) from cutting-edge research” in order to generate what Love calls a “real world innovative output”. This connects to the vision of design as an enabler of innovation present many documents, such as CEC (2009), Korvenmaa (2007), and Thenint (2008). If, by one side, design may be the connection between cutting-edge innovation, industry and the user, on the other hand, Love reminds that many innovative products can be generated by designers from the “conventional knowledge”.

The complexity of the system must not be ignored or misunderstood, with the risk of jeopardising resources in a loop where the same failures are re-addressed in a constant re-discovery of design: “Weakness in design infrastructure compromise economic and technological development agendas by reducing innovative output.” Love suggests that this process has trapped the UK in the last 40 years. This view connects to Maguire & Woodham (1997), who

identified a systemic failure of the UK Design Council from its early years in over-emphasising design promotion.

The author advises that design infrastructures are complex phenomena "because of the relatively large number of feedback loops" and must be analysed identifying its possible counter-intuitive aspects. These aspects could be responsible for the failures to which he calls attention. To demonstrate the complexity these systems can reach, Love uses a few models, such as the model of relationships of a *promotional design centre* (Fig. 2-17), with many iterations between its elements:

FIGURE 2-17: Model of relationships involving a 'Promotional Design Centre'
(from Love, 2007)



This is followed by a model of taxonomy of design centres, divided in four categories – Promotional, Services, Advice, and Research (Table 2-4).

TABLE 2-4: Design centre archetypes – after Love (2007)

<p>PROMOTIONAL DESIGN CENTRE</p>	<p>Located in prime public retail space; open and welcoming appearance; present aesthetically pleasing displays of designed products, storyboards, graphically enhanced drawings, photos and 3D displays of design representations. This type of design centre has two important roles. The first is to explain to business how other businesses have benefited from using designers in terms of: improved competitiveness; improved profitability and growth; environmental and social responsibility; and improved sustainability. The second is to promote government support programs for using design services and improving design activity.</p>
<p>DESIGN ADVICE CENTRE</p>	<p>Provides straightforward advice about design and about access to design resources. Operates from an easy-to-access office environment. This type of design centre would be expected to offer access to expertise in general product design; design processes: innovation processes; patents, copyright, and design rights; and business development.</p>
<p>DESIGN SERVICES CENTRE</p>	<p>Provides advanced facilities and expertise for the designing, prototyping and testing of a wide range of products and services. This would be expected to be located in a mixed office and technology environment such as in a technology park. The services provided might include: rapid prototyping services; access to in-house product designers; access to usability testing facilities and evaluation and measuring facilities; access to 3D development software, CAD/CAM software; extensive access to information needed for designing; focused access to expertise in wide range of discipline areas, e.g. first class industry specialists and academic researchers.</p>
<p>DESIGN RESEARCH CENTRE</p>	<p>Provides two services. The first is as a contact point for arranging design-focused research to be undertaken, typically under contract, perhaps subsidised by a government funding support. The second is to make available, and facilitate access to, an extensive body of up-to-date design-focused research findings.</p>

Love also states that a transition to a knowledge-based economy “*is seen as one of the few potential options for socioeconomic improvement in peri-urban development*”. In his conclusions, it is stressed how useful were the visual

models produced to help understand and discuss “*complex interrelated situations and causally related behaviours and outcomes in studying design infrastructures and their behaviours.*”

2.2.4.2 BRAZILIAN DESIGN SYSTEM

Miasaki et al. (2006) summarised design actions unfolding in Brazil in a report demanded by the Brazilian Agency for Industrial Development (ABDI). The report aimed to provide a database to help articulate actions towards a common agenda for design in the country, and “*to provide subsidies for the development of a new policy for operation of the Brazilian Design Programme (PBD).*”

The document chronicles the development of public design policies in Brazil since the late 1970’s - but focusing exclusively point on actions based on industry-government collaboration. This bias can be understood from the demand originator, but nonetheless excludes other sectors involved in public design policies: such as education, and professional organisations.

The proposed structure of the programme is described in the report, according to its creation act, a Presidential Decree from 1995. PBD was intended to have an executive committee and five sub-programmes, suggesting its intended operational scope:

- awareness, promotion and dissemination;
- information, standardisation and legal protection;
- human resources training;
- integration and strengthening of design infrastructure;
- articulation and fostering.

Sectorial programmes were aimed at specific supply chains – *furniture design* was the first launched, followed by *ceramics*, *textile*, and *gems & jewellery*. It also stimulated the creation of regional (state) design programmes to help insert design in local industries. There is an overall panorama of design actions organised by categories: *promotion*, *support*, *education*, *professional organisations*, and *publishing*. Faithful to its initial goals, the document conclusions indicate directions for reframing PBD, such as: need to identify

good practices; invest in transversality and synergy of actions; and to work towards the programme consolidation.

Messias (2010), then coordinator of the Brazilian Design Programme (PBD), reported in 2010 about the achievements after 15 years of its creation: the programme *“has weathered many changes in the country’s political direction, but its continuous support (in one way or another) indicates the recognition of design for national development. PBD is responsible for two important national initiatives: the Design Biennial and the Design Brasil web portal. In Brazil design is seen as a tool for innovation and competitive advantage as well as a cultural manifestation. The Ministry of Culture supports the Brazilian Design Biennial and the participation of Brazilian design in international awards. The Ministry of Science and Technology endorses design as an activity eligible for financial incentives. The use of design in the industry is encouraged by the national organisations SEBRAE (subsidies to SMEs’ investments in design) and SENAI (design hubs across the country). An important development, which is fundamental to facilitating the implementation of national design strategies, is the design sector organising itself into strong associations in the Federal States and together launching the Brazilian Design Forum.”*

In 2011 SEBRAE commissioned a report to establish the current stage of development of national design infrastructure (Westin, 2012). Under the very short timeframe of two months, data was gathered forming an admittedly incomplete, embryonic initiative, where at least the most significant institutions are represented, as stated in the introductory text. This is a summary of the data collected:

- 145 institutions offering technology degree courses (2-3 years) in design;
- 168 institutions offering bachelor degree courses (3-5 years) in design;
- 41 institutions offering “lato sensu” post graduation courses (1 year specialisation or MBA-equivalent) in design;
- 12 institutions offering Masters (2 years), and 3 offering PhD in design;
- 35 academic-focused events;
- 60 scholarship programmes for designers;

- 8 design-specific business incubators;
- 848 design companies;
- 13 design incentive programmes;
- 8 regional design centres;
- 39 design nuclei (technical support centres focused on a specific sector);
- 16 class associations;
- 34 actions or projects of design promotion;
- 65 design awards and competitions;
- 63 design fairs, exhibitions and shows;
- 86 design magazines;
- 112 portals, websites and blogs;
- 9 bulletins;
- 5 specialised publishing houses.

The report states that the outcome of the research allows concluding that *“Brazil has already an established infrastructure, determining a favourable environment to the development of design in companies. It is noticed, in recent years, a combination of investments in public and private policies to promote, encourage and recognize national design at international awards and a greater attention to the subject from mainstream media.”*

Immediately after the closing of PBD in 2012, its former coordinator, Fernanda Bocorny Messias, prepared a report (Messias, 2012) about a decade of activities of the programme. The report brings light to the reality of design policy in Brazil, and reinforces the long-time perception and complaints from the design segment. It is explained how PBD was subordinated to General Coordination of Analysis of Competitiveness, as one among thirteen major attributions related to national competitiveness and centred on the productive sector. To these were further assigned attributions related to policies of sustainability and renewable energies. The programme was also a participant of 47 forums (regulatory, deliberative, advisory or discussion) and working groups.

According to Messias (2012), the available staff for this extensive task was, at its most, of 9 people, being reduced to only 3 people in some occasions. In 2001 there were one design student in an internship programme, and an external design consultant (under temporary contract) among the three members of staff - and in 2011 there was not any designer in the staff, then focused on environmental professionals.

2.2.4.3 KEY EMERGING ISSUES

Three key factors emerged from literature:

1. Need for clear definition and understanding of design system infrastructures;
2. Complexity of relations within NDS;
3. Structural and conjunctural problems of Brazilian NDS.

The complex network of relations between stakeholders in a National Design System demand a high level of agreement and understanding to operate effectively. The Brazilian example evinces both the complexity, enhanced by the country extension and structural problems, as well as its unreliability.

2.2.5 NATIONAL DESIGN IDENTITY

2.2.5.1 INTRODUCTION

Dawson *et al.* (2005) advocate the importance of regional and national product identity as previously cited in Kelley (2001) and Aldersey-Williams (1992), stating that *“the country of origin of a product has a significant bearing on the consumer buying decision”*. Previous research and articles are cited (such as Douglas & Nijssen, 2002; Suh & Kwon, 2002; Doyle *et al.*, 1992) to endorse the importance that should be given to national design identities, highlighted as a competitive advantage in the international market. The authors performed a market research of perceived key characteristics in product designs, and concluding that *“national characteristics are recognized for furniture; that in some cases national characteristics are recognized across product types; and that specific product sectors are associated with most of the countries.”*

Providing an example of national design identity, Blaich & Blaich (1993) describe Taiwan as a case of successful implementation of a *“national design-management agenda”*. According to the authors, the success of re-branding the “Made-in-Taiwan” label originated on the weaving of several elements extending along three five-year plans.

Aldersey-Williams (1992) provides an extensive background in the subject of national and regional identities. Citing Porter (1990), the author arguments in favour of the advantages of a national or culturally-oriented design: *“differences in national economic structures, values, cultures, institutions, and histories contribute profoundly to competitive success.”* Regarding the construction of identities, Aldersey-Williams (1992) emphasises the significance of smaller regions: *“regions that are larger than individual countries, such as the European Community or the Arab world, are sometimes more useful in describing matters of economics and commerce, and regions that are smaller than individual countries, such as Catalonia or the North American Pacific coastal strip, often contribute disproportionately to the image of the country of which they are part.”* But he also warns that cultural identity (a ‘good thing’) can be associated with a

resurgence of a political nationalism (a *'bad thing'*), resulting in an obstacle to the promotion of a *'national design'*. However, he believes that an *"expression of national cultural identities by design could prove instrumental to the emergence of benign new nationalisms."*

The identification of what he believes to be a slanted vision of nationalism and regionalism in design comes from the observation of a common assumption *"that global products are predominantly plastic and mass produces"* and consequently *"that local, regional, or national design can best be expressed – perhaps can only be expressed – through the use of indigenous materials and the employment of traditional skills."* According to Aldersey-Williams (1992), designers *"must draw the distinction between extrinsic and intrinsic descriptors of regional styles of design."* Warning against the dangers involved in denying high technology in the process of building a regionalist design, the author cites how the furniture industry in Italy has managed to combine craft techniques – highly embedded with cultural properties – with a high degree of mechanization. All the attention, however, is drawn over flexible manufacturing systems, endorsed almost as the only way to follow.

2.2.5.2 KEY EMERGING ISSUES

Two issues were highlighted in literature about national design identity:

- country of origin and culturally-oriented design as competitive advantages;
- high technology combined with crafts techniques boosting regional design.

National and regional characteristics are emphasised as competitive advantages to be explored by design and DPs, also considering the ability of linking high technologies with local proficiency to generate quality and competitive products.

2.2.6 DESIGN-DRIVEN DEVELOPMENT

Any discussion about Design and Development needs to be referenced in the 1970s. Bonsiepe (1977) sets the tone, arguing that “*underdevelopment is not a prelude to development*”, but rather a “*sad corollary of development of central economies.*” But the decade has seen a dual approach to the subject, that could be described as: ‘*design for need*’ vs. ‘*design for growth*’.

DESIGN FOR NEED: Sparke (1987) identifies the 1970s as the age of ‘*design for need*’ or ‘*alternative design*’. Ghose (2000) describe ‘*design for need*’ as “*the philosophy of alternative design and the basic needs approach to development, which had its heyday in the West in the 1970s.*” This first approach intended to use design (as an activity originated into the First World) to address local needs and offer relief, based on ‘*alternative*’ values different from the industrial society. This line of thought polarized around one designer/author, Victor Papanek, especially after his most successful book, ‘*Design for the real world*’, first published in 1971 (Papanek, 1985). According to Sparke (1987), the book “*filled a gap in design theory, moving beyond a concern with production and form, towards a view of design in use*”. Sparke also finds evidence of the book bringing forward the idea of “*total design*”, where the industrial designer worked together with architects, graphic designers and urban planners, teaming with sociologists and anthropologists. Papanek (1985) advocated the idea of “*designing for people's needs rather than for their wants*”, an idea that excludes the user from the process of design, attributing to the designer the role of determining what are these *needs*.

DESIGN FOR GROWTH: The second approach intended to use design for development, as a competitive tool, aiming to include the peripheral countries in the global market. Another designer/author polarized the discussion on this side, Gui Bonsiepe (1977, 1978, 1979, 1983, 1991). His most comprehensive work about this subject, however, was not a book, but a report (Bonsiepe, 1973) he prepared for UNIDO on request of ICSID, and it remains very little discussed.

Alpay Er (1997), supporting this approach, states that this ‘developmental’ role of design will only occur as *“a by-product of its principal competitive role in a market-oriented context.”*

While both approaches (*‘design for need’* and *‘design for growth’*) contemplate interventions, the first one expected a more passive attitude from the receptor (notwithstanding the fact that the designer, acting almost as an anthropologist, was meant to learn from ancient and vernacular techniques); and the second profess a collaborative approach, intending to promote knowledge and technology transfer.

2.2.6.1 PAPANEK VS. BONSIPE - TO DESIGN “FOR” OR TO DESIGN “WITH”

Margolin (2007) highlights the partnership between ICSID and UNIDO, saying that the UN *“understood design to be part of the process of development.”* At the same time, he criticises both Papanek (1972) and Schumacher (1973) for their vision of development focused on low-tech projects, small-scale production and poverty alleviation rather than to contribute to national development. Margolin (2007) also signals a strong opposition between Papanek and the Ahmedabad Declaration on Industrial Design and Development (UNIDO & ICSID, 1979), disapproving how ICSID and UNIDO were influenced by these authors (Papanek and Schumacher) - *“a far more restricted view of design for development”* - leaving behind the ideals of the Amhedabad Declaration.

Papanek (1972) sees design’s role frequently associated with consumerism at its extreme and he so urges for a design aimed at basic needs, devoid of nonessential products or features. His book basically denounces an economic exploitation of design as a continuous source of useless and senseless products, as well as an unconscious dilapidation of national resources. Assuming a powerless attitude facing the challenge of the economical/industrial establishment, he turns to developing countries, that he sees as less affected by these circumstances, urging for a rational and low-impact use of technology and materials. The author sometimes uses radical and naïve arguments – such as building a wood and beer cans bumper for his car to “demonstrate” how easy and cheap it might be to sort out a problem.

According to Margolin (2007), Papanek is said to have “*set up a binary opposition*” between “*irresponsible and wasteful products*” designed in the First World and the “*responsible and the more meaningful products that he and his students designed for Third World use.*” Describing this opposition, Margolin offers the key to the problem, as admitted later by Papanek himself in the preface for the second edition of his book *Design for the Real World* (Papanek, 1985): “*Much of what I wrote about design for the Third World (...) now seems somewhat naive*”, demonstrating “*the somewhat patronizing viewpoint many of us had about the poorer countries.*”

Margolin (2007) endorses Bonsiepe and his development matrix, even though considering this should be reviewed in light of the current outsourced manufacturing (where products are designed in industrially developed countries and manufactured in low-wage countries). The author also claims for a review of the Ahmedabad Declaration, “*rethinking the scope*” of design for development. Gui Bonsiepe is considered by the author the only theorist to have honoured the spirit of Ahmedabad’s document in his subsequent writings:

“If we compare Gui Bonsiepe’s characterization of design in the developing world with Papanek’s, it is evident that Bonsiepe’s five-stage model offers far more opportunities for design intervention in different sectors of the economy, recognizing, as did the Ahmedabad Declaration, that design can and should play multiple roles in the development process.” (Margolin, 2007)

Alpay Er (1997) also criticises Papanek, or else points to his self-criticism - being “*naive*” and having a “*patronising viewpoint*” about Third World countries. He highlights that Papanek’s writings concern more consumerism in the First World, a radical criticism that advocates an anti-consumeristic role for the industrial design in the Third World, supporting these countries basic needs with “*alternative technologies*” (or “*appropriate technologies*”). “*Papanek’s approach, however socially responsible, did not offer any explanation of the dynamics leading to the emergence and development of industrial design in those countries. Neither did it explain the actual role of industrial design in this new context.*”

Both Bonsiepe and Papanek writings are reviewed by Alpay Er (1997) as having reduced industrial design to “a *'problem-solving methodology'*, a *'neutral planning tool'*”, expected “*to satisfy 'basic needs'*, *to reduce 'technological and financial dependency'*, *to transform 'craft industries'*, *to create a 'cultural identity'*, *and to improve the living conditions of the poor masses*”, and then ignoring that it has “*to function in a given economic, social, and political system.*” Or else, too much of a social development tool for the “*capitalistic and profit-oriented*” origin of design.

Schumacher (1973), defining his approach to the problem through an *'intermediate technology'*, establishes his difference view from Papanek (1985). While this later argues pro-indigenous, traditional and low-tech-based technology, the first advocates the use of technologies that would lay in-between these and the high and costly technologies. Schumacher substantiate his approach explaining it does not have the intent of providing inferior or outdated technology, but rather to tackle poverty, evincing how much better it is to adopt a 100 dollars technology in a 1 dollar region than to promote a jump to a 1000 dollars technology, that kills all local initiatives. According to him, one would allow workers to save for ten years and buy their own means of production, while the other would demand one hundred years of savings, destroying all possible perspectives of social growth and only widening the social gap and resulting tensions. Another safeguard presented is the non-universality of intermediate technologies. The author highlights that many products demand high technology and cannot be produced except by highly sophisticated modern industries. Bonsiepe (1973), seconded by UNIDO (1975) go further saying that an appropriate technology might in some occasions be high-end technology.

Discussing how design responded to social needs in industrialised and in developing countries, Heskett (1997) states the first have developed comprehensive methods and rational principles, while in relation to the later, design took a different path. For instance, Heskett described the design-related efforts towards developing nations, made by the United States International

Cooperation Administration in 1955, as cultivating a few problems. Aimed at developing local industries and native craft with an explicit purpose of avoiding technological dependency, it is said to have developed economic dependence instead, since the production was aimed mostly at the US market. Dealing with the fragile ecology of local crafts through the eyes of foreign designers, “*the very criteria of efficiency and profitability*” could be potentially problematic. It is also said these attempts “*introduced alien elements, and created an economic dependence that could not but harm indigenous cultural traditions.*” Citing Bonsiepe, Heskett (1997) points out that the so-called first world should not target to design ‘for’ dependent countries, but rather ‘in’ and ‘by’ these countries.

Heskett also cites Victor Papanek, “*at the extreme*” of a movement towards the use of an ‘alternative technology’. Papanek is described as relentlessly lashing the American industrial designers for the role played in promoting “*big-business interests*”. Identifying some alignment of Papanek’s ideas with the architect and designer Buckminster Fuller, Heskett emphasises however that Fuller would differently favour the “*potential for change in modern technology.*” At the same time, Fuller (and Papanek) had a view of the role of designers as “*universal social and moral prophets of human survival and regeneration, transforming not only the environment, but the very nature of man.*”

The architect and urban planner Hamdi (2004) debates the elusive nature of the word ‘*development*’, when it comes to promote social change. Defining – and agreeing upon – what is intended as development turns to be crucial in order to achieve the expected outcomes. According to Hamdi, “*Development is whatever you want it to be depending on your politics and ideology: economic growth, rights, freedom, livelihoods, good governance, knowledge, power – all of which are often interspersed with words like ‘integration’, ‘sustainability’, ‘empowerment’, ‘partnerships’, ‘participation’, ‘community’, ‘democracy’, or ‘ethics’. In combination, all the ideals they invoke offer us hope for building a better and fairer world and, for the poor majority around the world, a better deal.*”

Thackara (2012), discussing the impact design brings to the world expresses his concern: “*A recurring problem is the term ‘design for social impact’ – when*

the desired impact is on someone else's turf, not on the designer's own." this is precisely what Bonsiepe (1973) refers when discussing academic exchanges and scholarship programmes where design schools from industrialised countries focus on 'helping' developing countries. Recently a provocative article reignited this same debate: Nussbaum (2010) implies in the article that '*humanitarian designers*' might be a new breed of imperialists. Although generating a lot of controversy and a long series of replies, most of this discussion was held in online publications – having the editors of Change Observer published a digest of essays with links to the replies to Nussbaum's '*firestorm-starter*' article (Change Observer, 2010).

Bonsiepe (1977) relentlessly cautions about design efforts from central economies towards developing countries, that he labels as '*aidism*': "*there is only one form of effective design transfer that is in the interest of dependent countries: design transfer that helps to uncover and stimulate local design capacity, without paternalism.*" The problem, he says, starts with designing '*for*' dependent countries - instead of '*for*', design should be done '*in*' or '*by*' dependent countries.

In the text from a recent exhibition in Brazil (*O Design da Favela / The Design from the Slum*, Centro Carioca de Design, November/December 2012) the curators Ricardo Saint-Clair and Rodrigo Westin refer to the exhibitions "*Design For the Other 90%*" and "*Design With the Other 90%*", both at the Cooper-Hewitt National Design Museum, in New York, highlighting aspects of designing '*for*' and '*with*'. According to them, it was missing the design '*at*' (the slum). Or as the curators say: "*the empirical, informal and spontaneous design that is born and lives within communities*". This approach, however, loops back directly to Papanek (1972), '*empowering*' the everyone as a '*designer*'. This is where the creative action gets confused with the professional activity of design. Ghose (2000) advises: "*Design is an ancient activity even though a modern profession.*"

Maldonado (2012), in his essay "*The 'projecting age' and Daniel Defoe*", reduced to singular terms the polarized discussion about design for need and design for growth: he called the supporters of each side "*poor technology partisans*" vs. "*rich*

technology partisans". The "*poor technologies partisans*" are said to "*enthroned Robinson Crusoe as one who rebels against the unjust conditionalities of the institutions of his time.*" However, Maldonado reasons that "*the poor technology of Robinson is nothing else than an emergency version of rich technology typical from Dafoe's time.*" Moreover, the author concludes this would not be a modern alternative – "*the problems we have today are neither defined nor solved by accepting or abdicating the institutions.*" In other words, although the use of "poor technologies" can be justified by an emergency situation, it should not be seen or idealised as an alternative to "rich" technologies.

2.2.6.2 BONSIPE'S DEVELOPMENT THROUGH DESIGN

Among many documents analyzed, one deserves special remarks either from the circumstances of its original creation and nearly disappearance, to its relevance to the objectives of this research

Graduate and former professor from the German school of design of Ulm, and at that time working in Chile, the designer Gui Bonsiepe produced, in 1973, a document commissioned by ICSID and UNIDO. "*Development through design*" (Bonsiepe, 1973) is a very little known document, and rarely cited – with the exception of the researcher H. Alpay Er (Er, 2002; 1997; 1994; Alpay Er & Langrish, 1993) and the Industrial Design Centre from Indian Institute of Technology Bombay (IDC, 2009). Despite its conciseness, this document covers a broad range of subjects regarding design policies - from basic definitions to detailed recommendations. It should be the object of much more reflection and study and even reviewed in the light of current circumstances.

Bonsiepe (1973) identifies five historical periods where different aspects of design became significant to the world:

- Design as an activity - in the nineteenth century;
- Design as a profession - in the beginning of the twentieth century;
- Design as a tool for development - in the beginning of the twentieth century;
- Design as a tool of marketing - in the years 1930's;
- Design as an area of government promotion - in the middle of the years 1940s.

Due to the nature of the document, it shows a lot of concern to define industrial design clearly. For instance explaining quite ahead of time that industrial design is an innovative activity – *“one special type of technological innovation.”* Design is concerned with the improvement of usability of products, satisfying the needs of the user; it is concerned with formal properties of the product (trying to be etymologically clear, he explains that *“formal”* is better than *“aesthetical”*, being more descriptive than evaluative); and that it is also concerned with the marketability of the product - in terms of productive supply chain and consumer demand. The definitions are also extended and explained with examples, about what is and what is not design, and about its relations with neighbouring professions (mechanical and production engineering, marketing) and activities (arts, crafts). Above all, the aspect of interdisciplinarity (interaction) is emphasised over multidisciplinary (parallel).

The author establishes a clear connection and dependence relationship between design and marketing (and advertising), totally free from the guilty imposed by the *“anti-consumerism”* discourse derived from Papanek (1972,1985), Flusser (1999) and Schumacher (1973).

When discussing differences between industrial design and crafts design, Bonsiepe (1973) indicates the risk of considering crafts design as a forerunner of industrial design in developing countries with low technological infrastructure. This is considered to be *“misleading”*: *“Industrialization is precisely a way of overcoming arts and crafts manufacturing methods and remaining on that level leads to a self-inflicted cut-off from development possibilities.”* This reinforces a strong opposition between Bonsiepe and the low-tech and small production view of Papanek.

Bonsiepe enumerates many possible benefits arising from the implementation of a design policy in developing countries:

- imports substitution (relieve national trade balance);
- product adequacy to specific needs;
- job creation, valuing labour-intensive products and processes;
- diversification of industrial production;

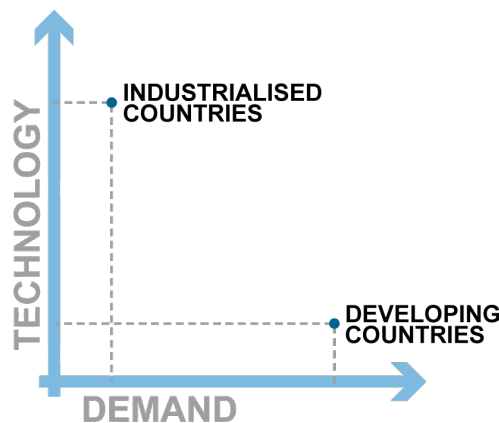
- export of manufactured goods;
- creation (or strengthening) of a material culture and identity;
- development of environment-friendly products and processes;
- income distribution and social development through low-income oriented products;
- rationalisation of industrial policies.

A few general rules are recommended for the implementation of design policies (in developing countries):

- design should be oriented to available technology and demand;
- establish local assessment standards for design;
- establish priorities based on social benefits and multiplier effect;
- adapt imported design to local conditions (redesign);
- adapt imported design know-how to local conditions (methodologies);
- assign the highest priority to training and logistical support.

The author also advocates the need for a different approach to industrial design in developing countries, which are identified to be in an opposite context from that of industrialised countries (Fig. 2-18).

FIGURE 2-18: Gap between industrialised and developing countries
(based on Bonsiepe, 1973)

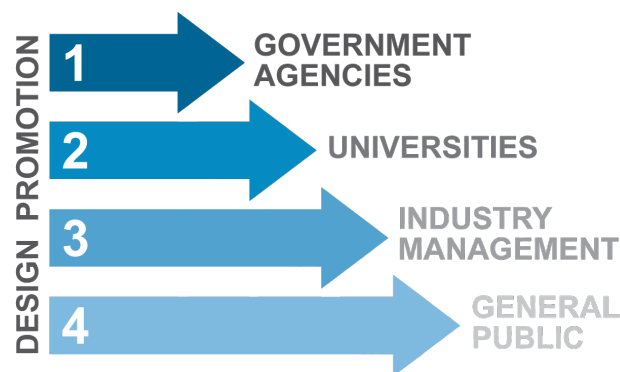


Bonsiepe (1973) also questioned the role of ‘*Good Design*’ in these countries - considered to be an attribute or concern of industrialised countries. In this sense, it should have “*a secondary place in developing countries, unless export marketing is envisaged.*” The process of industrialisation of developing

countries is seen, however, as advantageous with regard to the environment, with the chance *“to opt for a different pattern of industrialisation which pays attention to ecological compatibility and which contains built-in preventive measures against environmental sell-out.”*

Detailing the breadth that the planning of design promotion should consider, it advises that it should be aimed initially to government agencies, and then to universities, industry (at management level) and the general public (Fig. 2-19). It is also offered a ‘script’ of what should be considered while formatting such communications plan. Some recommendations are related to the use of film and television programmes, which seem to have been neglected as tools to promote awareness in most of the planning since then. Continuous promotion is envisioned through permanent exhibitions, periodical awards, and the development and availability of databases and publications.

FIGURE 2-19: Setting priorities for Design Promotion (based on Bonsiepe, 1973)



The paper finishes with recommendations related to the role of international design consultants (to the developing countries’ governments) and specifically to the role of ICSID as a consulting body to the United Nations – which seems to have been diluted over the past decades.

Bonsiepe’s working paper (Bonsiepe 1973) was followed by a formal document from UNIDO (UNIDO Secretariat, 1975), with general guidance for the establishment of design policies in developing countries. It raises issues that

were later approached, such as the extreme relevance of national context for design policies (Raulik-Murphy 2010, Choi 2009):

“Due to the fact that the specific contexts of developing countries differ vastly – e.g. in technological level, degree of industrialisation, natural resources, climatic conditions, man-power, cultural traditions and type of economy – it would be self-defeating to try to formulate a specific policy which should be applicable indistinctively to all developing countries.”

Moreover, it situates design as a component of technological innovation – a very similar approach to the current appraisal of design as a tool for innovation, bridging technology and user or market (Thenint 2008, Love 2007, Borja de Mozota 2003) – and recommends that design should be included in overall industrial policies. The document (UNIDO Secretariat, 1975) discusses the constraints to be considered in designing products for local market or import substitution, and exalts design as an essential tool for export promotion. It raises the issue of sustainability, with recommendations towards the use of resources, problems of pollution, search for alternative energy forms, re-use and recycle of products.

A recurring subject in the 1970's, the question of the use of “appropriate” technologies is approached carefully, explaining that it is not concerned with outdated technologies from decades ago, but in some cases even the most advanced technology available could be “appropriate” – thus moving away from Papanek's eulogy of poor/low technology (Papanek, 1972). Not enough however to avoid the mention in the last line of the document – the recommendation to “disseminate knowledge of low-cost technologies.”

2.2.6.3 MODELLING DESIGN FOR DEVELOPMENT

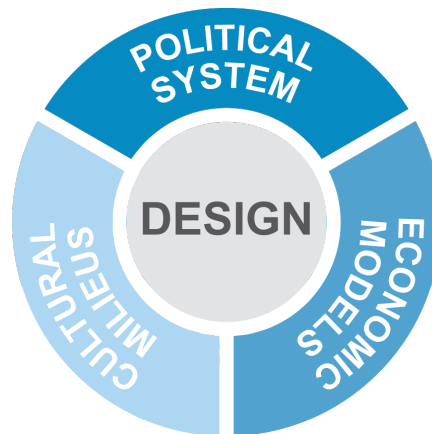
In a design policy conference promoted by ICSID in 2002 (Lee, 2002), the opening message from ICSID's president, Peter Butenschon represented the ideal of design for development: *“Just having an economic strategy dealing with consumer objects will no longer do as a definition of design policy. Rather, a design policy must combine concerns of at least three fields - economics,*

society and the culture of a nation; ranging from increasing export and nation's competitiveness to a higher quality of life for its citizens." (Lee, 2002)

Literature suggests some conceptual models developed to better understand these elusive relations between design and the political environment.

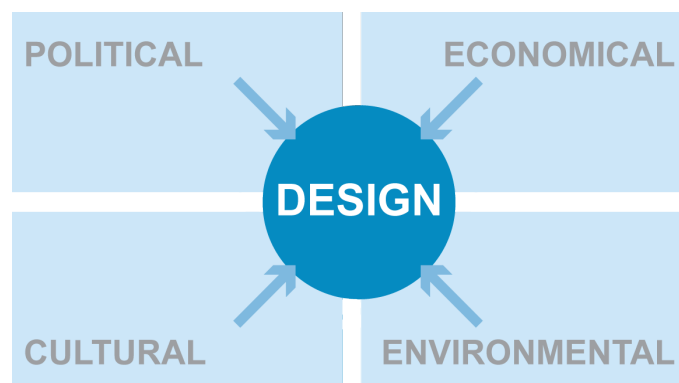
Giard (2004) states that design should be understood in its broader context, related to the *political systems, economic models* and the *cultural milieu* (Fig.2-20).

FIGURE 2-20: Broader context of design (based on Giard, 2004)



Woodhouse & Patton (2004) extend the involvement of design stating that it *embeds political, economic, cultural and environmental factors* (Fig. 2-21).

FIGURE 2-21: Factors embedded in design (based on Woodhouse & Patton, 2004)



Alpay Er (1997) proposed a conceptual model to understand the development of industrial design in Newly Industrialised Countries. The author identifies in literature that the introduction of industrial design in the so-called Third World countries was associated with the development of these areas - a “developmentalist” role played by design, as the author had identified in early literature. Alpay Er (1997) had Bonsiepe (1991) model as a reference – both models are shown and further discussed in the section [2.2.4. Frameworks]. Table 2-5 highlights the different characteristics of each model:

TABLE 2-5: Differences between Alpay Er (1997) and Bonsiepe (1991) conceptual models of development of industrial design in peripheral or newly industrialised countries.

Bonsiepe (1991)	Alpay Er (1997)
• 1970’s	• 1990’s
• Latin American market	• Latin American (+Turkey and India) vs. Asian models of development
• centre vs. periphery view	• NICs Newly Industrialised Countries
• design for need vs. design for growth	• domestic market vs. export oriented
• technology transfer / adequate technology	• development through competitiveness
• research-oriented product creation	• design as a competitive tool

Alpay Er (1997) establishes a contrast between ‘*developmentalist design*’ and ‘*competitiveness-oriented design*’, also identifying a “*confusing impact*” of developmentalist design concept “*on the local configuration of the industrial design profession in many developing countries.*” The findings of his study can be summarised as:

- imitation bypassing research;
- “*industrial design as part of a price-based competition*” in Asian NICs;
- “*adapting technologies to local needs*” in Latin American NICs;
- exports exposing industries to international best practices, here included industrial design;

- development of industrial design in NICs related to government policies of development and not linked to direct support to design institutions or design promotion;
- failure of the models of design for need and design for growth;
- “developmentalist” role of design might exist only as a by-product of design as a competitive tool.

Magalhaes (1977) reports the emergence of a new perception in the measurement of development in the 1970's, having to consider factors other than purely economic wealth. Citing the Club of Rome, the World Bank and UNESCO, he adds social and cultural factors to the development equation. Design would be a natural discipline to deal with this new reality, considering its ability to match knowledge coming either from science and technology as well as from social sciences. *“Thus, from the initial position of a short term and inevitably consumerist view producing new consumer goods, industrial designers have now, in developing countries, their horizon broadened by the presence of problems that retreat from basically primitive and pre-industrial situations, ways of making and of using, to the coexistence with the most sophisticated and so-called cutting-edge technologies. There is no more place for the old concept of form and function of the product as a priority task for the activity. We move within a broad spectrum of knowledge and a diversity of situations very much apart: from the Stone Age to the computer.”*

2.2.6.4 KEY EMERGING ISSUES

The study of literature about design and development brought to light five key issues:

- opposing views of design for need and design for growth;
- government design awareness as number 1 priority of DPs;
- insertion of design into the national political agenda;
- emphasis of national characteristics in DPs;
- coexistence of different levels of industrialisation and technologies in developing countries;

The opposing views about design for development that distinguished especially the 1970s are paramount for understanding the succeeding models of DPs. Supply basic needs or promote growth is a debate that still pervades the debate of DPs, even though the growth-fostering model have prevailed. An essential advice comes from the ensuing recommendations – the crucial factor of inserting design into the national political agenda, having the government as the number one target of awareness-rising actions. Repeating findings from the academic research in the field of DPs [2.1.5. Emerging research field], the attention to national particularities are emphasised against the adoption of foreign models of DPs. Literature provides further admonition about the spread of different stages of development found in local industries of developing countries.

2.3 EFFECTIVE DESIGN POLICY AND PROMOTION

Literature provides discussions about the nature, the scope, drivers and components of design policies, but is limited about effectively adopted policies. Design policies are usually displayed as isolated or fragmented initiatives, not rarely failing to address its goals – especially concerning industry growth – and frequently focusing in design promotion instead (Raulik-Murphy, 2010; Heskett 2005; Alpay Er 2002; Maguire & Woodham, 1997).

This section highlights the frameworks and models developed by some authors to explain the DP environment, or to make sense of the diverse natures of DPs. Different national and regional design policies, and policies that provide design support to companies are also discussed, together with measurement tools intended to provide the necessary reflection and grounding for the assessment of effective practices.

2.3.1 FRAMEWORKS

Models and frameworks are considered to be stages of theory building in research. While a model is an explanatory artifice to describe something in a simple format, a *framework*, according to the Oxford dictionary, is “*a basic structure underlying a system, concept, or text*”. Meredith (1993) defines *conceptual framework* as “*a collection of two or more interrelated propositions which explain an event, provide understanding, or suggest testable hypotheses*”. Design policies are frequently described, categorised, or explained by authors with the help of simple models and/or conceptual frameworks. Some of these frameworks come from economics and competitiveness studies (Porter, 1990), others from design management (Kretzschmar, 2003; Rosted, 2008), some synthesise design history (Valtonen, 2007), and some are specifically aimed to discuss design and development (Bonsiepe, 1991; Alpay Er, 1997) and design policies (Thomson and Koskinen, 2012; Tunstall & Jones, 2010; Bello de Aranaga, 2005; Alpay Er, 2002; Giard, 1996; Aldersey-Williams, 1992).

PORTER (1990) studied the competitiveness of nations, and developed a matrix to analyse the competitive development of national, based on a series of factors. Porter classified economies in four stages: factor-driven, investment-driven, innovation-driven, and wealth-driven. The third stage (innovation-driven) is considered to be the apex of the competitive development, and the later (wealth-driven), at the same time that is fed by the prosperity achieved, is also a decaying stage. His matrices were summarised in the two tables below.

The first table (Table 2-6) represents the four stages of national economies and the factors related to their: competitive advantage; infrastructure; industry characteristics; trade; and vulnerabilities – demonstrating the progress and decline represented by the four stages.

The second table (Table 2-7) depicts Porter's analysis of the conditions present (or absent) in each stage: factor conditions; demand conditions; firm strategy, structure, and rivalry; and related and supporting industries (supply chain). Porter estimates the achievement level reached in each stage related to the conditions. In the table, this is represented by progress bars, with the four levels attributed by Porter: no achievement (gray bar) the achievement of one-third, half-way, or full achievement (dark bar).

TABLE 2-6: Development of National Economies (based on Porter, 1990, pp.543-573)

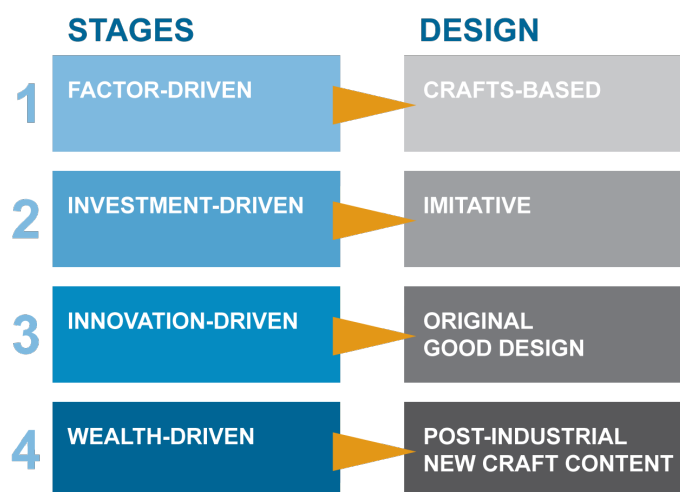
	Competitive Advantage	Infrastructure	Industry characteristics	Trade	Vulnerabilities
1. FACTOR-DRIVEN	<ul style="list-style-type: none"> Natural resources; Favourable conditions to certain crops; Inexpensive or abundant labour. 	<ul style="list-style-type: none"> Natural resources exploration; Turn-key plants for OEM production. 	<ul style="list-style-type: none"> Price-based competition; Domestically oriented (import substitution); Basic, inexpensive and widely available technology; Technology licensed, not created; Limitation (copy) or import of capital goods; OEM production. 	<ul style="list-style-type: none"> No direct contact with end buyers; Access to foreign markets through foreign firms; Lowest internal demand for export goods. 	<ul style="list-style-type: none"> World economic cycles; Exchange rates; Loss of factor advantage.
2. INVESTMENT-DRIVEN	<ul style="list-style-type: none"> Willingness and ability to invest aggressively; Ability to absorb and improve foreign technology; Improving factor conditions, firm strategy, structure and rivalry; Skilled technical personnel. 	<ul style="list-style-type: none"> Well-functioning educational institutions and research institutes; Strong, disciplined government policies with long-term horizon. 	<ul style="list-style-type: none"> Well-equipped, efficient facilities; Latest technology available; Investment in licensing and joint ventures allow competition in more sophisticated segments; Foreign technology improved locally; Develops product models, but one generation behind world's leaders; Most successful meet internal demand. 	<ul style="list-style-type: none"> International marketing channels and direct contact with buyers; Low internal demand. 	<ul style="list-style-type: none"> Dependence on foreign suppliers and foreign technology; High-risk investment; Still vulnerable to economic cycles.
3. INNOVATION-DRIVEN	<ul style="list-style-type: none"> Firms compete internationally in more differentiated segments; Cost competition based on productivity; Growing international position in the offer of sophisticated services. 	<ul style="list-style-type: none"> Significant foreign direct investment; Sophistication of universities, research facilities and general infrastructure; Invigorating domestic rivalry; Rising personal incomes; Consumer demand sophisticates. 	<ul style="list-style-type: none"> High skill levels and advanced technology; Create technology and methods; Compete on technology and differentiation. 	<ul style="list-style-type: none"> Own international marketing and services network; Growing brand reputations abroad Upward value of currency. 	<ul style="list-style-type: none"> Less vulnerable to external factors; Buffered by industry sophistication and high internationalization.
4. WEALTH-DRIVEN	<ul style="list-style-type: none"> Back to cost competition; Four categories of industries retain advantage: a) oriented to sophisticated / advanced demands; b) object of long-time investments; c) historical national success; d) basic factor advantages / inherited wealth. 	<ul style="list-style-type: none"> Chronic underinvestment in industry; 	<ul style="list-style-type: none"> More attention to preserving positions than to enhancing it; Low risk-taking behaviour; Reduced rivalry and enhanced stability; Lower wages of skilled personnel helps to keep advantage; Loss of manufacturing position / rise of services. 	<ul style="list-style-type: none"> Foreign firms acquire local firms; Home demand eroded with fall of personal incomes. 	<ul style="list-style-type: none"> Lose positions in less advanced, lower productivity segments; Driving force is the wealth that has already been achieved.

TABLE 2-7: Competitive Development of National Economies (based on Porter, 1990, pp.543-573)

	Factor conditions	Demand conditions	Firm strategy, structure, and rivalry	Related and supporting industries
1	<p>FACTOR-DRIVEN</p> <ul style="list-style-type: none"> Basic factors are the essential source of advantage <p><i>progress bar</i></p>			
2	<p>INVESTMENT-DRIVEN</p> <ul style="list-style-type: none"> Basic factors remain an advantage More advanced factors are created <p><i>progress bar</i></p>	<ul style="list-style-type: none"> Size and growth of domestic demand becomes an advantage 	<ul style="list-style-type: none"> Motivation of individuals and firms is high Domestic rivalry is intense 	
3	<p>INNOVATION-DRIVEN</p> <ul style="list-style-type: none"> Advanced and specialized factors are created and upgraded Selective factor disadvantages accelerate the upgrading of competitive advantage <p><i>progress bar</i></p>	<ul style="list-style-type: none"> Demand sophistication becomes an upgraded advantage Domestic demand internationalizing through multinationals 	<ul style="list-style-type: none"> Firms develop global strategies 	<ul style="list-style-type: none"> Related and supporting industries are well developed
4	<p>WEALTH-DRIVEN</p> <ul style="list-style-type: none"> Cumulative past investment in factor creation persists as an advantage <p><i>progress bar</i></p>	<ul style="list-style-type: none"> Demand advantages narrow to past wealth-related industries 	<ul style="list-style-type: none"> Rivalry ebbs Motivation fails 	<ul style="list-style-type: none"> Clusters thins

ALDERSEY-WILLIAMS (1992) reviews the model of Porter (1990), suggesting the character of design on each stage of national competitive development of a nation (factor-driven, investment-driven, innovation-driven, and wealth-driven), as shown on Table 2-8.

TABLE 2-8: Design development at different competitiveness stages
(based on Aldersey-Williams, 1992)



BONSIEPE (1991) refers to the lack of data regarding design in peripheral countries as *“an account that needs to be understood as a fiction based on real facts.”* He also stresses that the history of the development of design in these countries should be understood in a different way: *“It is all too easy to look at industrial design in the periphery as a second-rate, resource-starved, and delayed replay of a process through which the industrialized countries passed during the nine decades of the twentieth century in which industrial design was transformed into a social reality. However, such a parochial vision – admittedly quite common in the center –, makes it impossible to perceive the different realities and achievements in the area of industrial design in the peripheral countries.”* He then introduces his “Matrix of domains of design and stages of development” (Table 2-9) that intends to offer a decoding model to understand the development of design in these countries.

ALPAY ER (1997) developed further Bonsiepe's work into a comprehensive framework (Table 2-10) used to analyse the stage of development of design in newly industrialised countries. Alpay Er conceptual framework served as a reference during the first phase of interviews of the field study, being submitted to interviewees to get their feedback on specific aspects of it related to Brazil.

In a later analysis (Alpay Er, 2002), the same author described of the basic components of design policies as a model comprising of:

- Design Promotion – divided into 'Industry' and 'Public';
- Design Policy Coordination;
- Design Support;
- Design Human Resources Development;
- Design Research Support and Networking;
- Legal Support for Design.

TABLE 2-9: Matrix of domains of design and stages of development (Bonsiepe, 1991, pp.255)

	Category 1 Design management Product categories open to design interventions	Category 2 Professionalization	Category 3 Governmental design policy. Design promotion	Category 4 Industrial design education	Category 5 Design research	Category 6 Discussion of design (publications)
Phase 1 Proto-design research	No distinction of ID. Products designed by engineers, inventors, craftsmen, decorators	None	None	Design skills taught at craft schools	None	None
Phase 2 Embryonic phase Gestation period	Furniture for home and office use	Self-taught artist-designer. Outside industry. Design seen as cultural mission	Conferences by specialists usually invited from industrially advanced countries	Design courses based on experimental workshops with loose program structure. First generation teachers with background in art, architecture or engineering	Nonexistent	Articles on design as a cultural phenomenon appear in avant-garde art journals
Phase 3 Mushroom phase Incipient institutionalization	Household appliances and consumer goods. Occasionally capital goods such as machine tools and agricultural or medical equipment receive a design input	Search for identity and definition of services that are characteristic of industrial design	Design Centres created. Product design groups incorporated into government institutes. "Symbolic" competitions (i.e. little or no financial reward)	Courses created either as extensions of architecture or engineering programs or as full 4-5 year programs. Faculty staff are designers with professional experience usually trained at foreign universities.	Research done in design- related disciplines like ergonomics, focusing mainly on anthropometric data collection	Special sections dealing with industrial design created in journals of architecture, interior design, and graphic design. In popular understanding design associated with decoration.
Phase 4 Spider web phase Expansion and incipient consolidation	Scientific instruments, medical equipment and installations. Capital goods	In-house design teams. Profession recognized	Special thematic exhibitions. Fully fledged up- to-date documentation services run by professionals. Competitions with full funding.	Specialization occurs within design, e.g. vehicle design, machinery design. Study programs get strong theoretical input	Studies on bionic design, methodology, colour	Specialized magazines on industrial design published
Phase 5 Sovereignty phase	Multidisciplinary development teams, in-house or as consultants. In corporate structures design advances to vice-presidential level. Design becomes leading force in company strategy.	Product development is practiced in all major branches of industry	International symposia. Design congresses are media events. International design competitions	Differentiated and demanding study programs in fully equipped institutions (computer labs, model workshops, libraries). Courses contain programs based on rigorously scientific foundations.	Design as object of scientific study. Research carried out in multidisciplinary teams including designers with scientific training	Books on industrial design published dealing with standard practices, history, theory

TABLE 2-10: Development Stages of Industrial Design in NICs (Alpay Er, 1997, pp.301)

DEVELOPMENT STRATEGY		Sectorial Scope of Industrial Design		Industrial Design at Firm Level		Industrial Design Education and Research		Government Design Policy		Design Discourse	
1	Proto Design Phase	Primary Specialization in Raw Material Export. Pre-industrial Growth (All NICs)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Embryonic Phase	Import Substitution I (Asian NICs late 1950s and early 1960s; Latin American NICs, India, and Turkey 1950s and 1960s)	Design-oriented lowscale, low-tech industries, e.g. giftware and furniture for home use.	Self-formed artist-designer or architects. Outsider to industry. Design as a cultural mission.	Individual courses are created as extension to art or architecture programmes. First ID schools in India and some Latin NICs.	ID is seen as a sort of development tool, but there is no dear policy about how to use it within an ISI framework. Finance of the establishment of some early	Articles on ID as a cultural phenomenon appear in art journals. Design is an image of modernization.				
3	Emergence Phase	Import Substitution II (Latin American NICs, India, and Turkey 1960s and 1970s) Export Promotion I (All Asian NICs 1960s and 1970s)	Design-oriented, large-scale, investment-driven industries, e.g. furniture for home and office use, ceramics and some basic consumer goods.	ID as a tool of 'imitative' product modification. Individual designers employed by firms.	First generation ID teachers with art, architecture degrees or from foreign countries. 4 or 3 years ID degree programmes.	Finance of the ID education at university level. Scholarships for postgraduate education in advanced countries.	In architecture, interior and graphic design journals, articles written by industrial designers dealing with ID as a separate discipline.				
4	Development Phase I	Export Promotion II (Asian NICs, Malaysia early 1980s) Liberal Trade Policies (India, Latin American NICs, and Turkey)	Investment-driven, standard technology industries, e.g. household appliances and most consumer goods.	In-house ID teams. ID as a tool of systematic product differentiation and adaptation on the basis of product modification (redesign). The recognition of ID as a competitive tool.	Second generation ID lecturers with mostly postgraduate degrees from advanced countries.	Design groups are incorporated into government agencies in some NICs such as small scale industry promotion, but there is no overall design policy.	In related design journals, special sections or issues on ID.				
5	Development Phase II	Export Promotion III [deepening] (Asian NICs 1980s)	Specialized export industries e.g. consumer and business electronics, sports equipment etc.	In-house design teams + use of design consultancy firms. Design as a marketing factor.	Postgraduate ID courses. Faculty staff with professional experience. Localization of ID education starts.	ID is incorporated into some government policies such as export promotion.	Same as above. But ID discourse is differentiated from the others.				
6	Take-off Phase	Global Strategy (Korea . . . ? since the early 1990s)	Investment-driven, relatively more capital and technology-intensive sectors, e.g. capital goods such as transport vehicles.	Large specialized ID departments. ID is recognized as part of corporate strategy.	Specialization occurs within design like transportation design. Study programmes get a strong theoretical input.	ID is recognized as part of a national competitive strategy.	Specialized magazines dedicated to ID.				
7	Maturity Phase	. . . ?	New product development is practised in all major branches of industries.	Design as a leading force in company strategy. Product innovation.	Differentiated and fully equipped institutions. Courses contain scientific lecture programmes	ID as an element of innovation is part of industrial culture. Design centres run by professionals.	Books on ID are published dealing with standard practices, history, theory.				

GIARD (1996), interpreting Heskett (199x) writings about national design strategies, proposed “The Heskett Model of National Policy”. This model establishes four categories where a national design policy could be classified: statist, centrist, devolved, and indirect, each described on table 2-11.

TABLE 2-11: Heskett Model of National Policy (adapted from Giard, 1996, p.19)

TYPE	DESCRIPTION
STATIST	1. Industry owned by government; 2. Design policy is created and implemented by a central government authority; 3. Customers / consumers have no voice in the marketplace; 4. Ex: former Soviet Union and the former Eastern bloc countries.
CENTRIST	5. National government determine and implement economic policy with industry; 6. Ex: Taiwan design policy.
DEVOLVED	7. There is no national design policy; 8. Government or paragonmental agency promotes design; 9. Ex: Most European design councils or centres.
INDIRECT	10. Government implements laws, rules, and regulations for the benefit of the general public; 11. Design, like any other sector, must be responsible for its own survival; 12. Ex: United States, and, to a certain extent, Germany.

Alpay Er (2002) reviewed Giard’s ‘*Heskett Model*’, proposing “*The Revised Model of Design Policies*”. The third and fourth types were renamed from ‘*Devolved*’ to ‘*Decentralized*’ and from ‘*Indirect*’ to ‘*Hybrid*’, and a fifth category introduced – “*Integrated*”, or ‘*Integral*’ design policies. This latest type emerged from the second half of the 1990’s, integrating design policies “*within one or more other macro policies such as innovation policy or SME development policy.*” Finland government is cited by Alpay Er as an example of implementing such policies, integrated with the national system of innovation. It is also mentioned that governments that already have an innovation or SME policy and are pursuing a design policy could adopt this later form.

KRETZSCHMAR (2003) and **ROSTED** (2008). The **DANISH DESIGN LADDER** model, was introduced in a 2003 report on The Economic Effects of Design, from the Danish Design Centre. The new model featured four levels for ranking design maturity in companies, represented as steps going up in a ladder, and became a worldwide reference (Table 2-12).

TABLE 2-12: The Danish Design Ladder (after Kretzschmar, 2003, and Rosted, 2008)

Step / Basic Concept	Use of Design	Characteristics
1. Non-design	Companies do not use design	Design is an inconspicuous part of, for instance, product development and performed by members of staff, who are not design professionals. Design solutions are based on the perception of functionality and aesthetics shared by the people involved. The points of view of end-users play very little or no part at all.
2. Design as styling	Companies use design as styling or appearance	Design is perceived as a final aesthetic finish of a product. In some cases, professional designers may perform the task, but generally other professions are involved.
3. Design as process	Companies integrate design into the development process	Design is not a finite part of a process but a work method adopted very early in product development. The design solution is adapted to the task and focused on the end-user and requires a multidisciplinary approach, e.g. involving process technicians, material technologists, marketing and organisational people.
4. Design as innovator	Companies consider design a key strategic element	The designer collaborates with the owner/management in adopting an innovative approach to all – or substantial parts – of the business foundation. The design process combined with the company vision and future role in the value chain are important elements.

VALTONEN (2007) – although does not relate do design and economic development, Valtonen framework (Table 2-13) enlightens the transformations in the activity of design through the last six decades, from the 1950's to the 2000's.

TABLE 2-13: Design in the last six decades of the XXth century (based on Valtonen, 2007, pp.306)

	Basic Concept	Use of Design	Typical role for designer	Typical statement on design
1950's	Promoting the nation	Product aesthetics, Styling	Designer as creator	"We got a prize in Milan"
1960's	Involving industry	The entire product development process	Design as part of a team together with mechanics and marketing	"Design as part of the industrial product development process"
1970's	The rise of ergonomics	Product definition	Design for user understanding	"The user (be it a child or elderly) is the most important"
1980's	Design management	Roadmaps	Design as coordinator	"Our product portfolio is consistent"
1990's	Brand building	Strategy	Design for creating experiences for customers	"Total experience design - from concept to retail"
2000's	Innovation & competitiveness	Vision	Design as innovation driver	"Global competition and renewal" "China phenomena"

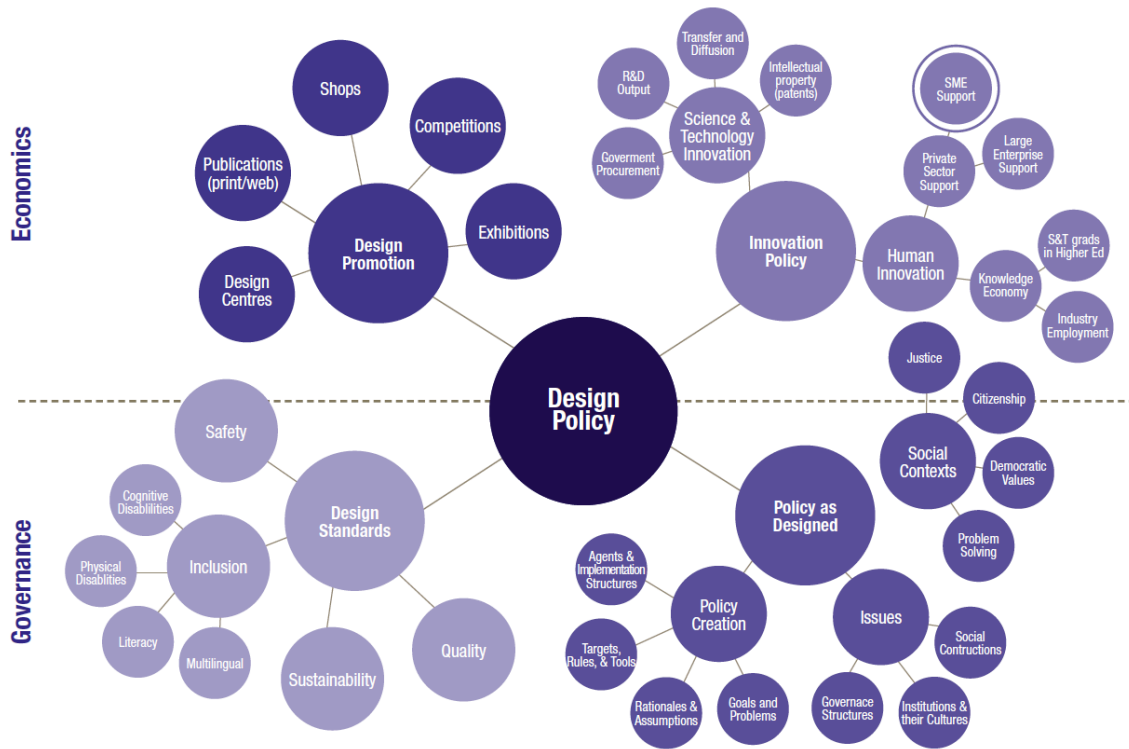
TUNSTALL & JONES (2010) propose a framework, based on previous work by Tunstall, to analyse design policies in the USA (Table 2-14). In its main level, the framework organises Design Policies into Democratic Governance and Economic Competitiveness. These two classes are then subdivided respectively into Design Standards / Policy as Designed; and Design Promotion / Innovation Policy. This framework however must be understood as generated within the US National Design Policy Initiative, addressing specific historical issues from the USA: *“policy-makers rely on historical precedence to reduce the risk of a policy proposal; thus the framework highlights the US history of design policy for democratic governance, which also captures government self-interests.”* Despite its specificity, the model has some noticeable qualities: organises design policies, in its basic level, into “governance” and “competitiveness”; brings together the design of public services (characterised as “Policy as Designed”), generally not considered in design policy studies; and pairs design promotion with innovation policy, as two branches of design policy aimed at the promotion of competitiveness.

TABLE 2-14: Framework of design policy for the US National Design Policy Initiative
(Tunstall & Jones, 2010, p.21)

Design Policy for Democratic Governance		Design Policy for Economic Competitiveness	
Design Standards	Policy as Designed	Design Promotion	Innovation Policy
SAFETY QUALITY SUATAINABILITY INCLUSION Cognitive disabilities Physical disabilities Literacy Multilingual	POLICY CREATION Agents & implementation structures Targets, rules, & tools Rationales & assumptions Goals & problems ISSUES Governance structures SOCIAL CONTEXTS Justice Citizenship Democratic values Problem solving	DESIGN CENTRES PUBLICATIONS SHOPS COMPETITIONS EXHIBITIONS	DESIGN INNOVATION R&D output Government procurement Transfer & diffusion Intellectual property HUMAN INNOVATION SME support Large enterprise support Graduates in higher educ. Industry employment

Tunstall framework has also appeared in a mindmap format (Fig. 2-22) in a previous document (Tunstall, 2007), where the two domains covered by design policy are decoded as fields of Economics and Governance.

FIGURE 2-22: Design policy landscape (Tunstall, 2007, p.3)



Perhaps the most singular aspect of Tunstall formulation is when it includes *'policy as designed'*, where design becomes a tool for policy creation, almost abolishing the boundaries between the definitions of *design as a noun* and *design as a verb*. For Tunstall, *to design a policy* acquires new meaning with the concurrence of design, and within a general framework of design policies.

BELLO DE ARANAGA (2005) records the absence of a *"theoretical framework to identify different modes of design policy, nor to assess their impact on national economies"*, and that existing documents are more descriptive than analytical.

Building upon the model of the anthropologist Arjun Appadurai of five landscapes of global cultural flows (Appadurai, 1996), related to people, technology, finance, information and ideas, Bello de Aranaga proposes a sixth

landscape of goods, where design would be inserted (although relating to all the others). So, beyond the model of Ethnoscapes, Technoscapes, Financescapes, Mediascapes and Ideoscapes, is appended that of Goodscapes, which deals with the *“conception, production, distribution, exchange, use and disposal of goods: products, services and artificial systems, both physical and virtual.”*

To exemplify how processes are viewed in this ‘lanscapes’ model, the author explains that *“a functioning design policy (Goodscapes) can assist economic growth (Financescapes) and technological development (Technoscapes), building up a design promotion system (Mediascapes) that will ultimately change how people perceive design (Ideoscapes).”* The relations of design policies with each of the landscapes is explained by the author in a diagram (Table 2-15).

TABLE 2-15: Goodscapes Framework (Bello de Aranaga, 2005)

GOODSCAPES	Flows of products, services & artificial systems; Design climate or milieu; Processes of design, production, use & disposal; Fragmentation of production & consumption processes
IDEOSCAPES	Ideological, political motives; Import & export of design ideas; General & particular design paradigms; Perception of design
TECHNOSCAPES	Technological & innovation capabilities; Technological inventions & transfer; Applications of technology; Relations to technology and science policy
MEDIASCAPES	Creation & circulation of design knowledge; Promotion initiatives & systems; Local & global databases; Interfaces between government, industry & society
FINANCESCAPES	Economic strategies for development; Need to adjust to liberal, market-oriented economies; Support from government & industry; Participation in global financial system
ETHNOSCAPES	Human, social and cultural capital; Global culture vs. local identities; Diversification of consumers and users; Inclusion and accessibility

From the perspective of the IDEOSCAPES, it is observed that *“similarities between many of the design policies are caused very much by the sharing of*

experts that consult from one country to the other.” The “ideologies are flowing” (...) and are *“adapted to the local context, needs and potentials”, and “this is not a negative aspect, unless it becomes a vicious movement trapped in one view that fails to see other possibilities.”* From the TECHNOSCAPE and MEDIASCAPE points of view, the author observes that should be considered to which extent technology is being used to bridge or divide communities, and that *“the new media for promotion is still not being fully exploited.”*

On regard of FINANCESCAPES, it is observed that *“The economic factors, international competitiveness and world trade are major drivers for the implementation of design policies.” (...)* *“On the other hand, the economic factors often overshadow the benefits for society in general, and although many policies mention the social, cultural and ecological benefits that design can provide, these always are secondary targets.”* Finally, on the perspective of ETHNOSCAPES, the author identifies *“two forces pulling and pushing design policies: one towards a global integration by the creation of networks, collaborations and exchanges, and the other towards a reinforcement of local, regional, and national identities.”* However, these tensions are later referred as interacting in the process identified as ‘glocality’, cited after Robertson (1992)

The article also cites Alpay Er (2002), pointing to two critical aspects (failures) of design policies: (1) excessive identification with design promotion*, while avoiding issues related to design infrastructures; (2) *“the isolation of design policy in relation to other macro and micro government policies in related areas (science, technology, innovation, etc.).”*

THOMSON & KOSKINEN (2012) produced a comprehensive report for the European Design Innovation Initiative, issued in 2012 by the European Commission. ‘Design for Growth and Prosperity’, addresses both the European design in a global context, and internally, regarding the relations of design to the Europeans innovation systems, enterprises, public sector, research system and education system. The report offers twenty-one recommendations divided in six major strategic design actions, and intended as an updated framework for DP action for the European Union (Table 2-16).

TABLE 2-16: Recommendations from the European Union report ‘Design for Growth and Prosperity’ (Thomson and Koskinen, 2012, p.8-11)

STRATEGIC ACTIONS	RECOMMENDATIONS
1. Differentiating European design on the global stage	1. Identify and strengthen existing ‘European centres of design excellence’ in business and industry and provide means for those to collaborate in open networks that drive innovation into Europe’s whole industrial ecosystem.
	2. Promote the increased use of design in European industry to encourage synergies in support of economic growth, environmental regeneration, and the raising of social and emotional value, whilst respecting the need for renewable and endogenous resources.
	3. Work towards zero tolerance of infringement. This requires legislative revision, through the inclusion of a ‘Duty of Care’ for shared responsibilities on IPR protection across the digital value chain. Set up a specific EU Tribunal /Court for European IP cases and promote and increase the training of judges in national courts, in relation to the protection of Intellectual Property Rights in the physical world and online.
	4. Create a ‘Designed in the European Union’ label in connection with the European ECOLABEL to stimulate the export of design services. The intention is to make the protection and enforcement of European design and innovation more effective and accessible, whilst at the same time raising the bar on expectations and associating excellence with sustainability.
2. Positioning design within the European innovation system	5. Continue to support and expand the work needed to develop more effective and reliable methods for measuring the impact of investment in design on growth and social well-being, at the micro and macro levels, and include these within European innovation statistics.
	6. Enforce the implementation of the current NACE Code 74:10 for Specialised Design Activities by all Member States and ensure updating as necessary for benchmarking and comparative analysis across member states.
	7. Include design within innovation and business incubators and their networks.
	8. Create guidelines, codes of practice, legal frameworks and experimental spaces to promote the use of Open Design.
	9. Develop a European policy that ensures a more sophisticated approach to the public procurement of innovative solutions through the recognition, inclusion and implementation of design as a driver of user-centred innovation.
	10. Improve access to design management expertise and tools for companies across Europe to support the uptake and integration of design and design management as a strategic tool for growth.
3. Design for innovative and competitive enterprises	11. Establish a pan-European design leadership programme that ensures Europe’s next generation of large companies have at their top, leaders who are design aware and more inclined to make better use of design.
	12. Develop programmes that support European medium-sized companies with ambitions to grow into large design-led companies through design innovation.
	13. Establish mechanisms whereby design knowledge and best-practice transfer can be more effectively enabled between large, design-led companies, academia and SMEs.
	14. Strengthen design innovation in SMEs through taking into account the specific needs of SME’s within EU programmes such as Horizon 2020 and improve their access to member state level programmes.
	15. Recognise and value apprenticeships and vocational training for generating world-class specialist and skilled crafts-people in traditional and emerging sectors with an increased awareness of design, as a driver of growth and job creation.
4. Design for an innovative public sector	16. Increase the use of design/designers in public sector innovation: // Through establishing a Design Lab within the Commission to run small-scale demonstration projects showing the value of design-led public sector innovation. // Through supporting designers’ greater involvement in ‘living labs’ where social innovation and public services are critical challenges. // Through exploiting the potential of the European Structural Funds, in particular the European Regional Development Fund, on design innovation for social change across policy areas.
	17. Build the capacity of public sector administrators to use design methods themselves and to procure design effectively: // Through design toolkits, case studies and designers in residence for EU institutions and Member States and regions. // Through developing a design curriculum for public administrators’ education and professional development, with attendant Master Classes in design for effective policy-making and procurement.

5. Positioning design research for the 21st century	18. Embed design research in Europe's research system in order to create new knowledge that will enhance innovation whilst in parallel evaluating, on an on-going basis, the value of design in the Horizon 2020 programme: // Through including design researchers in cross-sectoral, multidisciplinary research programmes addressing global challenges such as climate change, food security and health and well-being. // Through funding the evaluation and communication of the value of design in the Horizon 2020 Programme.
	19. Create a European network on design research at the European level to foster greater exchange amongst diverse actors and to encourage and enhance research that supports European design innovation capacity.
6. Design competencies for the 21st century	20. Raise the level of design literacy for all the citizens of Europe by fostering a culture of design learning for all at every level of the education system.
	21. Encourage Member States to support the development of design competencies for the 21st century: // Through embedding the strategic Executive Summary role of design across disciplines in higher education // Through strengthening continuing professional development programmes for design professionals. // Through embedding design in the training of apprentices.

2.3.1.1 KEY EMERGING ISSUES

Frameworks and models from literature provided four key issues:

- Linking design and DPs to economic stages of development;
- Mapping of DP landscape, drivers and impacting factors;
- Design and DPs associated to the different stages of economic development;
- Existing gaps to be filled formulating comprehensive explanatory models and conceptual frameworks for design policies;

Bringing inputs from the studies of economic competitiveness (Porter, 1990) and design management (Kretschmar, 2003) together with DP-specific frameworks (Thomson & Koskinen, 2012; Alpay Er, 1997; Bonsiepe, 1991) allows to identify drivers and impacting factors of DPs, as well as to establish the gaps or absence of comprehensive explanatory models and conceptual frameworks of DPs.

2.3.2 NATIONAL DESIGN POLICIES

Literature offers evidence of the emergence of design as a major player in development strategies. Respected author in the field, Bonsiepe (2011a) has recently stated that design is a political act, ever. Criticizing the low employment of design to foster a country's economy, he asserts: *“An industrial policy and a development policy that do not use industrial design as a tool are amputated policies.”*

Paola Antonelli (2011), senior design curator of MOMA New York and member of the Global Agenda Council on Design of the World Economic Forum (in 2009), discusses what a powerful tool for governments is design – ranging from national identities, the design of complex systems of urban planning, to the applications of technological and social innovation. Enthusiastically defending design as an agent of change, although recognising that *“design alone will not solve everything”*, she notes: *“We have only begun to tap into design's real potential to serve as a tool for policymaking, governance, and social agendas. When used correctly, it can integrate innovation into people's lives.”*

Antonelli urges governments to use design *“not as a mere aesthetic or functional tool but as a conceptual method”*. Giving examples of how governments around the world are using design as a tool, it is noted however that *“oddly enough, some of the countries most lauded for their design sophistication, such as Italy and Japan, feature the most design-obtuse governments.”*

Tunstall (2007) goes further, bringing design, beyond a development tool, as a governing tool for policy creation. She advocates the importance to *“seed designers and design managers in all government sectors.”* The boldness of this proposal lies in breaking the barrier between the *verb* and the *noun* ‘design’, pitching *to design policies* as a designer/politician activity.

Discussing a recent initiative about national design policy in the US (Tunstall, 2009), design historian Woodham observes a context of *“global proliferation of national design policies in the late twentieth and early twenty-first centuries.”* Woodham is highly critical of the *“cyclical and generally repetitive nature of their*

content”, stating that these enterprises remain “*largely in the realm of rhetoric and aspiration rather than solid achievement.*” (Tunstall & Woodham, 2011)

The Design Management Journal dedicated two special issues in the 1990’s to public design policies. In 1993, the issue entitled “Design and National Policy: Assessing Government’s Options in Design Management” (Vol. 4, No. 3, Summer 1993) was dedicated to “*offer both short- and long-term recommendations for specific American design policy initiatives*”, reviewing design policy models from across the globe. “Design and the National Agenda” was published in 1996 (Vol. 7, No. 3, Summer 1996), and documents a move from the promotion of design awareness towards the challenge to integrate decision-making strategies. National bodies such as the UK Design Council announced strategies to maximize its efforts with decreasing resources (Owen, 1993) and then “*redefining itself as a think tank (...) rather than a promotional organization*” (Dumas, 1996). In Korea, the virtues of delimiting design policies in small niches were praised – even if “niches” were to be understood here as the “Korean Big Three” car manufacturers (Chung, 1993). The Swedish Industrial Design Foundation defines itself with “*a modest but clear and well-focused agenda*” (Dahlin & Svengren, 1996). Undertaking its initial movements of a “late adopter”, Brazil appeared at that point to be moving in the counterflow, trying to establish a National Design Policy to boost industrial competitiveness and foster the export of manufactured goods (Teperman & Leal, 1996). But while national initiatives grew smaller with lower budgets, local design centres emerged as the next step of design policies coming closer to SMEs and local efforts (Kimura, 1993; Howe, 1993; Setzer, 1996; Felip-Hösselbarth, 1996). These documents signalize a downsize trend for design policies in the years 1990 – establishing clearer agendas, decreasing in size and magnitude of action, focusing into niches, local clusters and small companies.

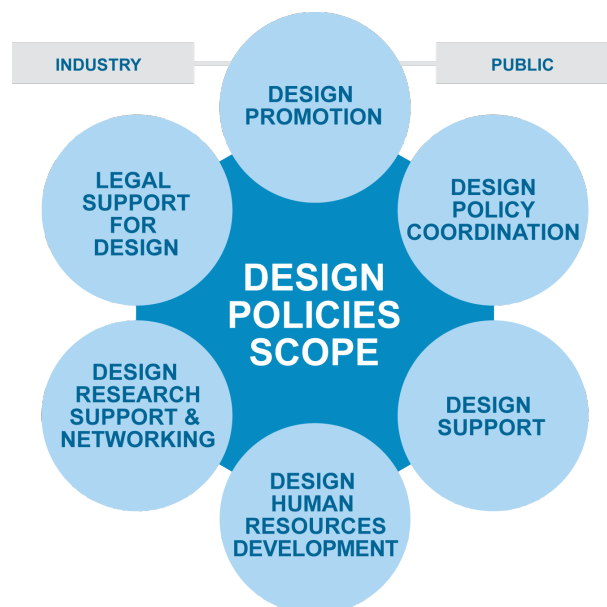
Different authors have different interpretations for a National Design Policy. Choi *et al.* (2011), for example, identify the existence of a National Design Policy not necessarily by having it elicited and passed by the government – like the Finnish design policy issued in 2005 (Saarela, 2004). Choi *et al.* (2011)

advocate that a National Design Policy may also be understood as *“having a clear and effective design policy and have applied government design policy and design promotion programs that have intensified the role of design in international competition.”* Hannon (1993) is also claimed to support the view that not having a design policy is indeed a policy. Choi *et al.* (2011) use this argument discussing the context of their study, comparing the UK and Korea national strategies of design. They argue that, although the UK does not have formally a governmental policy of design (while Korea has), there is a *“difference in the level of maturity in their design support (i.e., United Kingdom has a very mature Design Council, while the Korea Institute of Design Promotion (KIDP), in South Korea, is relatively new).”*

2.3.2.1 DESIGNERS AND THE SCOPE OF POLICIES

Alpay Er (2002) defines design policy as *“systematic government efforts aiming to develop national design resources and to encourage the effective use of these resources by firms for increasing national economic advantage in international markets.”* The author identifies the scope of Design Policies as composed of the six basic factors displayed on Figure 2-23.

FIGURE 2-23: Design Policies Scope, according to Alpay Er (2002)



To discuss design policies, according to Alpay Er (2002), should be considered *“the nature of the relationship between design and the national politics from an economical perspective.”* Furthermore, in relation to peripheral countries, the author sees *“the relationship between design and government policies as a crucial dimension of their subject matter.”*

Moreover, he credits the isolation of the discussion of design policy from other major national policies (like trade, industry and technology), *“to the nature of mainstream design establishment, which tends to distance itself from the political issues and the government.”*

Bello de Aranaga (2005) draw attention to the analysis performed by Alpay Er of the *“two major structural problems”* (failures) of design policies:

- *“occasional reduction of design policy into design promotion”*; and
- detachment from other governmental policies in related areas (such as economy, industry, technology).

These problems, according to Alpay Er (2002), can be attributed to a tendency of design activity to set itself apart from political issues and from the government, resulting in a serious weakness of design policies.

Offering a rationale for the establishment of design policies, Alpay Er (2002) argues that mainstream economic theories justify government interference to address structural failures. The author cites France and Germany as examples of market economies where certain sectors are supported by policy mechanisms in their initial phases of development. He also claims that design policies should be directly related to industrial policy and beneficiaries of science and technology policies.

Newly industrialised countries (NICs) present a higher degree of government intervention to promote development, according to Alpay Er (2002) – that has also identified some level of intervention to address *“market failures preventing the development of national design capabilities.”* But this design policy interventions in NICs are largely oriented to an *“export-led, outward looking*

economic activity”, determining the pattern of policies adopted, concentrated in qualifying industry sectors to domestic and external competitiveness.

2.3.2.2 DIFFERENT NATIONAL EXPERIENCES

Regarding the UK policies for design, Thenint (2008) says that “*after a first period mainly devoted to promotion*”, other aspects came to be considered, such as: “*Business aspects (venture capital, products, practices, efficiency and demand); Education, research and professional training; Cultural aspects (promoting design thinking, creativity, etc.); Public services (including public procurement, healthcare and security).*”

Heskett (1993) observes that the lack of experience in design policies induce to mirror in foreign experiences: “*Without substantial experience of design policy in U.S. Government, there is a tendency to superficially quote sums committed to, and the scale of government agencies for, design in other countries.*” He reminds us that these government-funded agencies might be costly to maintain and after all “*have little power to significantly alter anything.*”

The article positions “*four levels of involvement*” of governments with design: (1) statist; (2) centrist; (3) devolved (or decentralised); and (4) indirect - what Giard (1996) called “The Heskett Model of National Policy” and Er (2002) reviewed and appended a fifth level, the ‘integrated’ mode.

About the “statist” mode, Heskett (1993) exemplifies with the German Democratic Republic’s ‘*Am für Industrielle Formgestaltung*’ (Office of Industrial Design), which was “*hog-tied by the innate deficiencies of a system emphasising bureaucratically defined economic norms that totally ignored users.*”

The Japanese model is labelled as “*Design policy that works*” - a hybrid of centrist and decentralised policies. Some data is offered to endorse the success achieved by Japanese design policy: 38 out of 46 Japanese prefectures established design centres; in a survey of 1989, 80% of businessmen were said to understand the importance of design; Japan had at the time of the article half of the population of the USA, but three times the number of industrial designers. Chiu (2002) also referred to these achievements, acknowledging 212 design

centres across Japan nine years after Heskett's article. These centres had the function *"to cooperate with similar technological centres using design to adapt new technology to local companies and their markets."*

Heskett (1993) criticises the American indirect model, where significant decisions influence design, although design is not the primary focus. This way of legislating about products *"tends to leave designers picking up the pieces after everyone else has had their say, rather than being primarily responsible for realising the aims of the legislation."*

Advising designers about the political world, from which they are usually disconnected, Heskett is sharp: designers should deliver in political terms; aim for the possible, not for perfection; have a pragmatic attention to every aspect. He warns: *"putting designers in the political frontline could be disastrous and discrediting if expectations are vague or too great, and they fail to deliver."* Designers should understand that, *"if they are to be involved in politically determined initiatives, they must clearly understand that they have to deliver in political terms. Politics is the art of the possible, not of perfection. It requires, at best, a clear vision, but also pragmatic attention to processes, contacts, communication and persuasion - in other words, a lobby for design."*

Admonishing against a common failure, Heskett (1993) states that designers tend to believe that good design will operate miracles: *"Performance in design terms alone cannot compensate for inadequate strategy, either at governmental or corporate level."* Defining the many different roles design can play in supporting industry might be a major handicap for designers and their *"well-intended aspirations"* when addressing a framework for design policies with the government. Kash (1993) suggests that it *"makes for an elusive - and perhaps undefinable - policy target."*

McAusland (1993) - also discussing the handicaps of designers dealing with government - warns that *"government agencies can be skeptical and protective of their turf, the conflicting goals of special interests can doom even the most noble of ideas, and the legislative process can take years of lobbying and debate."*

Giard (1996) argues the importance of adequate (contextual) design policies, fitted to national situation and not transplanted from abroad: *“National design policies modelled on foreign policies, i.e., non-contextual policies, do not fit and in the long run do not work, no matter how well-meaning the policymakers may be.”*

Choi *et al.* (2010) discuss national design policies through the analysis of the role of government-funded national design centres (NDCs) in Korea (KIDP) and the UK (Design Council). The study underpins apparent failures on both UK and Korean national design centres on supporting declining industries along the decades, analysing programmes from the 1950's to the 1990's. *“This raises the question of whether the NDCs either failed to adequately research industrial development and changes when developing policy, or whether it should have followed the government's direction rather than making its own decisions.”* (p. 63) The authors question that, notwithstanding that more recently both NDCs are *“responding to industrial trends by supporting dominant industries in line with industrial policy and demand”*, if they are not being just ‘reactive’, whether they should be ‘proactive’ instead. ‘Proactive’ here meaning to *“anticipate problems and design appropriate strategies to resolve them before they occur”*, while a ‘reactive’ approach *“dictates only limited and short-term objectives for sectorial development, and intervenes only to correct short-term failures.”*

Choi *et al.* (2010) advocate that NDCs should (1) be more independent from government; (2) be more involved in the development and implementation of design policy; and (3) *“committed to ensuring outstanding stakeholder satisfaction through more proactive anticipatory and participatory approach”*, to conclude they should *“operate independent of political agendas.”* But it neglects how to operate a body, linked to the government by its funding - and so inserted in the government's political agenda - outside of this agenda. When it comes to the propositions of alternative approaches, the article refers that NDCs should have a *“national government-backed design agenda”* - but how could such design agenda exist and operate independent of a political agenda?

Design NGOs (professional organisations) are also said to be capable to offer a balance to exclusively government-led design policies (carried out by national

design centres), being called to be more proactive towards the planning of such policies. However, the article unfolds that the interviewees from NDCs argued that these centres should be more independent from government, while people related to design NGOs manifested the opposite view.

Also discussing the Korean experience from a different perspective, Chung (1993) calls attention to the fact that a Design Policy even being national can still be focused on an industry niche. The article highlight the case of Korean car industry, helped over thirty years by governmental plans.

New Zealand Government issued in 2005 the Better By Design programme, mapped by Mauger (2005). The programme was developed after the work from the Design Taskforce, established in 2003. The history of design policies in New Zealand had already undergone the establishment of a New Zealand Industrial Design Council in 1966, closed by the government in 1988. Considering this background, the creation of the Design Taskforce and the establishment of the Better By Design programme received a strong support from government with the concurrence of industry. The Better By Design initiatives were summarised in the document:

1. Establishing a design reference group;
2. Developing a communications programme;
3. Organising a design conference;
4. Developing a design resource directory;
5. Developing education initiatives;
6. Establishing a design audit/mentoring programme;
7. Establish a design project programme;
8. Establish design funding and financing assistance;
9. Creating an international design cluster;

Some problems were detected and important conclusions that might be applied in other circumstances and other countries. The first possible fault detected was related to design education: *“the design profession’s ability to provide enough designers with the required understanding of the business application of design required for audits may be inadequate if the audit initiative starts to grow significantly.”* (Mauger, 2005)

The second and probably most important was based on their own history of the New Zealand Industrial Design Council, was the awareness of the changing political environment that might cause discontinuity of funding to the programme. Thus, the article highlights that *“Ideally, a sufficiently strong private sector funding stream is needed to ensure against this possibility.”* This is reinforced citing the original Taskforce document, when it said *“it will succeed only if it is owned and invested in equally by the design profession, business and Government”* (Mauger, 2005)

In 2002, ICSID promoted a design policy conference in Seongnam, Korea (Lee, 2002), having as one of its aims the creation of a *World Design Report*. According to Lee (2002) the idea was to bring together information about design policies around the world, that *“would create, over time, the opportunity to establish some form of loosely comparative overview”*, serving *“government departments with an existing responsibility for design, as well as national design centres and other design organisations.”* Without accomplishing the original goals, this rather difficult task was later assigned to ICOGRADA (the International Council of Graphic Design Associations), a partner, as ICSID, of the International Design Alliance (IDA). Partial results can be found at the organisation’s website section *“World Design Survey”* (ICOGRADA, no date).

2.3.2.3 KEY EMERGING ISSUES

Regarding national design policies, five key aspects are highlighted in literature:

- National/international context and references for design policies;
- Strengthening of design support to SMEs from the 1990s;
- Difficulties in the interaction of designers with political world;

- Failures in DPs relations with other related policies;
- Occasional reduction of DPs into design promotion.

The current context offers a favourable environment for the development of national DPs, with great international interaction – which should otherwise be treated with reservations, avoiding simply importing models. These same circumstances had shown an increase in design support to SMEs since the 1990s. Designers need to learn to conciliate the design agenda (a “good design”-oriented agenda) with the political agenda (a pragmatic, compromise-oriented agenda). DPs also fail to relate to other policies, and are occasionally reduced to design promotion only, seriously compromising their effectiveness.

2.3.3 SUPPORTING DESIGN

Korvenmaa (2004) argues that the “public sector cannot produce design; (therefore) the public sector can only help to produce design, backing the private sector”.

Raulik *et al.* (2007) give evidence of how international debate brings together collective knowledge and shared experiences in the field. The authors report how, after three years of work, SEEdesign project partners put together a set of recommendations for government and policy makers. The ten items proposed are summarised below:

- Make sure design programmes are in line with local and national agendas;
- Coordinate stakeholders to work towards common objectives;
- Balance design support to SMEs with design promotion;
- Integrate design into innovation policies;
- Promote design education (all levels) focused on local demands;
- Act as a role model (as government use of design);
- Promote creative thinking in government and social programmes;
- Reward design with awards, certification or incentives;
- Promote evaluation of the impact of design;
- Make sure there is consistency of funding for design programmes and financial incentives to support small business using design.

Tether (2006) developed a typology of design support initiatives, intended to help understanding and consequently a better planning. His article identifies five different modes of design support, summarised below:

- *Direct provision of design consultancy to individual firms. The design support agency acts as a design consultant.*
- *Subsidising investments in design in individual firms.*
- *Individual counselling and advisory services, focused on the needs of the firms (usually SMEs). The support agency acts advising, helping to identify the needs of the client firm, then (if*

appropriate) assisting them with the selection of designers to undertake the project.

- Workshops or seminars providing design advice, bringing together firms with similar needs and delivering information to them as a group.
- Recognition of design achievements through awards or certification.

Ball & Knecht (2011) devised a tool - the Business Support Canvas (Fig. 2-24) to help plan, develop and assess support policies for businesses. They propose a series of questions to be considered with the help of a visual tool - a graphic framework, or canvas - where users can insert their comments or answers. This framework is divided in 'policy', 'measure' and 'impact'; major actions are organised by 'define', 'set up', 'deliver', and 'promote'. A description of each phase is inserted in the canvas with the aid of a series of questions provided by the authors. The method allows users to clearly state and understand each phase of the process, achieving consequently the objectives of the tool – an effective formulation of the support policy.

FIGURE 2-24: Business Support Canvas (Ball & Knecht, 2011)

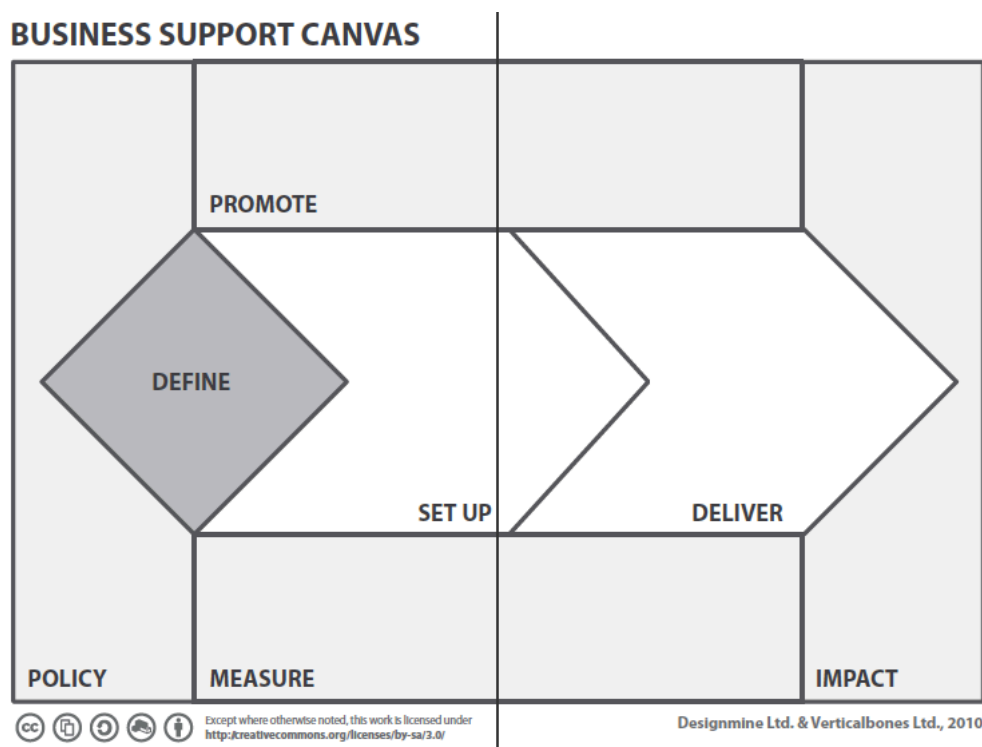


TABLE 2-17: Business support canvas framework (Ball & Knecht, 2011)

Policy:	<p>What are the current and future policy drivers? Might policy change during the term of the programme? Where is the funding coming from? Are you in a position to influence policy?</p>
Define:	<p>What is our ambition? Are we prototyping, piloting or scaling? Based on ambition and the policy context, what is the offer? What are the different levels of service? Who will develop the content? Where will the content come from? How are we managing any intellectual property in content? Is client readiness defined? If it's a mentored programme who is going to work with the businesses? Do we have the funding to develop and deliver that offer?</p>
Set-up:	<p>What is free and what do clients need to pay for? What resources do we need? Have we identified key client touch points? How will we manage the client selection process?</p>
Deliver:	<p>What tangible projects will it deliver? How is implementation managed? Who will manage delivery? What are the key milestones? Does it scale over time? What does a finished project look like? Will there be a closing event?</p>
Promote:	<p>Which are the key referral networks? Is there a marketing campaign? Do we have the right messaging? Are we telling a compelling story? What are the key target markets or sectors?</p>
Measure:	<p>Are there reporting mechanisms in place? How often will progress be recorded? At what stages will the programme be evaluated? Who will perform evaluation?</p>
Impact:	<p>What is the desired impact? What stories will we want to tell and to whom? Who is the audience for the evaluation? Are measures in place to quantify impact?</p>

Ball & Knecht (2011) canvas provides questions about measurement of the impact achieved (Table 2-17), but do not discuss the mechanics of the assessment itself. Further research by authors such as Moultrie, Clarkson & Probert (2007), Tether (2007), and Zec & Jacobs (2010) explored this issue and their studies are discussed ahead in the next section.

2.3.3.1 DESIGN PROTECTION AND IPR

Another aspect of design support is the availability and effectiveness of protective systems that offer safeguard to the development of innovative and competitive products. Horn (2010) criticises current IPR systems, from the title of the article: *Where IPR protection fails Open Innovation*. IPR system is portrayed as “incapable of drawing a distinction between ill-defined early-stage ideas on the one hand, and fully-articulated knowledge- and solution-based business propositions on the other.” The author advocates that a new system aimed to protect adequately also “pre-patent concepts and propositions” would result in a considerable upscale of current figures of open innovation. The origin of these ideas can be traced to the credentials of the author, Maxine Horn, founder and former CEO of British Design Innovation, which she left in 2011 to establish Creative Barcode. This later is one of the alternative registration systems emerging in Europe and Asia, all claiming to be aimed at fostering innovation and meet the growing demand of creative industries.

CREATIVE BARCODE: Horn (2011) explains the principles behind the protection offered by Creative Barcode, which is ultimately designed to protect “new-born ideas” within creative industries, usually not addressed by IP registration. The organisation, launched in September 2010, offers an alternative to the official IPR registration, and has earned support from the World Intellectual Property Organisation (WIPO). Horn (2011) states that research studies carried out with creative people evinced how “In the UK alone, it is estimated that more than 70% of all creative individuals and firms do not utilize any form of IP protection. (...) They are uncomfortable dealing with complex paperwork and the cost involved in legal protection before a contract has been agreed or awarded” and moreover, are frequently “not in a financial position to defend breach of copyright.”

I-DEPOT: The Benelux Office for Intellectual Property offers this simplified online system of copyright registration, based on precedence (BOIP, *undated document*). It is advised that it does not substitute a full registration, but is meant only to assure the precedence of ideas or designs. This is an institutionalised answer to a growing and faster demand to support innovation.

DESIGN BAILMENT SYSTEM: The Korean Institute of Design Promotion, KIDP, presented a study (KIDP 2009) for a “Design Bailment System” with similar aims. The document states that *“if design copyright is not protected efficiently, it will not only hinder creative activity but also obstruct design industry development”*.

DESIGNPUBLISHER: An independently operated registration system from Germany, developed and managed by Plagiarius Consultancy (Plagiarius Consultancy, 2003). Their website advocates the advantages of the Community design registration, *“which provides EU-wide protection for the appearance of a new product.”* There is also a discussion about the unregistered Community design, that allows protection by disclosure of the design. Claiming that the concept of ‘disclosure’ is still unclear, Designpublisher offers an alternative to *“presenting new designs on the Internet cheaply, effectively and well-organized and thus of satisfying the ‘disclosure’ requirement.”* It is basically the same procedure of Creative Barcode, emerging as an alternative to most conventional design registration (either national patent offices or the Community registration).

2.3.3.2 KEY EMERGING ISSUES

Three key points were highlighted from literature:

4. Design support benefitting from international debate and collaboration;
5. Models developed to describe and plan design support policies;
6. Importance of simplified IP design protection to SMEs and open innovation.

Once again the collective knowledge on DPs developed internationally and shared in networks is regarded to be a valuable resource for governments. This exchange provided adequate environment for the development of models to describe, plan and assess DPs. Literature also evinced the importance to provide SMEs with simplified systems of design protection, offering examples implemented in some countries.

2.3.4 MEASURING DESIGN IMPACT

Several authors have attempted different approaches to estimate the added value design brings to companies. Moultrie, Clarkson & Probert (2007) devised an audit tool to measure the level of success of design in a company. Their tool is anchored in a maturity grid system (Table 2-18) where 24 activities, organised in 5 groups, are measured by 5 different levels of maturity. The levels of maturity acts in a similar way to the Danish Design Ladder (Kretzschmar, 2003), where different levels of maturity are attributed to companies according to the use they make of design. Checking the current score (of maturity level) achieved by each activity against the desired score allows determining the level of success in the use of design by the company studied.

Despite the inarguable value of the tool, the authors recognise its limitations, considering *“this and similar tools would be inappropriate for benchmarking performance between companies”* (Moultrie, Clarkson & Probert 2007, p.361). According to the authors, the success of the implementation of the proposed tool is *“intimately related to its delivery process”*. Their observation had shown that *“the way the process was introduced, the sequence of activities, the skills of the facilitator, and the way actions were captured all played a significant role in perceptions toward the tool itself.”*

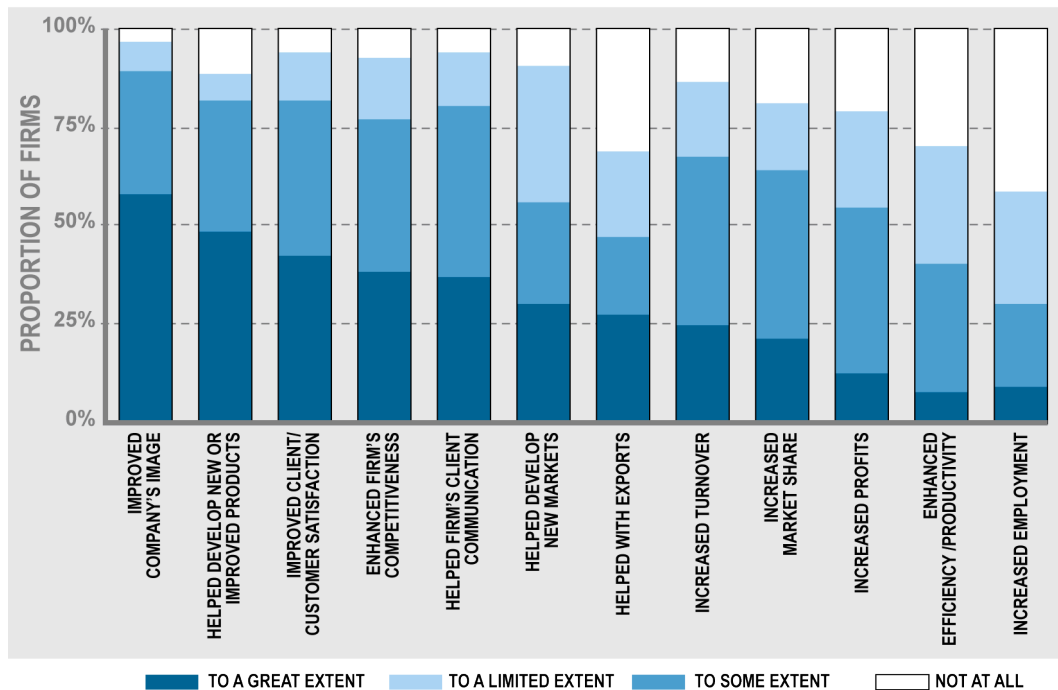
**Table 2-18: Process Audit Summary Grids
(Moultrie, Clarkson & Probert, 2007)**

ACTIVITY	LEVEL 1: NONE / AD-HOC	LEVEL 2: PARTIAL	LEVEL 3: FORMAL	LEVEL 4: CULTURALLY EMBEDDED	Current score (1-4)	Desired
DESIGN EXECUTION: REQUIREMENTS CAPTURE						
Market segmentation	No obvious segmentation	Price based segmentation	Performance based segmentation	Benefits based segmentation		
Competitive analysis	Little up to date competitive information	Compare numbers on brochures	Good understanding of competitors	Deep understanding of competitors		
Investigating user needs	Rely on anecdote and opinion	Opinions sometimes sought	Voice of Customer a standard process	Range of methods including empathic research		
Ongoing user involvement	Users rarely involved	Users sometimes involved at start	Users involved at start and end	Relevant stakeholders involved		
Product specification	A poorly defined wish list	Different market and technical specs	A single, testable specification	Unambiguous USPs		
DESIGN EXECUTION: CONCEPT DESIGN						
Concept generation	Go with the first idea	Engineering led concept generation	X-functional involvement	Radical ideas encouraged		
Aesthetic design	Looks don't matter, performance does	Technology sometimes styled	Aesthetics critical for differentiation	Design leaders in our industry		
Ergonomic design	Little consideration of usability	Engineers design user interface	Early specialist involvement	Total user experience design		
Product architecture design	Configuration evolves ad-hoc	Intuitively consider modularity	Formal architecture planning	Platform based product strategy		
Concept evaluation and selection	There is only one concept	Chosen by the Chairman's wife	Internal stakeholders involved	Internal and external stakeholders involved		
DESIGN EXECUTION: IMPLEMENTATION						
Design for manufacture and assembly	Over the wall	Ad-hoc manufacturing involvement	Regular design reviews with manufacturing	Formal use of DfM and DfA techniques		
Prototyping to reduce market risks	Trust me it will sell	Occasional user testing	Always test with users	Hi-Fi & Lo-Fi modelling a way of life		
Prototyping to reduce technical risks	Trust me it will work	Preproduction prototypes	Prototype all risky elements	Hi-Fi & Lo-Fi modelling a way of life		
Evaluation	Customers do the QA	Minimal evaluation—no time or plan	Engineering evaluation—to a plan	Independent pre- and post-launch evaluation		

DESIGN MANAGEMENT: PROJECT GENERATION						
Idea generation and management	No idea management—flavor of the month	Ideas generated and then forgotten	Formal idea management	IT tools used to manage and encourage ideas		
Creative culture and environment	No playing at all	Creativity kept under the desk	Some managed play time	Creativity expected and rewarded		
Product strategy	One project at a time	A strategy exists but E	Medium-term view	Shared long-term vision		
Project selection	Next project chooses itself	Whoever shouts the loudest	Thorough business case	Balanced project portfolio		
DESIGN MANAGEMENT: PROJECT MANAGEMENT						
Product development process	No process	A process exists but E	Process used and understood	Continuous process improvement		
Risk management	Press on regardless	Aware of most technical risks	Formal management of risks	Proactively manage risks		
Design reviews	No design reviews	Design review at crisis	Periodic formal reviews	Regular formal and informal reviews		
Management of design targets and metrics	No targets—point and shoot	Targets—but goalposts keep moving	Targets set and partially managed	Balanced scorecard of project measures		
Teamwork	Functional rivalry	Lightweight project management	Heavyweight project management	Autonomous project teams		
Specialist design involvement	Not used—silent design	Specialists come in late to start up the product	Early specialist input	Strategic specialist input		

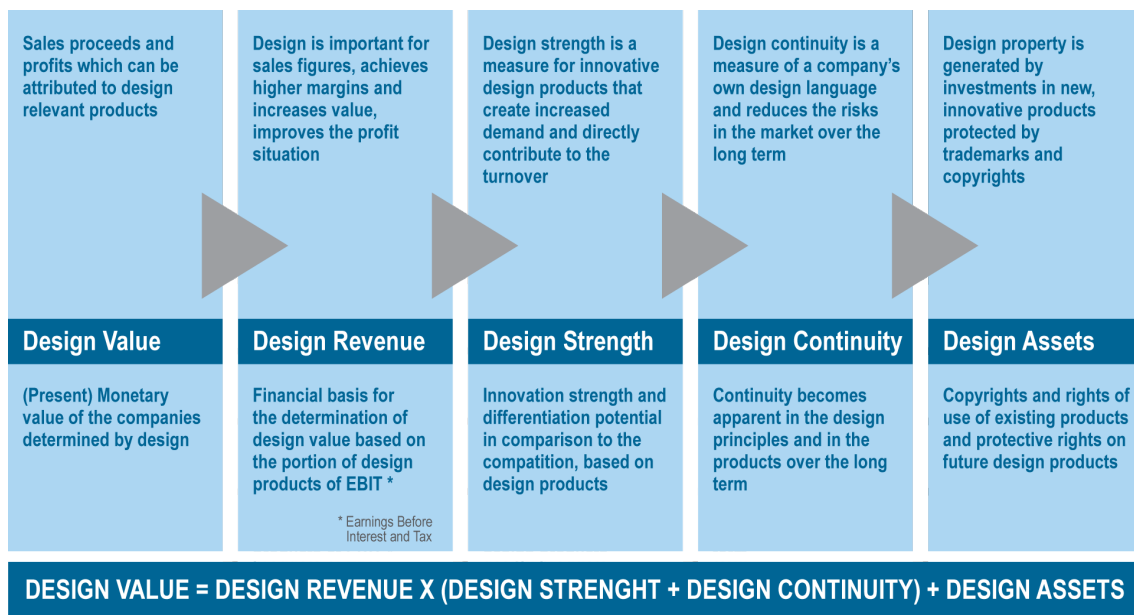
Describing the method developed by SEEdesign project to measure design impact, Tether (2007) indicates the need for long-term assessment. The method consists of four two-page long questionnaires, two of which are completed before the company receives support (one is filled by the company and the other by the design studio that will work for the company). A third questionnaire should be completed by the company “*some years after the end of the project for which they received support*” (the length of this period is not detailed). The last questionnaire was planned to get “*retrospective evidence on firms that have received design support in the past*”. Tether explains that the questionnaires have both objective questions as subjective opinions about the company’s expectations about design impact. The data gathered is essentially qualitative, as exemplified on Figure 2-25.

FIGURE 2-25: Impact of design investment on the firm (Tether, 2007, p.5)



Zec & Jacobs (2010), admit that the economic relevance of design cannot be disputed, “based on the fact that design increases sales and added value in a company”. Despite this, they state that “design value has so far been completely unknown in the business world; it has never before been described, defined or calculated.” Design is a valuable asset for companies, say the authors: “Upon closer examination - as with brand value - it can be seen as an intangible asset. Ultimately, it is possible to recognize the special economic power design wields for the success of a company.” Notwithstanding its importance, it is argued that companies usually keep record of the investments in design as expenses, not accounting the incoming results. Thus, the authors propose a method to calculate design value, developed at the Red Dot Institute for Advanced Design Studies, referred as the “Red Dot method” and expressed by the following formula described on Figure 2-26.

FIGURE 2-26: Design Value Method (Zec & Jacob, 2010, p.162)



The authors however advise that the value is meant to be present, and not prospective. Being present it is dependent on the time frame weighed out. *“The risk does not have to be discounted when it comes to calculation of design value as a predictive value is not part of the concept.”*

Citing the advantages derived, Zec & Jacobs (2010) state that design *“will not be viewed just as an intangible asset”*. The knowledge of the company’s design value could also serve as an indicator of future revenue strength, and be used for planning future investment. Along time, it would demonstrate how design could increase the overall value of the company itself. Still further advantages of using design value data are highlighted such as boosting confidence in communications with investors, and to draw conclusions about potential for innovation. Attention is also given to the reliability of design value, which is said to be *“nowhere near as volatile as the stock market.”*

Lockwood (2007) proposes a “framework for value” emphasising the need for metrics to assess the value and performance of design. Ten basic categories are used to assess design:

1. Purchase influence/emotion
2. Enable strategy/enter new markets
3. Build brand image and corporate reputation
4. Improve time to market and development processes
5. Design return on investment (ROI) / cost savings
6. Enable product and service innovation
7. Increase customer satisfaction/develop communities of customers
8. Design patents and trademarks/create intellectual property
9. Improve usability
10. Improve sustainability

Lockwood (2007) cites Borja de Mozota, when she argues that design can have “four powers”: *“as differentiator, as integrator, as transformer, and simply as good business”*.

Livesey & Moultrie (2009) developed an exploratory survey on the UK, gathering data about how much was spent on design by companies. Expenditure was divided in four categories of design, to allow comparing the results:

1. **Technical**: *design is used to solve technical issues, for example in mechanical engineering or software design*
2. **User**: *considers the user experience, user interaction and aesthetics of products and services*
3. **Promotional design**: *design of advertising and promotional activities for specific products and services*
4. **Identity design**: *design focused on company identity, including branding”*

In their research, they have introduced an approach to design (the category “technical design”) that allowed capture data in *“a wide variety of design-related activities that so far have not been well captured.”* This might be the major contribution of this work - the inclusion of a broad definition of design besides the traditional promotional, identity and user-oriented design.

2.3.4.1 IDENTIFYING DESIGN DEMAND IN BRAZIL

Parana Design Centre prepared in 2006 a working paper about design demand, on request of the Brazilian Design Programme (Miasaki & Pougy, 2006). The paper introduces the demand from seven sectors (fashion, furniture, home appliances, building, capital goods, medical equipments, and packaging) plus one *'transversal'* demand (ecodesign). It was the outcome of a study based on secondary research of 45 reports and analysis published by several organizations in Brazil, 31 of which were contacted in the process, and 12 interviews with experts. This methodology was adopted as a *'workaround'*, according to its authors, organizing data already available *"given the impossibility to carry out a more specific research on the demand of design in the various supply chains"*. Notwithstanding the methodology adopted, it offers a comprehensive panorama of the industry's demand for design in Brazil, establishing the base for further research and moreover, for planning of policies either general or sector-oriented.

Aiming to support the actions from the Brazilian Design Programme (PBD), the demands identified in the study were organized under three categories: *'promotion'*, *'support'* and *'education'*, considered to be the basic lines of action of design programmes.

The study (Miasaki & Pougy, 2006) identifies innovative potential as being dispersed, and attributes to the government the role of pooling these capabilities:

"Competitiveness is now less focused on companies and more on productive chains and arrangements. Even more generally, the competitiveness is in the economic environments that nations are able to create. This is because the ability to innovate and develop differentiated products and services involve multiple activities distributed by various companies."

Miasaki & Pougy research from 2006 found continuity in Harsi (2009), a study conducted by Fundacao Getulio Vargas for the Brazilian Product Design Association and the Ministry of Development, through the Brazilian Design Programme (PBD). The study maps the demand for design within ten different

sectors: vehicles / transportation; building; home appliances; electronic appliances; sports equipment; machinery; fashion and accessories; furniture; houseware; medical - dental - hospital equipment. The resulting report unfolds the impact of design and its value for the companies studied, representing the first mapping of design in industry developed with an Economics methodology.

2.3.4.2 KEY EMERGING ISSUES

One key aspect was observed in literature:

- Determining the demand and value of design in companies as a measurement of effectiveness of DPs.

The identification of the demand for design – or the transforming potential design could bring to a company – together with the measurement of the value design adds to companies (or their productivity and sales), are the most important factors of assessment of the effectiveness of DPs, according to literature.

3 Methodology

This chapter introduces how the research was structured and the research tools selected, followed by a discussion on the methods considered in its development, and how the data gathering strategies – a review of literature and a two-stage field study – were planned, structured, and subsequently analysed.

3.1 BACKGROUND

The field of studies of Design Policies was established with support of several years of personal practice within the subject in Brazil, mostly from the academic side, as the Director of the leading design school in the country (ESDI/UERJ), working together and advising the government of Rio de Janeiro. This experience was further enriched by organizing two international seminars in the field – the first for the Brazilian Development Bank, BNDES (International Seminar BNDES/ESDI – Design, Production, Competitiveness, July 2004), and the second during the first Brazilian Design Week (September 2008).

This background evinced how much the field could contribute to improve the country and regional economy and the lives of citizens, and how little it has been effectively done, frequently summing up to design promotion activities. Research in the field was even less usual – and not only in Brazil – with huge gaps to be covered and almost no investment at all. This panorama helped to obtain the support of the School of Design from the University of the State of Rio de Janeiro, ESDI/UERJ, and the Brazilian Government funding for the research, through the National Council for Scientific and Technological Development, CNPq.

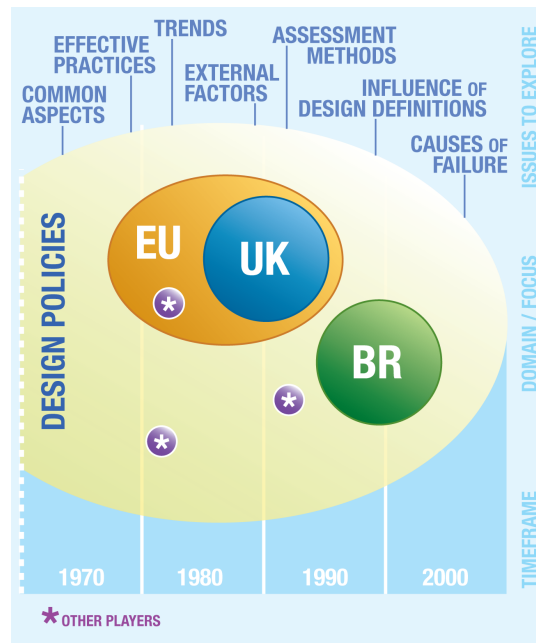
All the evidence gathered during these previous experiences helped to establish Design Policies as a new, relevant and necessary field of study. From there, having a preliminary research proposal approved by both the supporting institutions in Brazil (ESDI/UERJ and CNPq) and by Cranfield University's Centre for Competitive Creative Design, C4D, the study started in 2009.

3.2 PRELIMINARY RESEARCH SCOPE

The research resorted to visual tools in different stages – the use of graphic conceptual frameworks (Voss *et al.*, 2002) has enriched its development, helping to understand, interpret, translate, and formulate concepts.

A preliminary scope was established for the research, establishing its domain, focus, boundaries, timeframe, and the preliminary issues to be explored: common aspects; effective practices; trends; external factors; assessment methods; influences of design definitions; causes of failure; and issues to explore.

FIGURE 3-1: Preliminary research scope



The concept of ‘*EFFECTIVE PRACTICES*’ was valued over ‘*BEST PRACTICES*’ in this research, coherent with the search for policies that can be adopted based on their proved effectiveness rather than the singularity of one ‘best’ practice.

Emphasis was placed from the beginning on design policy programmes and actions from the European Union – with particular emphasis on the United Kingdom – and Brazil. The European Union has promoted, from the second half of the 2000s, a series of studies and reports, assuming a prominent role as a

major player in DPs in the global context. The option to have the United Kingdom as reference was an aprioristic decision based on its recognition, by design literature, as one of the leading countries in the world in the production of empirical knowledge in the field, mainly through the direct action of the UK Design Council. The Brazilian Government sponsors and is the closest potential beneficiary of the research outcomes, being an obvious and required choice of the second country. That later also responds for the closer focus on Brazilian issues devoted by the two phases of the field study – and consequently the scope of the research questions.

Historical boundaries were established within a timeframe of the last four decades (but not limited to), going back to the early 1970s, when the first formal attempts to discuss and promote design policies were developed and important documents published. Previous occurrences were also considered, such as the origins of the UK Design Council in the 1940s and other historical milestones.

3.3 RESEARCH AIMS, OBJECTIVES, AND QUESTIONS

The definition of the research scope has also allowed to establish the initial aims, objectives, and the preliminary research questions.

AIMS

To identify emerging trends and effective practices factors that could enhance the planning and assessment of design policies in emerging markets.

OBJECTIVES

- (A) To identify and analyse the key factors affecting the adoption and the use of Design Policies;
- (B) To develop a set of conceptual models and strategic frameworks that will assist in the planning and implementation of Design Policies, consisting of:
 - identification of issues emerging in the development of DPs;

- proposed guidelines to follow the planning and implementation of DPs, considering their adequacy and risks according to a given set of common situations;
- identification of most common failures on the implementation of given strategies, as well as external factors influencing its application.

QUESTIONS

- What are the common aspects, practices and trends of Design Policies?
- What are the external factors influencing the implementation of Design Policies?
- What are the generally recognized causes of failure of Design Policies?
- What methods are used to the assessment of Design Policies?
- How does the comprehension of design definitions affect Design Policies?

3.4 RESEARCH STRATEGY AND METHODS

The early stages of research brought forward the need to define an appropriate and effective methodology that would provide the philosophical foundations required. The challenge was to achieve the intended research proficiency described by Bortolotti (2008):

“Scientists empty their minds of any preconceived opinion and open their eyes: they collect data on the basis of observations and experiments. They abstract from the results of these observations and experiments, and formulate hypotheses of increasing generality. Then they test the predictions they can make on the basis of these hypotheses and conduct more observations and experiments.”

The ‘pragmatic applicability’ of the outcomes of research is appointed by Annels (1996) as a major concern of postmodern researchers, rather than a positivist notion of *truth*. A pragmatic approach could also be inferred from the expectations discussed by Bortolotti (2008): *“When scientists observe, they always have some expectations to guide and frame their observations, some idea of what they are going to see.”* The close relation with the practice in the field of study and the applicability of the research outcomes are identified with

qualitative methods, described by Croom (2009) as *“concerned with constructivism, interpretation and perception, rather than with identification of a rational, objective truth.”*

With the very nature of Design Policies (namely its diversity, contemporaneity, non-measurability and the lack of a significant body of academic background research), and the direct connection of the researcher as a practitioner in the field, the object of this research was fit to the domain of qualitative methods.

Certain pragmatism consequently had influenced the methodological choices for this research. It was also supported initially by a review of literature from well-known authors in the field, such as Yin (2009), Goulding (2002) and Robson (2011), among others further cited ahead. Nonetheless, the choice of a qualitative method should account the need for continuous self-criticism and external referees for the data interpretations, acknowledged as derivative dangers of the subjectivity in qualitative research – where the researcher is considered to be the research tool himself Goulding (2002).

The novelty of the field, allied to the earlier practice of the researcher, led to the formulation of hypotheses based on previous studies and observation, followed by quantitative and qualitative exploratory studies. The analysis of data gathered and further inductive reasoning originated theory, validated by existing knowledge and field observation.

3.4.1 CASE STUDIES METHOD

After the initial review of the literature on research methodology, the use of Case Study method was identified as the most appropriate for the research. Croom (2009) credits the current popularity of case-study-based research to *“the variety of methods and methodologies that can be employed to construct case analyses.”* Attending the Research Methodology Workshop 2010, at the Cambridge Institute for Manufacturing, also contributed to configure the lines of thought to develop the research. The most conclusive insight came from Robert Yin’s comparison between five methods of research expressed in the Table 3-1.

TABLE 3-1: Relevant Situation for Different Research Methods
 (from Yin, 2009, p.8 - originally credited to COSMOS Corporation)

METHOD	(1) Form of Research Question	(2) Requires Control of Behavioral Events?	(3) Focuses on Contemporary Events?
• Experiment	how, why?	yes	yes
• Survey	who, what, where, how many, how much?	no	yes
• Archival Analysis	who, what, where, how many, how much?	no	yes/no
• History	how, why?	no	no
• Case Study	how, why?	no	yes

The suitability of case studies method for the research was primarily defined by the three arguments proposed by Yin: (1) the characteristics of the basic research questions: ‘*how*’ and ‘*why*’ Design Policies develop; (2) the contemporaneity of the issue; (3) the research doesn’t require definitely any control of behavioural events. Furthermore, the figures below demonstrate the suitability of Case Studies for this research by the way the phenomena are appreciated from its contextual conditions. Figure 3-2 shows a graphic interpretation of the relations between the phenomenon and the context in four different research methods – experiment, survey, history, and case study – highlighting the chosen method.

The review also backed the adoption of an exploratory model of Case Studies. This particular type of Case Study (compared to ‘explanatory’ and ‘descriptive’ models on Figure 3-3) develops hypotheses/theories from the analysis of data and inductive reasoning based on the interpolation of the phenomenon and the context.

FIGURE 3-2: Comparative of four different research methods (based on Yin, 2009)

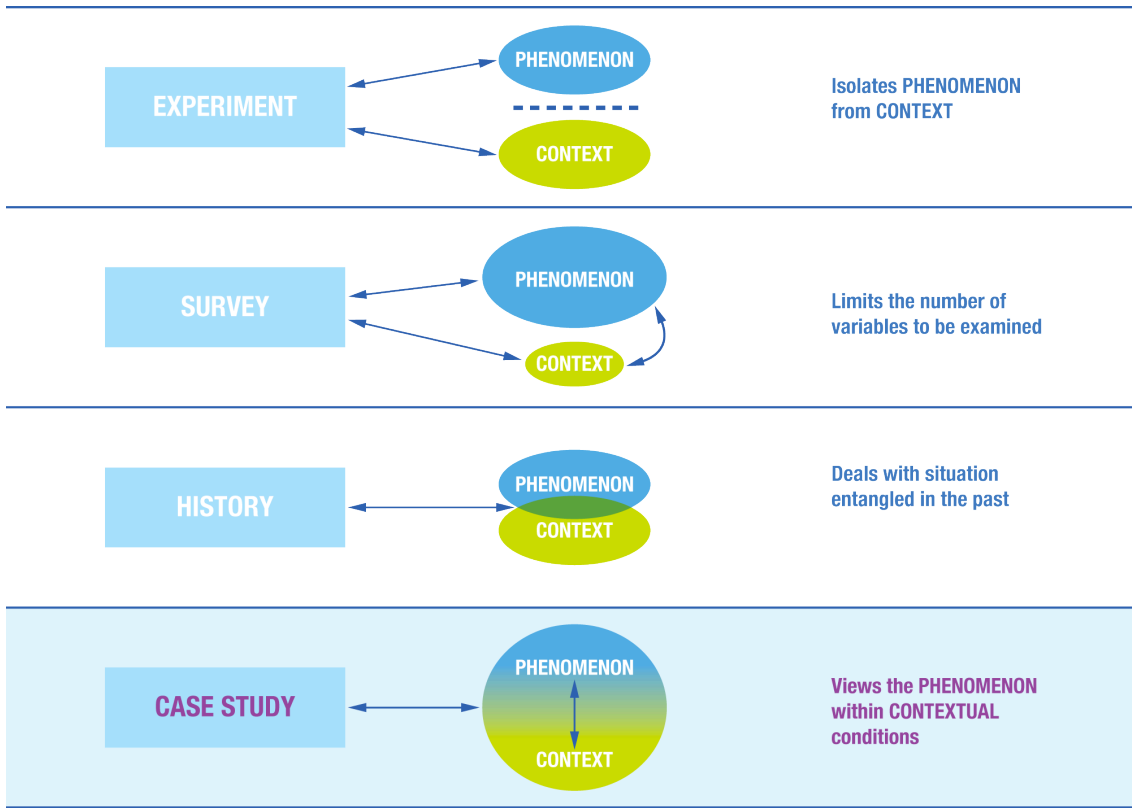
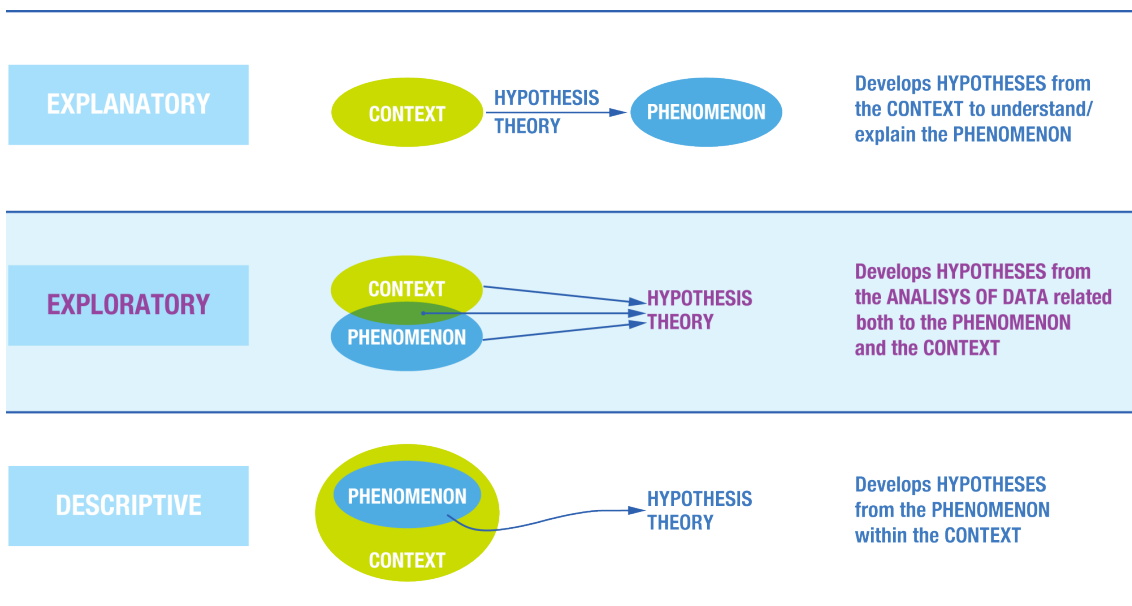


FIGURE 3-3: Types of Case Study (based on Yin, 2009)



3.4.2 THEORY-BUILDING IN CASE STUDIES

The approach of theory-building from the analysis of data as opposed to starting the study from theory, advocated in the exploratory case studies by Yin (2009 – as shown in Figure 3-3) also appears in Robson (2011) and Eisenhardt (1989). Yin (2009) cites interviews and document collection and analysis as common data collection methods within the case study research, and Robson (2011) describes the idea of collecting data until ‘saturation’ is achieved through a back and forth approach to the subject. In this process, new knowledge is built upon the observation of pre-existing knowledge.

Enhancing the role of the researcher in such cases, Robson (2011) cites the concept of *'subtle realism'* from Hammersley (1992). Applied originally to ethnographic research, it could also be considered while researching a phenomenon using exploratory case studies. According to Robson (2011), the representation of reality in the study *“will always be from a particular perspective which makes some features of the phenomenon relevant and others irrelevant (hence there can be multiple valid and non-contradictory representations).”*

3.4.3 DEFINING THE RESEARCH TOOLS

A combination of methods for exploratory case studies was then established as the most effective methodological approach for the research. The research tools adopted to process, decode, and analyse data collected are summarised in the following list:

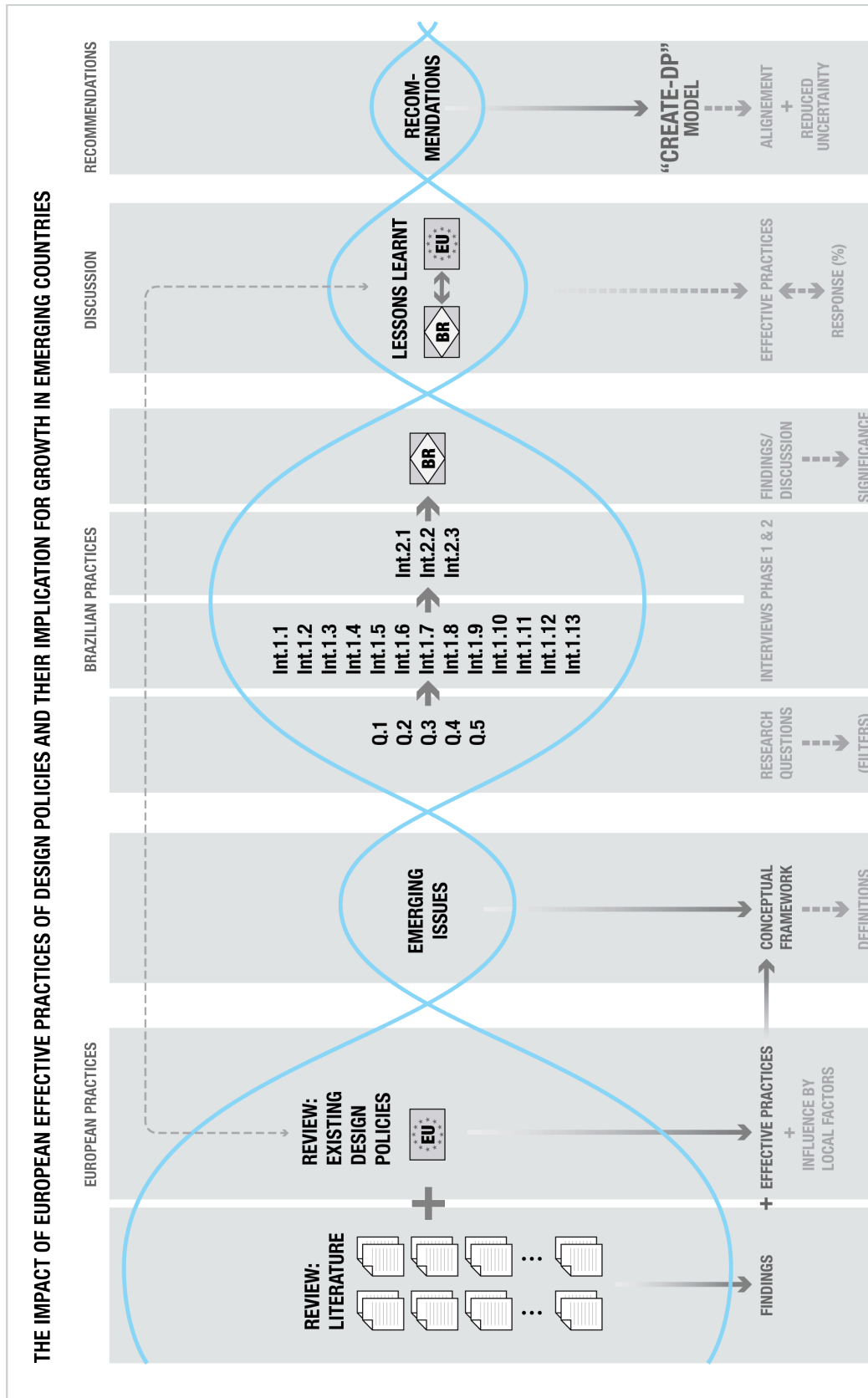
- Literature review;
- Visual thinking tools used to decode data collected from literature review;
- Conceptual frameworks used as a resource to decode information;
- Case study based on interviews and data obtained from documents collected either from literature review or directly from the programme studied;

- Theory developed from data collected from literature and interviews;
- Theory validation collating and confirming literature.

3.4.4 RESEARCH FRAMEWORK

Having established the preliminary scope, aims, objectives, the research questions, as well as a methodological approach, allowed structuring the research framework (Figure 3-4).

FIGURE 3-4: Research framework



3.5 VISUAL THINKING PROCEDURES: ANALYSING LITERATURE DATASETS

“Design is thinking made visual” – this phrase, attributed to the famous American graphic designer Saul Bass, indicates how design relies in visualization to represent ideas. On science grounds, Ainsworth *et al.* (2011), cite recent research to support the statement that *“visualization is integral to scientific thinking ... (and) ... scientists imagine new relations, test ideas, and elaborate knowledge through visual representations”* (Gilbert, 2005; Latour, 1999; Nersessian, 2008 – as cited in Ainsworth *et al.*, 2011). A method that uses continuous visualization techniques therefore would help researchers develop new knowledge from any dataset, contributing to the identification of emerging trends and the establishment of new relationships.

The analysis of datasets from Literature Review was partly developed with the support of “Visual Thinking”, an approach proposed by Professor Simon Bolton in his conferences (Bolton, 2011). It consists basically on the display of all data – in the particular case here, taking the format of small “reference cards” of each document reviewed – that were then organized, labelled, categorized and rearranged freely over a wall with a generous use of space and coloured stickers, enabling the identification of emerging patterns and trends. These identified patterns are on its turn also stitched to the wall in more coloured stickers, resulting in a sort of research map, intended to facilitate the theory-building process, described by Meredith (1993) as the *“ah-ha experience”*, or the moment when the researcher *“suddenly sees connections and patterns in what was heretofore just a series of inexplicable events or studies.”* Or, as explained by Bolton (2011), *“forming and relating ideas and discovering new emergent patterns”*, moving from an *“unfamiliarity level”* (with high levels of uncertainty) to a *“familiarity level”* (with low levels of uncertainty). This visually dynamic process moves back and forth from a detailed view to a broad panorama, resulting in a clearer identification of patterns and decoding of data, operating with a constant and comprehensive overview of the data being manipulated. The Visual Thinking approach brought a significant achievement and continuously provided valuable insights to the research process.

This method should not be confused with the idea of a “visual thinking” developed by the perceptual psychologist and art theorist Rudolf Arnheim (Arnheim, 1969). His book – accordingly named *Visual Thinking* – addresses visual perception and Gestalt theory, discussing the creation of mental images and how human imagination can visually express abstract concepts. He identifies a “*similarity of what the mind does in the arts and what it does elsewhere*”, and states that there is “*much evidence that truly productive thinking in whatever area of cognition takes place in the realm of imagery.*” His studies allowed him to recognize possible implications in the realm of art and science, and techniques of data processing – although he clearly states that this was left out of the boundaries of his research (Arnheim, 1969).

Mahdjoubi (2007) finds similarities between analytic methodologies and design methodologies in the use of models to convey an abstract thinking. The author emphasizes that a disconnection between theory and practice may result from a purely theoretic, abstract thinking. “*Because of the distinctive paradigms used by scientists and design practitioners, a natural disconnect has always existed between theory and practice (application). However, theory and practice can indeed be linked through the process of modelling.*” The analytic method uses models to verify and validate theories, while the design methodology uses models to verify and validate applications.

Visual modelling of abstract data – such as a dataset from a literature review – allowing the emergence of hidden connections and patterns, exemplify the contribution of a design/visual thinking to science. Literature corroborates the value of visualization methods in theory-generation support, validating the adoption of a visual thinking method used for the Literature Review and in the model / framework / theory generation of this research. Visual thinking procedures allowed, among other findings, to identify the emerging questions that grounded the first phase of the Field Study, and to establish a rationale for the second phase of the Field Study.

3.5.1 LITERATURE REVIEW - STRUCTURING, PLANNING AND IMPLEMENTING

True to the pragmatism described by Annels (1996) as characteristic of postmodern research, the use of a Visual Thinking approach was a significant achievement to this research – particularly to the Literature Review, where it enabled the analysis, group, identification of patterns and trends. References – selected from literature using the research scope as a filter – were spread over a wall (view photos on Fig. 3-5), manipulated, grouped and re-grouped in clusters. This was achieved through a visually dynamic process, moving back and forth from a detailed view to a broad panorama, resulting in a clearer identification of patterns and data decoding, operating with a continuous and comprehensive overview of the data sets. This represented indeed a major improvement and continuously provided valuable insights for the research process.

FIGURE 3-5: Decoding literature review with visual tools.



The Literature Review considered initially a dataset of approximately one thousand documents – collected along the period the researcher worked in the field – including papers, books, white papers and reports. Many of these documents were collected on digital format, and have been published by governments and international organizations. This large number of documents was then narrowed down, after the application of the filters established by the research framework. However, it was a dynamic process, being continuously updated with the latest information available or to address perceived gaps.

During the processing of the documents, besides the already mentioned visual thinking approach, some exercises of data visualization and analysis were designed – originally for a conference paper presented at the Institute for Manufacturing, Cambridge University, in 2011 (APPENDIX 5).

The outcomes, presented in the three graphs that follows, have also informed the two phases of the field study and the discussion of the research findings. With these, was possible to establish the key authors / publishers, the relevance and distribution of key issues along time, as well as to relate authors and subjects.

The first graph (Fig. 3-6) identifies the key authors in the research – either individuals or organisations, and is discussed in depth in the article (APPENDIX 5). It allows to demonstrate the significance of the production of the United Kingdom in the field – the UK Design Council and the SEE Project (based in Cardiff) alone published 110 documents, or the large majority of literature in the field in the last years. Finland was also prodigal of writers on design policy – Korvenmaa, Valtonen, Hytonen, Nieminen, Saarela.

FIGURE 3-6: Design Policy - Key authors

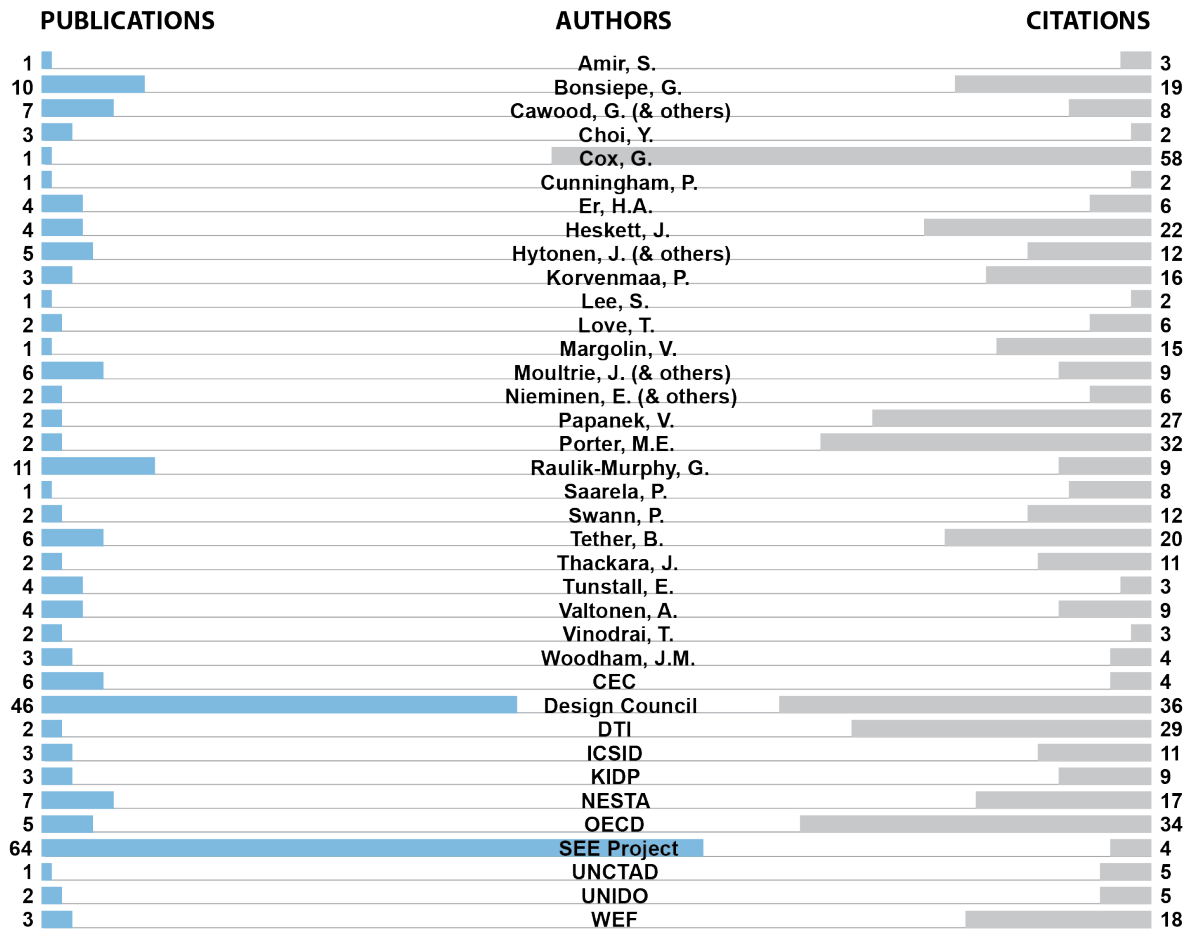
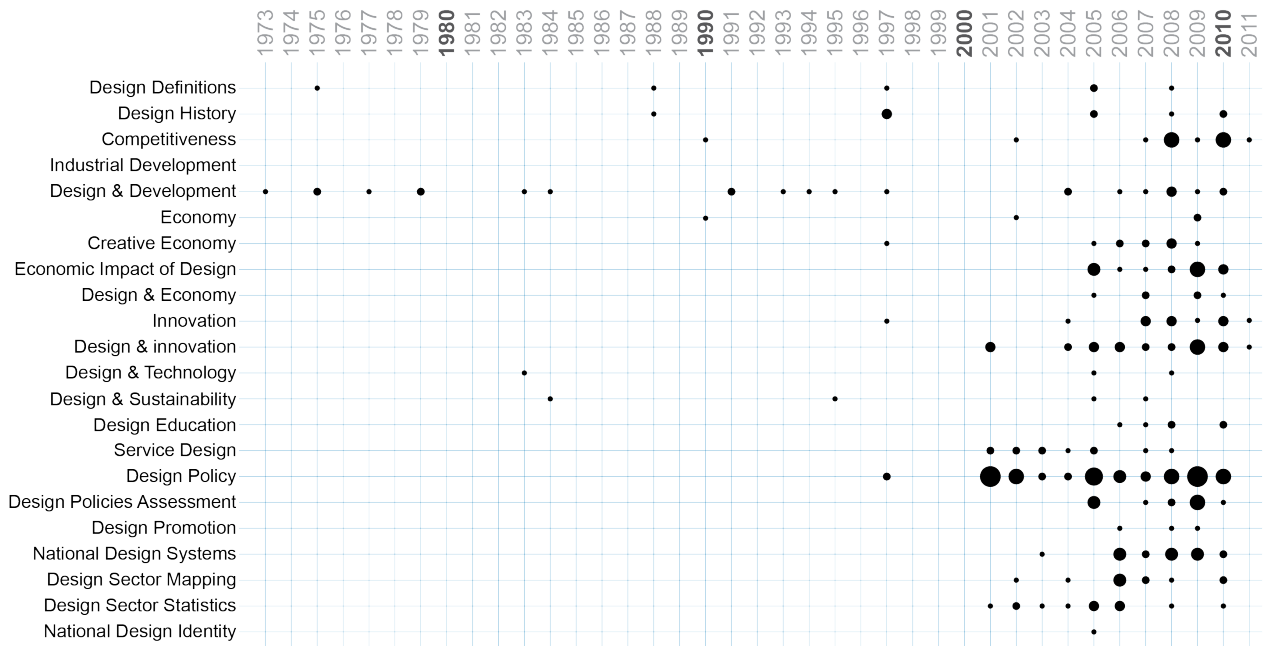


FIGURE 3-7: Design Policy - Themes over timeline (density map)



The second graph (Fig. 3-7), is a density map of publications with DP-related themes along the last four decades, showing the emergence of the theme in the last twelve years. This representation adds up to the rationale of this research, proving the recent emergence of the subject and its increasing relevance.

FIGURE 3-8: Design Policy - Themes and authors

	Amir, S.	Bonsiepe, G.	Cawood, G. (& others)	Choi, Y.	Cox, G.	Cunningham, P.	Er, H.A.	Heskett, J.	Hytonen, J. (& others)	Korvenmaa, P.	Lee, S.	Love, T.	Margolin, V.	Moutrie, J. (& others)	Nieminen, E. (& others)	Papanek, V.	Porter, M.E.	Raulik-Murphy, G.	Saarela, P.	Swann, P.	Tether, B.	Thackara, J.	Tunstall, E.	Valtonen, A.	Vinodrai, T.	Woodham, J.M.	CEC	Design Council	DTI	ICSID	KIDP	NESTA	OECD	UNCTAD	UNIDO	WEF
Design Definitions	1						2						1									1	1													
Design History	1						3															1	1		3											
Competitiveness		2														2										4				2		1				3
Industrial Development																																			2	
Design & Development	1	10	2				3						1		2															1				2	3	
Economy																2																				
Creative Economy																								1		1	1	1				4	1	1		
Economic Impact of Design		2					1	1					5			1	2	3										1								
Design & Economy							1	1															2				2						2			
Innovation																											5	1				4	3			
Design & innovation	1					1		1	1								4				3		2	2		2	2	1							3	
Design & Technology	1																										3									
Design & Sustainability															2							1					1									
Design Education																											7									
Service Design																					1						11									
Design Policy		1	3	1		1	2	2	1					2		6						4	1	1		16			1							
Design Policies Assessment						1		1					5			1				2							1									
Design Promotion																																				
National Design Systems	1						1		2				2		6	1	1									2			2							
Design Sector Mapping							2							2							1	1				4										
Design Sector Statistics							1																			10		1								
National Design Identity	1																																			

The third graph (Fig. 3-8) is complementary to the previous two, identifying authors and their production about DP-related themes. All three graphs are discussed in more depth in the paper (APPENDIX 5).

3.6 FIELD STUDY - FIRST PHASE

This first phase of the investigation was developed as a generalised study, aimed at understanding the subject through the privileged lens of perception from its key stakeholders. The study was carried out in Brazil between April and May 2011, consisting of in-depth one-to-one semi-structured interviews with leaderships of the most significant stakeholder organisations identified in Brazil. The selection of the programmes was guided initially by the researcher's own

experience in Brazil, but also informed by phone calls and email exchanges with current stakeholders. This choice was further validated by the interviewees, asked to appoint the most significant stakeholders in Brazil (programmes and organizations).

Trends and discussions detected in the Literature Review allowed to establish a list of emerging issues, that informed the development of the questionnaire:

- **Definitions:** impact of agreement / disagreement around key terms – e.g.: design; design policy vs. design promotion; national vs. regional design policies;
- **Drivers and impacting factors:** factors driving and impacting national and regional design policies;
- **National design systems:** comprehension of the concept and its components; identification of key stakeholders;
- **Design innovation and competitiveness:** design in relation to industrial, innovation, and trade policies;
- **Design and development:** design and economic growth; regional development; sustainability;
- **Design value:** assessment; data collection; relevance of IPR as metric;
- **Design support:** promotion; financing; education; supply chain; design support to SMEs.

The design of the questionnaire included issues related to the perception of design policies, its importance, drivers, characteristics, components, key stakeholders, and its relation to innovation policies, IPR infrastructures, impacts and assessment.

The data collection methods in the questionnaire could be described as:

QUANTITATIVE METHODS:

- Binary scales (Yes/No);
- Lickert-type scales (or rating scales);
- Maturity scales (choice between different phrases).

QUALITATIVE METHODS:

- Annotated/unstructured data (notes taken by the researcher during interview summarizing the answers, and validated alongside with interviewees)

Quantitative data was processed either using simple sum of the answers (specially in the case of binary scales), or analysing data spreadsheets through statistical software.

Qualitative (annotated) data was processed with the attribution of metadata (tags) – helping to homogenize it – and then clustering original data. Organized in clusters, data can be analysed quantitatively – following patterns emerging from the notes – with the possibility to add qualitative richness from the different approaches of the interviewees.

Thirteen interviews were carried out in Portuguese, and digitally recorded (audio recordings to provide any further clarification). Using the questionnaire shown in APPENDIX 1, all the answers were written by the interviewer, and then subjected to the interviewees to validate the accuracy of the notes taken. This process, while leaving the interviewees freer, also assured a more consistent data feedback from the form. The responses were later transcribed, translated to English and entered into a spreadsheet (APPENDIX 2) for further processing and discussion. This spreadsheet was anonymised for data protection reasons.

Data from the spreadsheets was processed using statistical analysis methods (initially with IBM SPSS and later with Microsoft Excel statistical tools), and the findings discussed in Chapter 4.

The choice of the data collection process – mixing semi-structured questions, rating scales, multiple-choice options, and open interview-style (unstructured) questions – produced as corollary a challenging data batch. The resulting combination of qualitative and quantitative measurement demanded an interpretative analysis, allowing at same time a broader panoramic view of the field of study in Brazil.

It is important to highlight that the study did not adopt a statistical methodology to collect and analyse data, sampling a population to have its outcomes later

widely inferred. Otherwise, data was gathered from a group of key stakeholders to represent (not to sample) a limited, however selected, universe of planners, managers, and thinkers of DP in Brazil. In this sense, the study uses elements and tools of statistical analysis do help decode collected data, but do not intend to be a statistical investigation.

3.7 FIELD STUDY - SECOND PHASE

The primary goal of the second phase of the field study was to identify factors that affect the planning, implementation and assessment of public policies of design to inform the main discussion of the thesis. It consisted of the analysis of an explanatory case study of a design support programme focused on SMEs in Brazil. Data was collected from documents and through in-depth one-to-one semi-structured interviews.

Marshall & Rossman (1999) advise qualitative researchers about the need to “*be skilful at personal interaction*” and how essential it is to obtain cooperation from the interviewee. This concern was brought to the selection and contact with interviewees. The interviews of the second phase of the field study were performed using Internet videoconferencing (Skype), considering that the researcher already knew the interviewees, allowing the necessary interaction.

The interviews were performed using the same process adopted in the first phase of the field study, with the researcher writing himself the answers from interviewees, recorded this time directly into a database software using a tablet. This approach, as observed before, allowed greater consistency between the responses from different interviewees, while at the same time speeding up data processing. The questionnaire adopted (see Appendix 3) uses a blend of quantitative and qualitative methods of data gathering: Binary scales (Yes/No); Lickert-type scales (or rating scales); simple Maturity scales (choice between different phrases); as well as objective questioning.

Discussing the precision of data collection on interviews, Voss (2009) advises researchers to look for “*convergence of views and information about events and processes.*” This became quite evident during the interviews, when was

observed that interviewees tend sometimes to overlook some issues, or neglect data already known by the researched from other sources – either documents collected or previous interviews. The mediation of the researcher was then necessary, to get properly substantiated answers from the interviewees.

In the same way as before, data from the spreadsheets was processed using statistical analysis methods (with Microsoft Excel statistical tools), and the findings discussed on Chapter 4.

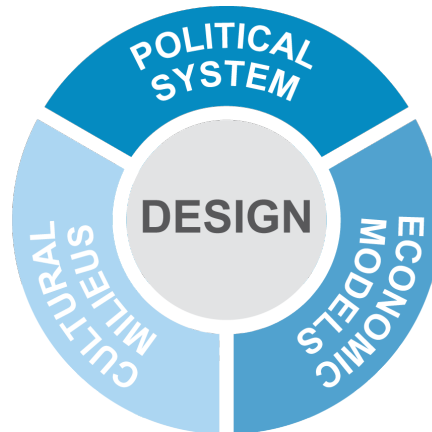
3.8 MODELS, FRAMEWORKS AND THEORY-BUILDING

Meredith (1993) states that a cycle of research usually goes through three diverse phases, which he identifies as Description (Model), Explanation (Framework), and Testing (Theory).

MODEL: Models are described in their utility to approximate the complex relations to be investigated, even if they do not provide an accurate depiction of the nature of the phenomenon (Bortolotti, 2008). Meredith (1993) categorizes models into three major types, according to their level of abstraction: iconic (a physical replica); analogue (a representation with some level of abstraction); and symbolic (purely abstract). The idea of a *conceptual model* is explained as “a set of concepts (...) used to represent or describe (but not explain) an event, object, or process” (Meredith, 1993). Bortolotti (2008) also accounts that models with relations of similarity to the phenomenon are more promising than those that offer an isomorphic relation (where the model reproduces exactly the phenomenon in smaller scale). These (similarity models) can accommodate some inaccuracy, allowing more space for the theory to develop and be tested.

The development of models to visualise and decode information was a frequent resource during the progress of this research. The model on Figure 3-9 is a simple visualization of the broader context of design, as described by Giard (2004).

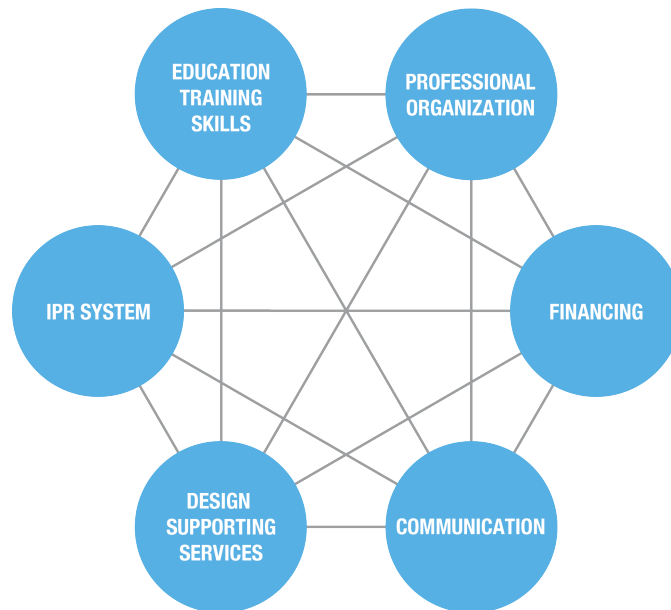
FIGURE 3-9: Broader context of design (based on Giard, 2004)



FRAMEWORK: A framework is understood to be a step ahead of a model, with the intention to be explanatory rather than fulfilling the descriptive function of a model. Meredith (1993) describes it as *“essentially a pre-theory and may well substitute in many ways for a theory.”* Voss *et al.* (2002) state that “a conceptual framework explains, either graphically or in narrative form, the main things that are to be studied - the key factors, constructs or variables - and the presumed relationships amongst them. Building a conceptual framework will force the researcher to think carefully and selectively about the constructs and variables to be included in the study.”

For example: given the difficulty to isolate the circumstances where National Design Systems operate, one can consider a system or network of infrastructural conditions that should (ideally) be presented to allow the flourishing of a National or Regional Design Policy, as explained in the following conceptual framework (Fig. 3-10):

FIGURE 3-10: Basic infrastructure for the operation of design policies



THEORY: A theory should offer “a coherent and systematic explanation of why some facts occur the way they do and a reasoned way of predicting the facts that will occur in the future” (Bortolotti, 2008).

Cited by Meredith (1993), Dubin (1969) describes five requirements for a theory:

“(1) Allows prediction or increased understanding.

(2) Is interesting (i.e. non-trivial).

(3) Includes attributes or variables and their interactions.

(4) Does not include “composite” variables (i.e. variables which include a number of other variables, elements, or attributes which are undefined).

(5) Includes boundary criteria.”

Inductive philosophical reflection, identifying connections and patterns “into a unique, insightful perspective” is regarded by Meredith (1993) as the process of theory building.

3.9 CONCLUSION

This chapter described how the methodological approach adopted in this research was developed and implemented, fundamentally based on the following items:

- (1) a review of literature about research methodology;
- (2) the support of discussions with the supervisor and the review boards;
- (3) the Core Skills modules attended at the university;
- (4) the outcomes from the Research Methodology Workshop attended in 2010 at the Institute for Manufacturing, Cambridge University;
- (5) the use of visual tools such as graphic conceptual frameworks and visual thinking approach.

4 FIELD STUDY

This chapter describes the field study performed in Brazil, consisting of the following sections:

- Introduction
- First phase – Generalised Study
 - Questionnaire
 - Emerging Issues
- Second Phase – Focused Study
 - SME Support Programme
 - Questionnaire
 - Emerging issues
- Findings
- Discussion

4.1 INTRODUCTION

Brazil had shown in the last decade a steady economic growth, coexisting with sharp social and urban contrasts, with reflexes in the industrial landscape. This panorama evinces an increasing demand of design policies that may help the country accomplish the prospect of competitive, sustainable, and socially responsible development. Forged against this background, the research demanded deeper understanding of current prospect of design policies in national and regional scales. To achieve this goal, a case study was conducted to determine current levels of uncertainty, agreement, and effectiveness of design policies in Brazil, as perceived by key stakeholders.

The need to address different questions led the investigation to be developed in two phases: a first phase exploring how key issues emerging from literature review impact locally in Brazil; the second phase designed to achieve a deeper understanding of the factors affecting planning, execution and assessment of a DP programme in Brazil.

The study was devised to measure, using quantitative and qualitative methods, the importance of drivers and impacting factors, the effectiveness of strategies, the comprehension of major issues and concepts, as in the perception of key stakeholders of DPs in Brazil.

4.2 FIRST PHASE – GENERALISED STUDY

A generalised study focused on how emerging issues from literature review are understood and rated in Brazil. This phase of the study measured the importance attributed by key stakeholders to factors affecting DPs, and their understanding of universally adopted DP-related concepts.

The development of the first phase of the field study was informed by a series of issues observed from early stages of the research. The review of literature evinced that an adequate comprehension of these issues has paramount importance for the effective development, performance and assessment of DPs. The design of the first phase of the study was focused on a series of semi-structured interviews within key stakeholder organisations, and was steered by the following topics:

- **DEFINITIONS**
Impact of agreement/disagreement around key terms - e.g.: design; design policy vs. design promotion; national vs. regional design policies;
- **DRIVERS and IMPACTING FACTORS**
Factors driving and impacting national and regional design policies;
- **NATIONAL DESIGN SYSTEMS**
Comprehension of the concept and its components; key stakeholders;
- **DESIGN INNOVATION AND COMPETITIVENESS**
Design in industrial, innovation and trade policies; design support to SME;
- **DESIGN AND DEVELOPMENT**
Design and economic growth; regional development; sustainability;

- DESIGN VALUE

Assessment; data collection; relevance of IPR as metric;

- DESIGN SUPPORT

Promotion; financing; education; supply chain.

The first phase of the study was performed between the months of April and May of 2011, with visits to institutions in three different cities: Curitiba, capital city of the Southern State of Parana; Brasilia, the country capital city located in the Central region of Brazil; and Rio de Janeiro, capital of the state with the same name, in the Southeast part of Brazil. One last interview was later conducted by videoconference from Recife, capital of the State of Pernambuco, in the Northeast region of the country.

Eight different organisations were chosen either from their national relevance or regional and local performance. This choice was based on the researcher previous experience in the field in Brazil, as well as conversations with two key players: Freddy Van Camp, designer, professor from ESDI, counsellor at the National Council of Culture, and member of the Design Advisory Council from the State of Rio de Janeiro; and Adelia Borges, design journalist, former director of the Brazilian House Museum, and curator of many national and international Brazilian design exhibitions, including the 2010 Brazilian Design Biennial. Availability of senior staff and predisposition to collaborate with the research were other aspects considered in the choice of institutions, ensuring the success of the interviews.

The chosen organisations were:

- BRAZILIAN DESIGN PROGRAMME, PBD (Ministry of Development, MDIC, Brasilia) – the highest national organisation related to DP in Brazil;
- SECRETARIAT OF CREATIVE ECONOMY, SEC (Ministry of Culture, MINC, Brasilia) – recently included design among creative economy activities in their National Council of Culture;

- PARANA DESIGN CENTRE (Curitiba, State of Parana) – since early 2000's concentrated research and other support activities commissioned by PBD;
- PROGRAMME RIO IS DESIGN (Secretary of Development, State of Rio de Janeiro) – the only regional programme created as a State policy, it hosts the State of Rio de Janeiro Design Advisory Council;
- RIO DESIGN CENTRE (Rio de Janeiro) – originate from the same national programme that created Parana Design Centre (Via Design, SEBRAE), was one of the few active centres in the second half of the 2000's;
- CARIOCA DESIGN CENTRE (Rio de Janeiro, City Hall) – established in 2009 in the scope of the City Hall Strategic Plan, keeping a continuous agenda of successful activities;
- SECRETARIAT OF CULTURAL HERITAGE, URBAN INTERVENTION, ARCHITECTURE AND DESIGN (Rio de Janeiro, City Hall) – established design as a strategy of revitalizing regions of the city, creating the Carioca Design Centre;
- RECIFE DESIGN CENTRE (Recife, State of Pernambuco) – another outcome of Via Design initiative, appointed by some interviewees as a new breath of regional DP in a Northeast state, parallel to local initiatives such as a successful local cluster of software development.

These organisations had their importance later validated in the study, totalling 39.18% of the responses to the first question posed to the interviewees, with the level agreement around the names of the chosen organisations ranging from 53.85% to 23,08%.

From the eight chosen organisations thirteen key players were interviewed – a select group of planners, managers, and thinkers of DPs in Brazil, allowing the research to have a broad perspective of the current panorama.

4.2.1 QUESTIONNAIRE

The questions submitted to the thirteen interviewees are presented and analysed below, either using graphs and diagrams obtained from processing

the data collected, or referring to the responses available in APPENDIX 1. The different charts used for data analysis represent different approaches:

BAR CHARTS: Aiming to display only the highest level of agreement reached by the respondents, bar charts were built with a cut-off point of 20%, meaning that at least one fifth of respondents agreed with results displayed. Results below the cut-off percentile were disregarded, as representing only a small fraction of interviewees (or sometimes even an individual opinion). A few questions had a lower cut-off point of 15%, receiving individual explanations whenever occurring.

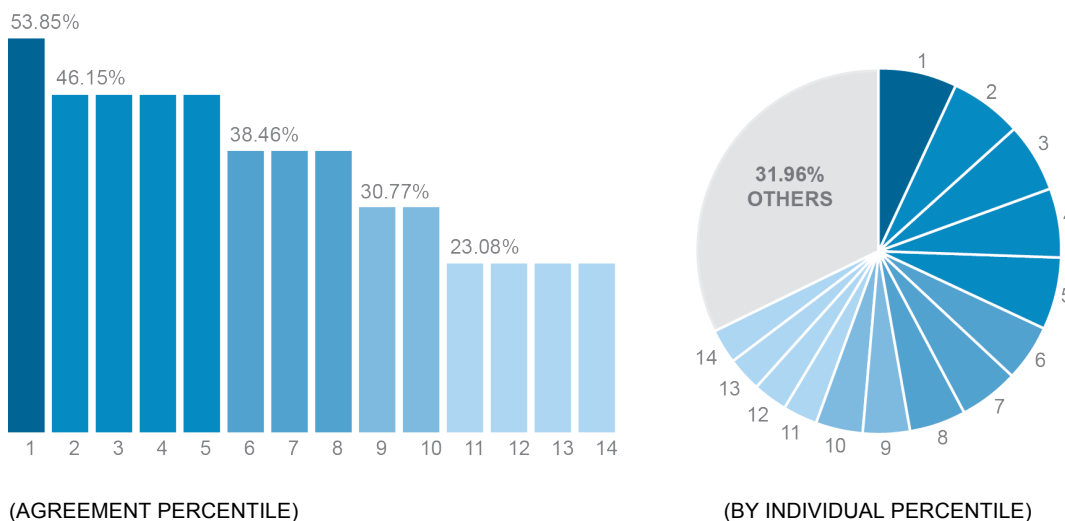
PIE CHARTS: Representing the percentile from the total indications received by each individual item – including therein those below the established cut-off point, represented in the charts as ‘others’.

The outcome of the questionnaire offers a general panorama of current DPs in Brazil, as seen through the eyes of a selected group of stakeholders, discussed in the next section following.

4.2.1.1 (Q.1) What are currently the key stakeholder organisations in public design policies in Brazil?

The opening question allows a measurement of the environment of DPs in Brazil through the identification of its most important active organisations – as perceived by interviewees. It also validates the choices for the study, featured among the highest recognized organisations.

FIGURE 4-1: Identifying key stakeholder organisations in Brazil



LIST OF ORGANISATIONS REPRESENTED IN BOTH GRAPHS ABOVE, FOLLOWED BY INDIVIDUAL PERCENTILE OF TOTAL INDICATIONS

1. Design Centre Parana	7.22%
2. MDIC/PBD Min. Dev. /BR Design Programme	6.19%
3. MDIC/APEX Min. Dev. /Foreign Trade Agency	6.19%
4. MINC Ministry of Culture	6.19%
5. SEBRAE Support to SMEs	6.19%
6. MDIC Ministry of Development	5.15%
7. Design Centre Rio de Janeiro	5.15%
8. Government State of Rio de Janeiro	5.15%
9. ESDI/UERJ School of Design	4.12%
10. ABEDESIGN Design Businesses Assoc.	4.12%
11. SENAI Social Services for Industries	3.09%
12. FIRJAN Federation of Industries State of RJ	3.09%
13. Government City of Rio de Janeiro	3.09%
14. ADG Graphic Design Association	3.09%

Respondents identified 37 different organisations as 'key stakeholders'. Other 13 indications were eliminated for not fitting the class 'organisations' - were either a person, design studios, or general classes (such as 'professional associations', 'design schools', or 'regional design centres'). Above the cut-off point of 20%, 14 organisations represent the highest level of agreement reached.

The highest level of agreement around a single organisation (53.85% of respondents), was achieved by the Design Centre Parana, followed by the Brazilian Design Programme, PBD. The Ministry of Development, Industry and Foreign Trade, MDIC, was cited in three different ways: as itself (6); through PBD, a programme from the Ministry; though APEX, the agency of foreign

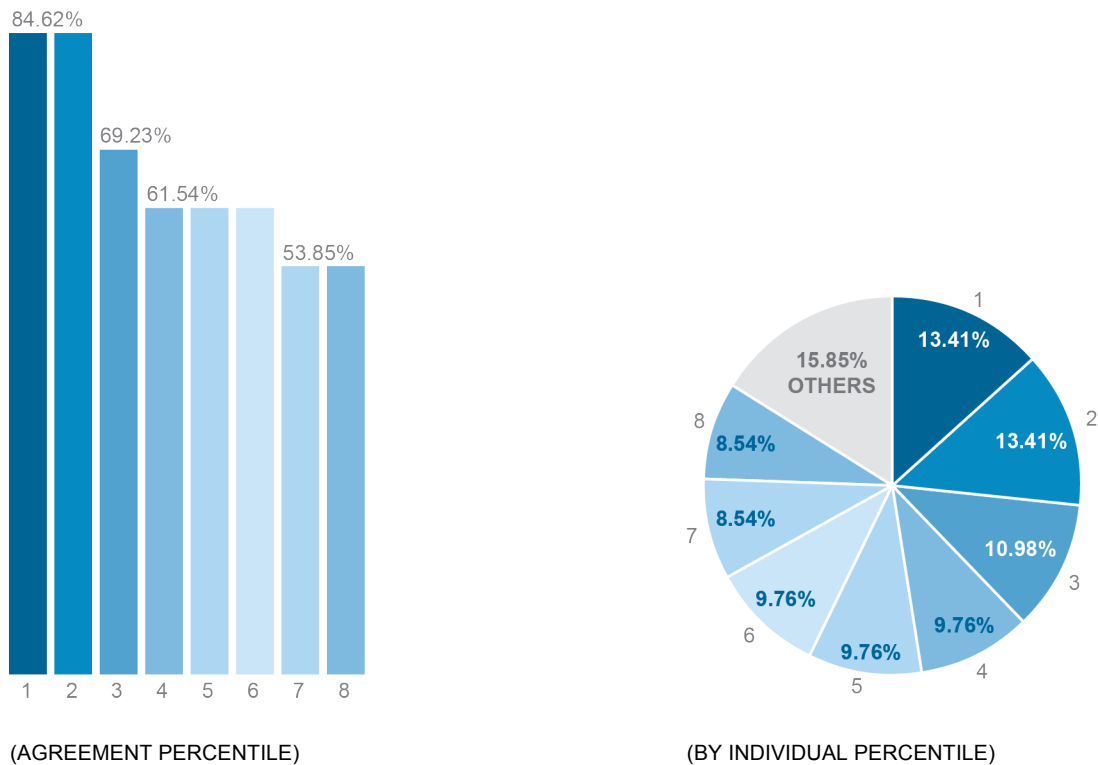
trade, also belonging to the Ministry. The combined results of these three allows to identify MDIC as the most qualified government stakeholder on DPs.

Compared to the perception of what should be the components of a national design system (see Q.18), there are some discrepancies to be addressed, as a stronger representativeness of some sectors appointed there. The educational system, e.g., appears represented by one school only, ESDI – from about five hundred design courses spreading around the country (the raw data also contained another mention to a design school, the Catholic University of Rio de Janeiro, PUC-RJ, but it was disregarded as it represented only one individual opinion). Even so, most probably the indication of ESDI by four respondents was biased by the fact that the interviewer has been at the director's office of that school for eight years.

4.2.1.2 (Q.2) What fields of design should be typically considered within Public Design Policies?

Interviewees were asked to identify among most common design specialties, which must be contemplated or stimulated by DPs. The aim was to establish which areas are considered priorities to Brazilian stakeholders.

FIGURE 4-2: Most important design fields for DPs



1. Product design
2. Fashion design
3. Web & Digital design
4. Graphic design
5. Crafts
6. Architectural design
7. Packaging design
8. Interior design

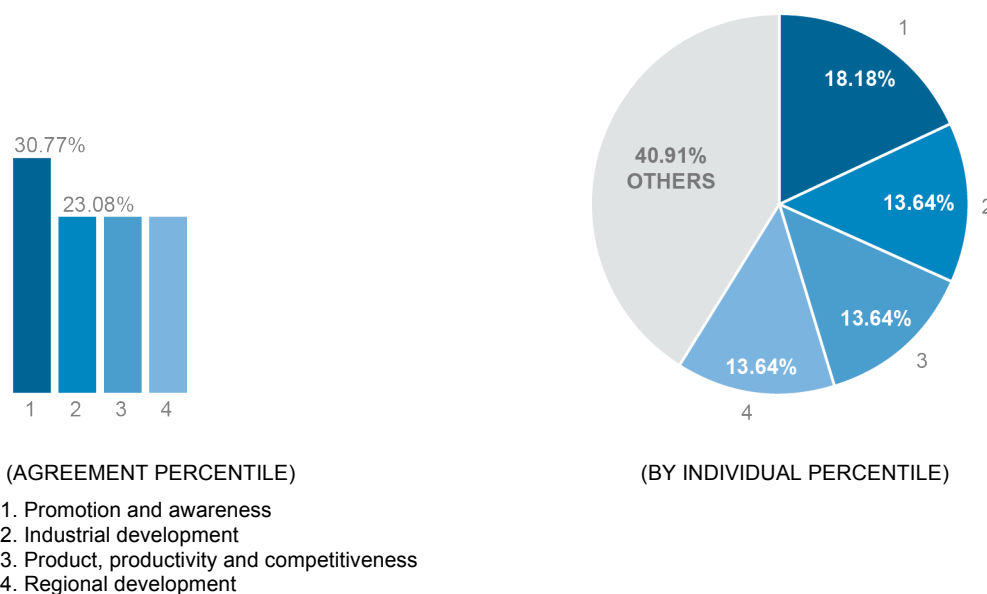
A considerable agreement can be observed especially around product and fashion design (84.62% responses each), areas where Brazilian design has been internationally recognized and awarded, and considered to be logical investments to enhance industry competitiveness, generate profits, and boost the trade balance. Contradicting what could be found in literature, some design specialties are not considered to deserve special attention from DPs – such as the use of design for strategic purposes, or design of services, and the use of design in the public sector. These areas were registered below the cut-off point, represented by the ‘others’ in the pie chart of Fig. 4-2. By contrast, these are precisely areas that are receiving attention in the European Union, due to its potential to induce innovation and social improvements (Thomson & Koskinen, 2012). This denotes

a perception of DPs focused exclusively on industry, forgetting services and the public sector, where design could have an important contribution.

4.2.1.3 (Q.3a) What are the key focuses for public design policies today?

Question 3 was split in two parts, the first aimed at establishing the perception of current focuses of DPs in Brazil, followed by Q.3b, asking about the aspired focuses. This sequence was intended to measure the difference between current reality and the aspiration of DPs in Brazil.

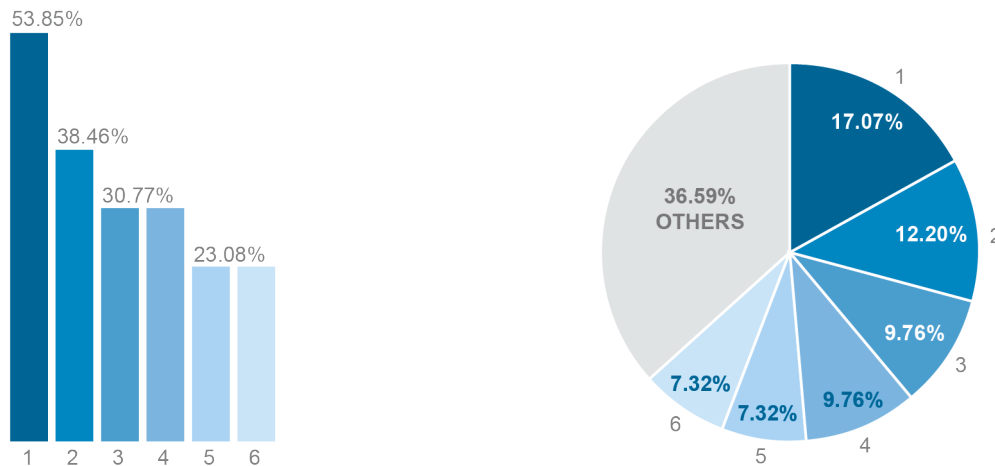
FIGURE 4-3: Key focuses of DPs - current



Promotion and awareness were identified currently as the most important focus of DPs, reaching an agreement of 30.77% of respondents. This is followed by industrial development, productivity and competitiveness, and regional development, with 23.08% of agreement. Two respondents pointed to the inexistence of formal policies, with consequent loss or impairment of focus. Existing DP actions are perceived as fragmented, determining a low level of agreement in the identification of current focuses – the highest agreement reached 30.77%, and the three other themes were barely above the cut-off point, with an agreement of 23.08%. This indicates an absence of focus corresponding to the absence of formal DP.

4.2.1.4 (Q.3b) What should be the key focuses for public design policies today?

FIGURE 4-4: Key focuses of DPs - ideal



(AGREEMENT PERCENTILE)

(BY INDIVIDUAL PERCENTILE)

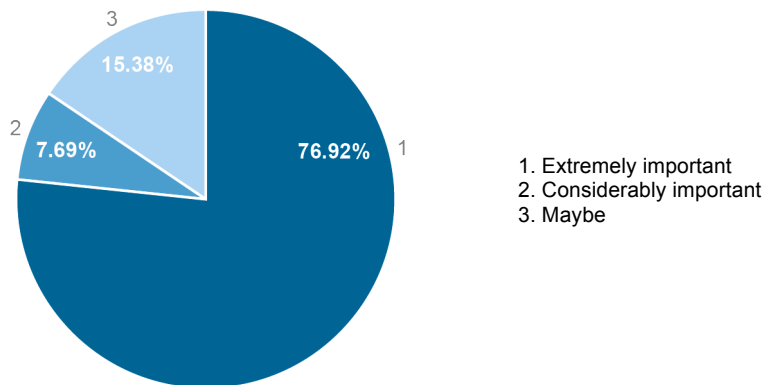
1. Promotion and awareness
2. Life quality, urban problems and development
3. Product, quality, productivity and competitiveness
4. Innovation
5. Articulation and DP infrastructure
6. Design education

When questioned about what areas should be prioritized in design policy, the concern about awareness on the role design should play emerges in first place (with 53.85% responses). Considering the current situation expressed in Q.3a, the continuity in promoting design awareness appears clearly as an aspiration for DPs in Brazil. Other aspirations recognise the role design could play helping to solve the country's issues related to life quality, urban problems and regional development. Traditional industry questions are listed, together with innovation. The last two issues related to the need of an effective articulating body (further referred by interviewees in following questions) and to strengthen design education.

An unforeseen result came from the fact that direct allusion to SMEs as a potential key focus of DPs was mentioned by only one respondent (and therefore not showing up in the charts of Fig. 4-4). As will be further demonstrated in the study, this suggests a misalignment of the aspiration of DPs demonstrated by key stakeholders in Brazil and the international trends in the area.

4.2.1.5 (Q.4) How important are design policies for Brazil today? Why?

FIGURE 4-5: Importance of DPs to Brazil



There is a general agreement about the extreme importance of DP to Brazil today (76.92%) – even though a few interviewees responded ‘maybe’ – anchored in recognition of the country difficulties and.

When questioned about why DPs are important, two issues emerged among the respondents remarks (seen on APPENDIX 2):

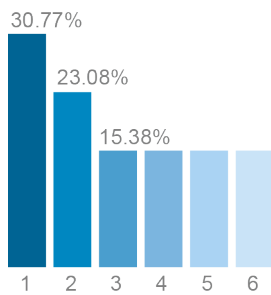
1. DP-related actions currently result from self-adjustment rather than reacting to a planned policy or governmental strategy;
2. DPs are considered paramount in discussing a change of paradigm to a new industrialisation, where is at stake a new dependence linked to cultural and knowledge aspects rather than industrial production.

The first relates to the absence of formal DPs in Brazil, while the second relates to the ‘knowledge economy’ – “*the most fundamental resource in the modern economy is knowledge and, accordingly, the most important process is learning*” (Lundvall, 2007, p. 108).

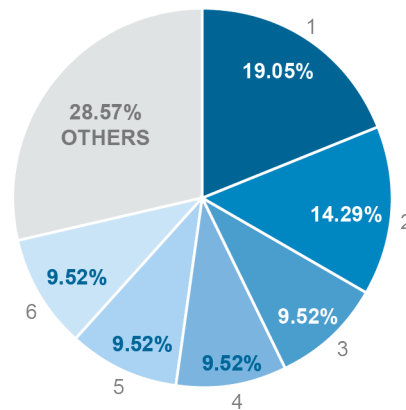
4.2.1.6 (Q.5a) What do you consider to be the key drivers for NATIONAL design policies in Brazil?

The two questions (Q.5a and Q.5b) measure the importance attributed to factors driving DPs nationally and regionally. The cut-off point was lowered to 15% to demonstrate the extent of responses.

FIGURE 4-6: Key drivers national DPs in Brazil



(AGREEMENT PERCENTILE)

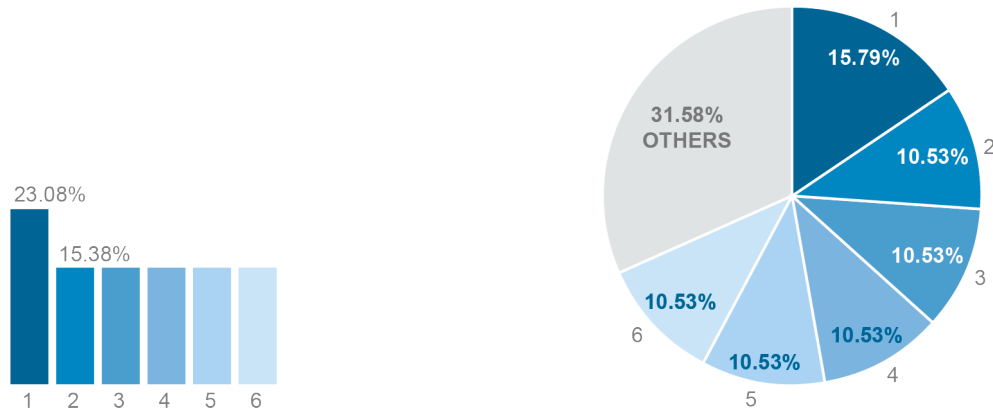


(BY INDIVIDUAL PERCENTILE)

1. Product, quality, productivity and competitiveness
2. Innovation
3. Industrial development
4. Economic development
5. Exports
6. Design sector

4.2.1.7 (Q.5b) What do you consider to be the key drivers for REGIONAL design policies in Brazil?

FIGURE 4-7: Key drivers regional DPs in Brazil



(AGREEMENT PERCENTILE)

(BY INDIVIDUAL PERCENTILE)

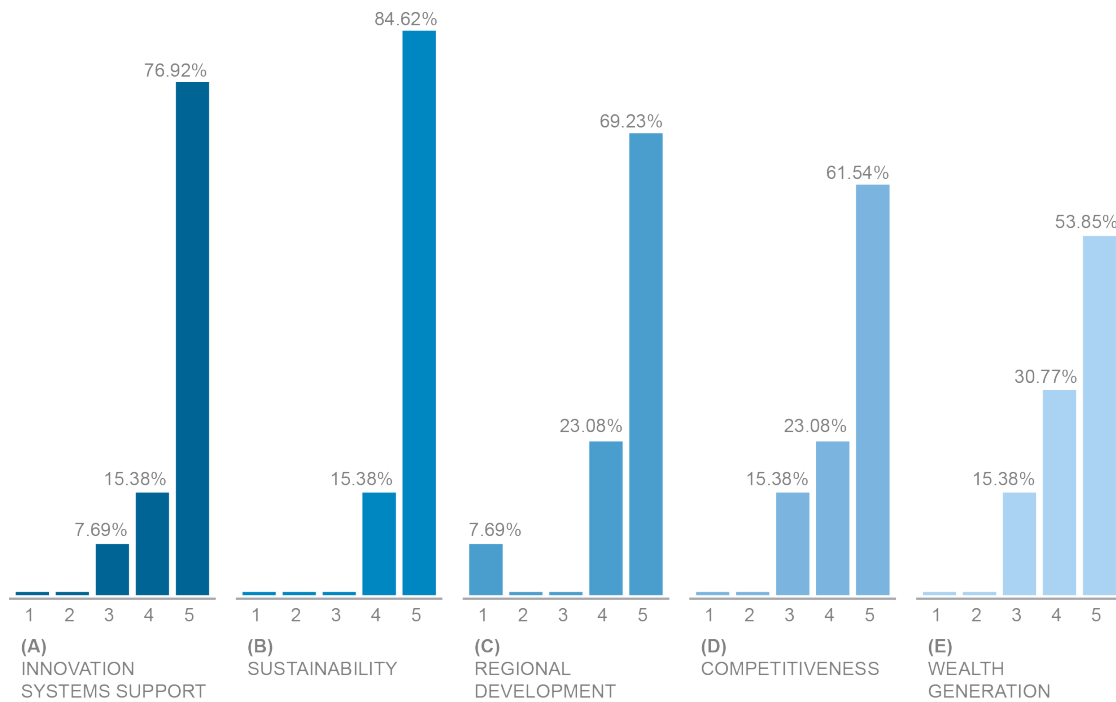
1. Product, quality, productivity and competitiveness
2. Promotion and awareness
3. Industrial development
4. Economic development
5. Government goals
6. Urban development

The need to lower the cut-off point to contemplate the broad range of responses clearly demonstrates that there is no clear consent or agreement among stakeholders as to what should drive DPs in Brazil – either nationally or regionally. Responses show not only dissent and disagreement, but also a conservative trend towards DPs oriented almost exclusively to industrial competitiveness. The role of innovation policies as a driver for DPs, e.g., is hardly recognised – only 23.08% of responses nationally, and was not even considered relevant regionally. Regionally, ‘government goals’ was among the drivers valued, demonstrating a dependence of policies upon politics – a fragile relationship that changes with electoral polls. ‘Promotion and awareness’ that have previously (Q.3b) appeared as number one focus aspired for DPs, with considerable agreement among respondents (53.85%), comes back as a driver for regional DPs – demonstrating a misunderstanding between the forces driving and the focus of attention of DPs.

4.2.1.8 (Q.6) What is the importance of the following subjects in the planning of public design policies? (Sustainability; wealth generation; innovation systems support; regional development; competitiveness)

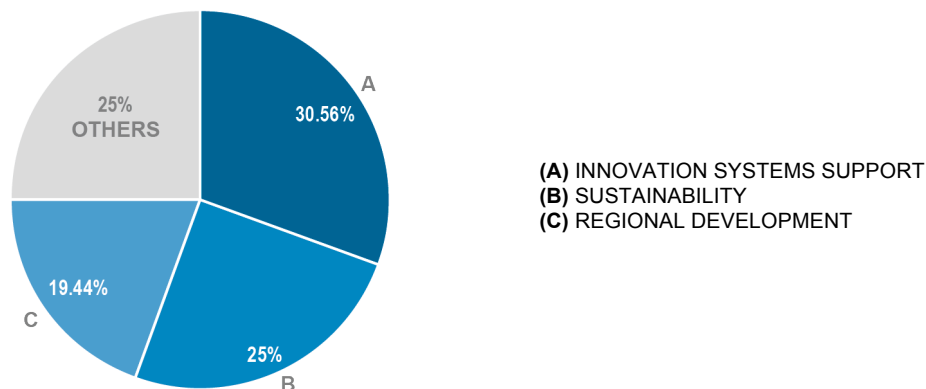
Looking through another approach to DPs planning, this question measures the importance attributed to factors currently affecting DPs (emerging from literature). Five different factors were submitted to respondents to be rated from less relevant to very relevant. The respondents were also asked to choose the top three factors.

FIGURE 4-8: Most important subjects for DP planning



FROM: (1) LESS RELEVANT; (2) ... ; (3) INDIFFERENT; (4) ... ; (5) VERY RELEVANT

FIGURE 4-9: Top three subjects for DP planning

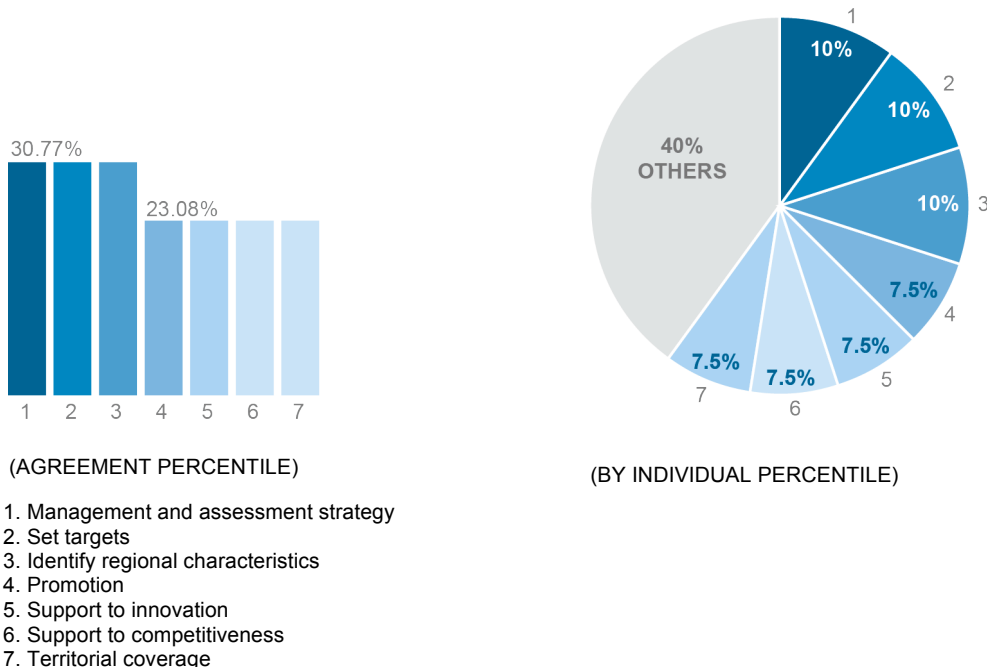


Although appearing for the first time as an important factor, sustainability reached a very high level of agreement (84.62%) and was the second choice of the top three factors (25%). The support to innovation system was also highly rated (76.92% agreement; first choice in top three factors: 30.56%), and again was not a major concern either as focus or driver of DPs. Regional development, the third ‘top three factor’ was not far from this change in performance as well. This evinces that, notwithstanding the concern expressed for these factors, they do not appear as main concerns when determining the key focuses or drivers of DPs in Brazil.

4.2.1.9 (Q.7a) How would you define the key characteristics of National Design Policies?

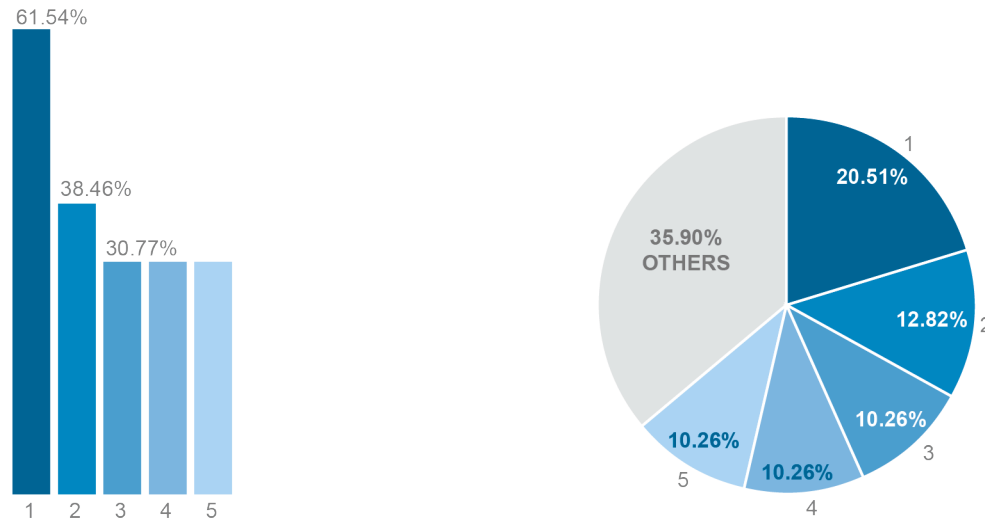
Identifying the aspirations of national and regional DPs, the two questions (Q.7a and Q.7b) measure the importance given to the attributions of these policies.

FIGURE 4-10: Key characteristics national DPs in Brazil



4.2.1.10(Q.7b) How would you define the key characteristics of Regional Design Policies?

FIGURE 4-11: Key characteristics regional DPs in Brazil



- (AGREEMENT PERCENTILE)
1. Identify regional characteristics
 2. Articulation
 3. Promotion
 4. Support to regional development
 5. Link to national DP

(BY INDIVIDUAL PERCENTILE)

Articulation, setting targets and strategies, and a sense of the particularities of different regions and industry needs, ensuring a broad coverage of the country – these are the expected characteristics of a national design policy. These attributions denote a clear aspiration for a national DP leading, linking, and managing properly the use of design to promote growth, while acknowledging the country’s peculiarities in its regional differences and territorial extension.

Regionally, the policy is expected to answer local questions, promote awareness and act to articulate the system, especially linking to national programmes and policies. The strong agreement reached by the attribute of identification of regional characteristics (61.54%) mirrors the national diversity, with regions coexisting with different needs and priorities – as shown in Q.20.

4.2.1.11 (Q.8) How would you differentiate between Design Policy and Design Promotion?

Literature review revealed the importance of establishing definitions and differences between terms frequently confused – as in the case of ‘design policy’ vs. ‘design promotion’, where the first stands for a *principle of action*, while the later an *action* (Swann, 2010; Raulik-Murphy, 2010). The occasional prevalence of ‘design promotion’ over ‘design policy’ is rooted in historical DP practices, according to Maguire & Woodham (1997, p.133), whereas design promotion actions are more frequent and easier to implement.

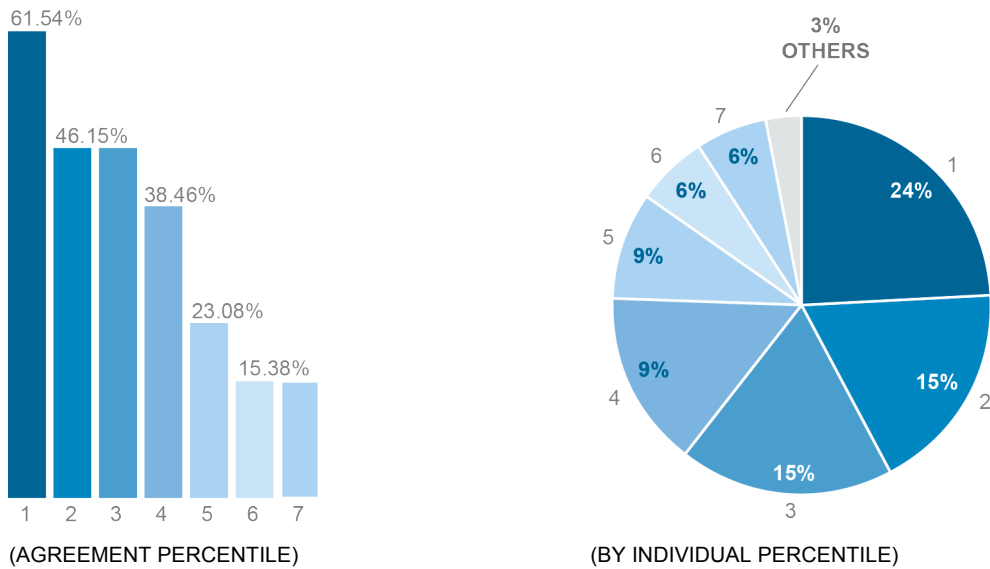
Different from the expectation generated by literature, the study encountered a clear understanding of design policy and design promotion differences, at least at the conceptual level. Policy is seen as structuring and strategic, while promotion is regarded as an instrument of policy to generate awareness and communicate. One respondent observed that in some situations it might be more important to promote design than to (or prior to) develop design policies. (see Appendix 2)

4.2.1.12 (Q.9) According to your understanding, does Brazil have a National Design Policy? Why?

Brazil does not have a national design policy, said 92.31% respondents. Even the opposite view was not affirmative: “we have PBD – although it is unassisted, discredited and disarticulated” – so we can take it as a YES and NO. Most common arguments were about the lack of political input, of a common strategy (of design-related organisations), and the lack of a planning culture in the public sphere. One respondent credited it to the DP goals being still primarily focused on industrial policy and exports, and promotional actions being mistakenly perceived as part of a (otherwise non-existent) policy.

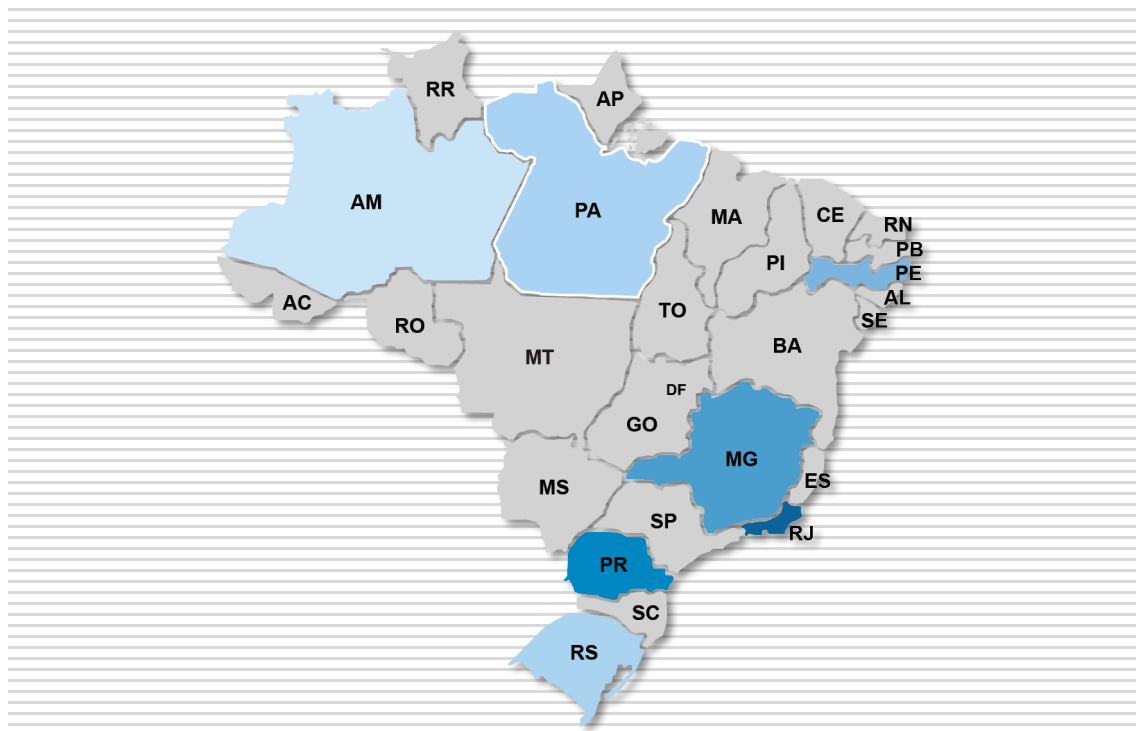
4.2.1.13(Q.10) According to your knowledge, are there Regional Design Policies being currently adopted in Brazil? Where?

FIGURE 4-12: Brazilian states with regional DPs



- 1. RJ - Rio de Janeiro
- 2. PR - Parana
- 3. MG - Minas Gerais
- 4. PE - Pernambuco
- 5. RS - Rio Grande do Sul
- 6. AM - Amazonas
- 7. PA - Para

FIGURE 4-13: Brazilian states with regional DPs (geographical distribution)



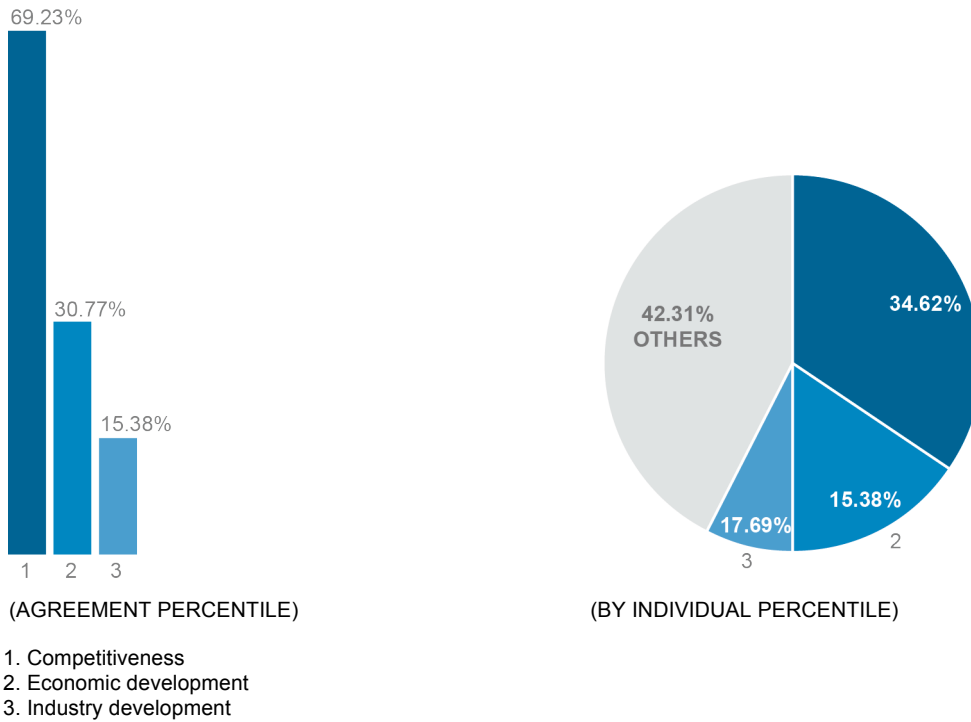
Once again the cut-off point was lowered to 15%, to contemplate a surprising inclusion (even if with very little agreement) of the Northern states of Amazonas and Para. Another aspect observed is the absence of any recognisable regional DP in Sao Paulo, the most industrialised state in the country.

Most respondents (61.54%) perceived Rio de Janeiro (both the state and the city), as being a perhaps unique example of having some sort of design policy officially adopted by government. The states of Parana and Minas Gerais, identified in second place (with 46.15% votes each), were respectively the hosts of the Brazilian Design Biennial of 2010 and 2012, and both have active regional design centres. The importance of the Parana Design Centre was already established in Q.1 as the most significant stakeholder in the country – surpassing even federal government institutions and Ministries.

However, 23.08% respondents did not recognise the existence of regional policies, identifying *“only isolated and non-structuring actions, serving specific interests – and the absence of clear goals.”* (Appendix 2, respondent #9)

4.2.1.14 (Q.11) What are, in your opinion, the key drivers for innovation policies and programmes?

FIGURE 4-14: Key drivers for innovation policies



Measure the understanding of innovation policies and their relation to DPs was the primary objective of the question, that revealed otherwise a reasonable agreement (69.23%) around competitiveness as the main driver for innovation policies, meeting current European thinking (Department for Innovation, Universities and Skills, 2008; European Commission, 2010).

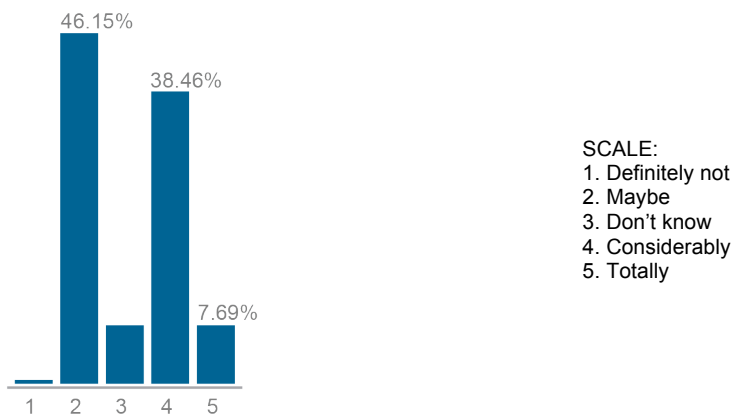
Other factors with less agreement were economic development (30.77%), and industry development (15.38%), followed by a series of other factors, dispersed over a dissent panorama.

This strong agreement around competitiveness as a main driver for innovation policies was not directly mirrored by the perception of DP drivers (Q.5), where the competitiveness factor was brought up together with product development, quality, and productivity. As already observed on literature, the Brazilian

innovation policies are considerably departed from DPs, turning weaker this association.

4.2.1.15 (Q.12) Do you believe that Design is currently seen as key component of Innovation fostering programmes and initiatives in Brazil?

FIGURE 4-15: Design as a key component of innovation policies



This question intended to directly measure how design is perceived in relation to innovation policies. However, there was an uneven – and inconclusive – distribution of responses about the presence of design as component of innovation policies. With 46.15% respondents saying that ‘maybe’, while 38.46% said ‘considerably’, it definitely evinces an issue that deserves to be further analysed by future research: the relation of design and innovation policies in Brazil.

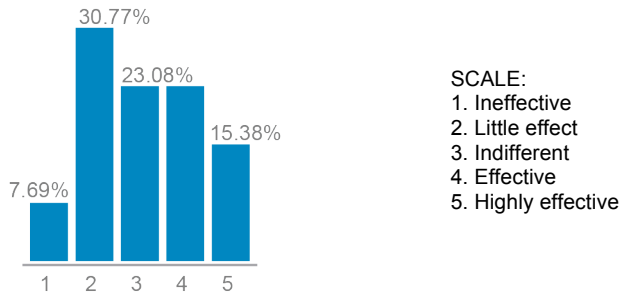
Considering purely the Brazilian innovation policy document (Secretaria Executiva do MCTI, 2011), this could be considered only wishful thinking – the document does not have a single mention to design in its 220 pages. However, as the question is about the insertion of design in programmes and initiatives – or in actions, rather than in policy – there may be an explanation. If design was not originally considered in the national policy for innovation, the responses indicate that it is being considered otherwise in the implementation of these policies.

4.2.1.16 (Q.13) How do you rate the effectiveness of gathering data about design innovation from patents filled (IPR design registration)?

One factor in the DP emerged in the review of literature as either a component and a possible measuring tool of effectiveness – the insertion of design in the

IPR system, or design registration data. This set of questions (Q.13 to Q.16) explore the significance and effectiveness of design registration, assessing the perceived importance of IPR for DPs.

FIGURE 4-16: Effectiveness of design registration (IPR) as metrics for DPs



4.2.1.17 (Q.14) Do you believe that cost is the key barrier to designers protecting their work and their clients?

4.2.1.18 (Q.15) Do you believe that reducing the complexity of protecting design will encourage more designers to protect their work and their clients' work?

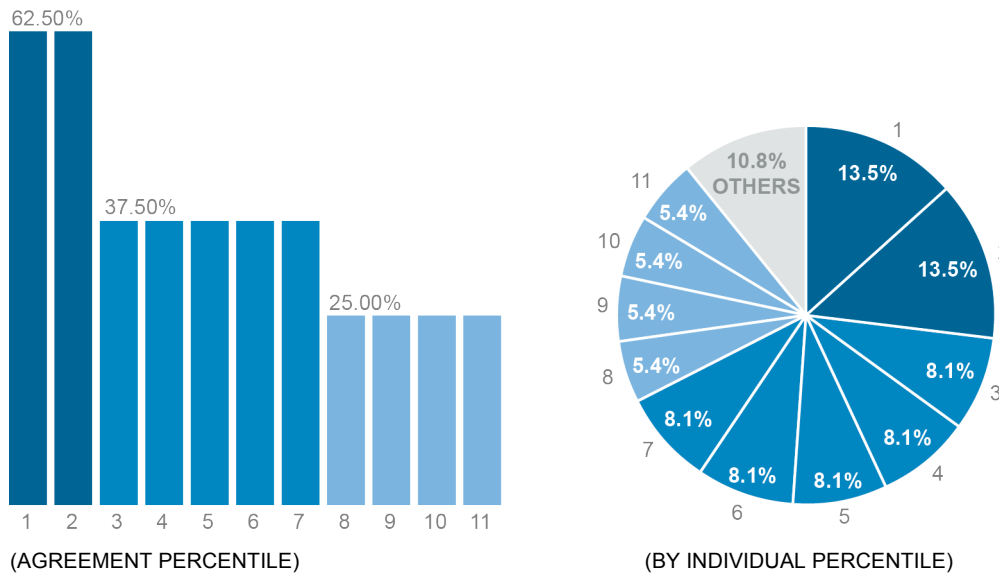
4.2.1.19 (Q.16) Do you believe that introducing a more flexible way to protect design will help the use of design in industry?

Responses to Q.13 had shown agreement around the ineffectiveness of IPR data as a metric for assessment of DPs. Nonetheless, the complexity of the procedures and bureaucracy to obtain a register of Industrial Design at the national patents office is perceived as a barrier to the protection of design innovation. In Q.15 and Q.16 respondents reached total agreement (100%) on the benefits of reducing the complexity of the system and introducing a more flexible way to protect design. According to the respondents, the sector would welcome a new model of protection, referring to the current model as anachronistic. Models such as the Creative Commons, and current collaborative practices, were cited as references to inspire this change.

4.2.1.20 (Q.17) Are you aware of the concept of National Design Systems?

4.2.1.21 (Q.18) If so, what are (or should be) the components of a National Design System?

FIGURE 4-17: Components of a national design system



1. Design sector
2. Training sector
3. Government sector
4. Design centres
5. Promotion, media
6. Design suppliers & productive chain
7. National design fund
8. Industry sector
9. Network articulation
10. Support centres
11. National design council

From all respondents, 38.45% declared on Q.17 that were not aware of the concept or meaning of a National Design System. From the other 61.55% respondents (that responded YES to Q.17, meaning some level of knowledge about the concept), there have been some surprising findings:

- 37.5% supported a national design fund, which is not even a current issue of discussion in Brazil, although having analogous models being appointed in conversation with the interviewees as possible paradigms. A national fund is created to allocate specific resources for the development of a certain subject or area – such as the National Environment Fund, or National Fund

for Climate Change, or National Fund for the Elderly. This suggestion is meant to bring sustainability to a national design programme, providing permanent resources to invest in research, support national or regional programmes, and promote design awareness.

- A significant omission of industry from the system by 75% of respondents – only 25% included the industry sector among the players of the NDS. This is not about the historical detachment of the artist-designer and industry referred by Heskett (2005, p.16-20), but rather a symptom of weak partnerships between design and industry, that should be seen as one of the top players of a NDS.

4.2.1.22 (Q.19) How would you describe the key development stages of a design policy in the emerging markets (ex: BRICs)?

The question intends to measure the awareness of the stakeholders about the stages of development of a national design policy, a subject that will be further discussed on Q.20. Different perceptions of the respondents resulted in four classes of responses: 30.77% described stages through which a DP emerge, or maturation stages (respondents 5; 7; 10; 12); 30.77% have described stages of a development plan for a DP (respondents 4; 6; 11; 13); 23.08% presented an hybrid solution, that could be either maturation stages or a development plan (respondents 1; 8; 9); 15.38% made a direct association with an external model – the Danish Design Ladder (respondents 2; 3).

TABLE 4-1: Stages of design policy in emerging markets

	A	B	C	D	E	F
1	Strengthen national brands	Achieve strong international brands				
2	Ref: Danish Design Ladder					
3	Ref: Danish Design Ladder					
4	Generate models and networks	Investment / funding	Research / innovation			
5	Fragmented stage: uncoordinated; design seen as superficial	Strategic perception of design (contribute to development)				
6	Map, identify, and diagnose regional potentials, strengths, weaknesses, clusters	Pointing to potentials and sustainability (legacy)	Comprehensive communication plan			
7	Industrial production / copy	Design identity recognised	Design assume role of greater relevance; moves from industrial base to knowledge base			
8	Awareness of actors: industry, commerce, services)	Dissemination to wider public (via design centres)	Appreciation of design; design as competitive advantage	Critique / periodic renewal		
9	Training / qualification / international exchange	Promotion / dissemination / awareness	Support / fostering / incubation / effective actions (public bids, funding)	Market opening (national / international)	Evaluation / validation	
10	Awareness of importance of design	Funding / policy / organisation (programmes)	Articulated promotion / policy with continuity	Design as country's strategy for industrial policy		Ref: Danish Design Ladder Goals: strong int'l brands; exports basket
11	Mapping: cultural, social, economic	National / regional policy thinking; prospective research	Strategic design; create investment funds to support regional needs			
12	Knowledge / understanding of design	Understanding design benefits for society	Design providing economic benefits for country			
13	Mapping	Create markers	Strategic planning	Create infrastructure	Structuring funds	Debureaucratise (then implement)

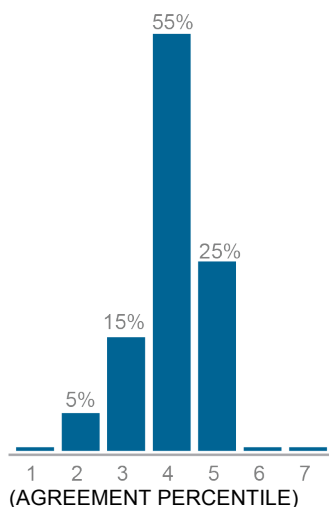
The responses provide significant insights:

1. 23.08% respondents associated the stages of DPs with the Danish Design Ladder model (Kretzschmar 2003, p.28), expressing a good level of knowledge of the latest European developments in the field;
2. 38.46% highlighted the need to achieve ample design awareness at an initial stage of development or emergence;
3. 23.08% emphasised the need to map the country's capabilities at early stages;
4. 30.77% underscored 'design as a strategy' as the utmost stage to achieve;
5. 23.08% mentioned the establishment of strong international brands as a goal to be achieved.

4.2.1.23(Q.20) According to the model by Alpay Er, what stage do you currently perceive Brazil's design policy to be?

Alpay Er devised a model to classify the development of industrial design in Newly Industrialised Countries (Alpay Er, 1997, p.301 – see the last page of Appendix 1). His model introduces seven successive stages: (1) Proto-design; (2) Embryonic; (3) Emergence; (4) Development phase 1; (5) Development phase 2; (6) Take-off; and (7) Maturity. The interviewees were presented to it and asked to frame the current stage of development of design policies according to this model. The question allowed measuring the current stage of development of Brazilian DPs, according to the perception of its main stakeholders.

FIGURE 4-18: Current stage of Brazilian DPs



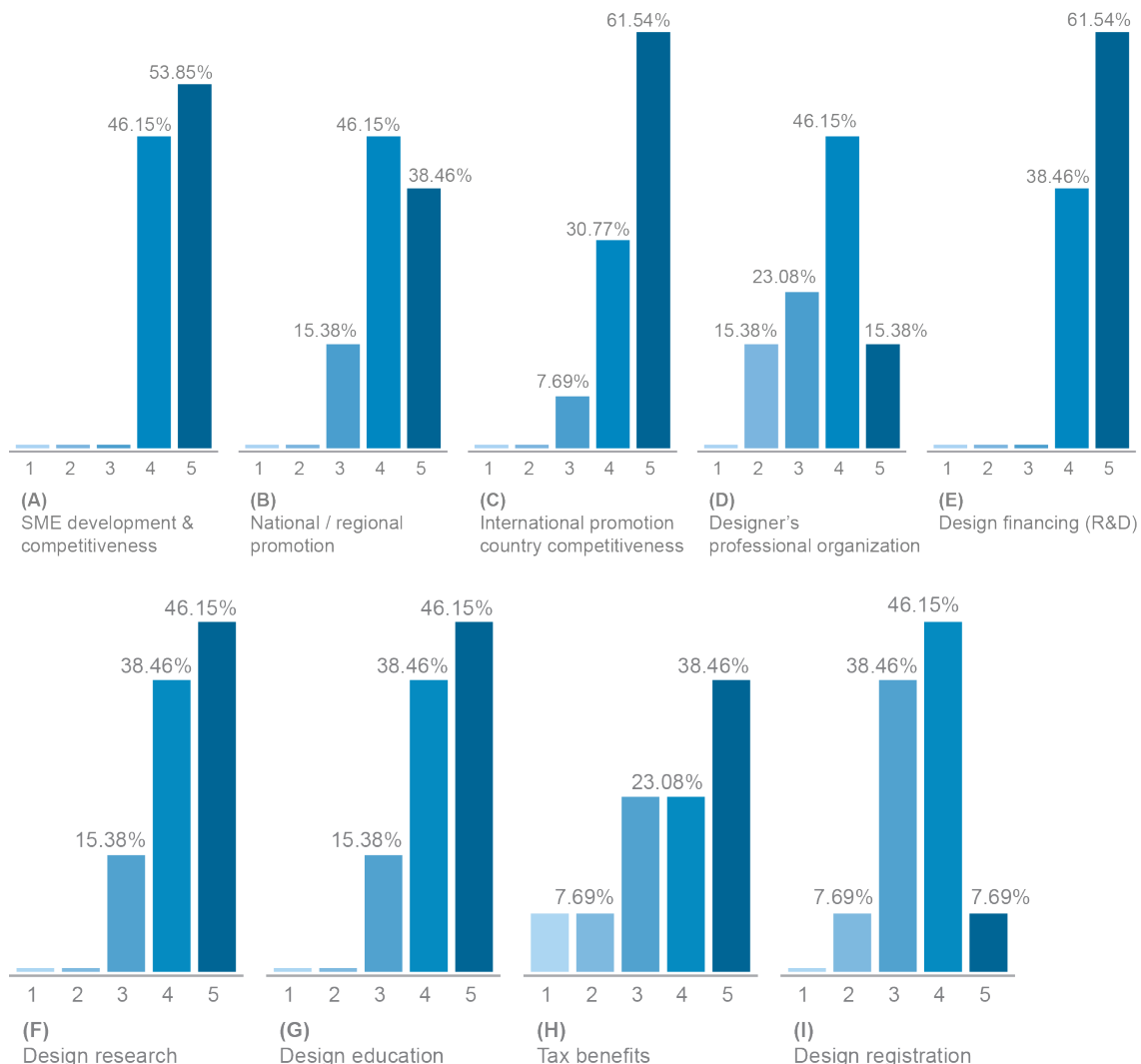
Faced with the proposed model, 84.62% respondents identified Brazil to be at (or around) stage 4, or the 'Development stage 1'. A transitional phase between either stages 3 and 4 or between stages 4 and 5 (hence 'to be at or around stage 4') was appointed by 46.14% respondents. Such difficulty in defining one single phase was expected considering the extension and assortment of situations observed in the country – respondents commented that while some regions or industry sectors still lie even in most basic 'embryonic phase', others are singularly reaching the most advanced 'maturity phase'. The lack of a structuring policy as an inducing factor was also observed as an obstacle to the DPs achieve higher levels.

A developing trend is perceived, moving from stage 4 to 5 – as underpinned by 38.46% respondents that have either framed Brazil on phase 5 or at least transitioning from 4 to 5. Alpay Er characterises phase 5 with a deepening of export promotion as the country development strategy, while incorporating design in export promotion policies, what can be already observed in Brazil – APEX, the Brazilian Foreign Trade Agency, was listed at Q.1 as the third key stakeholder of DP in the country. The model foresees as the next levels to be achieved in DPs (A) to have design recognised as part of a national competitive strategy; and (B) design as an element of innovation as part of industrial culture.

4.2.1.24 (Q.21) What impact do the following factors have on determining the performance of design policies?

Two metrics were adopted to value the most impacting factors: initially respondents were asked to rate each factor individually, and then to name top three impacting factors from the nine listed.

FIGURE 4-19: Factors impacting in the performance of DPs



SCALE: (1) NONE; (2) LOW ; (3) INDIFFERENT; (4) SOME ; (5) HIGH IMPACT

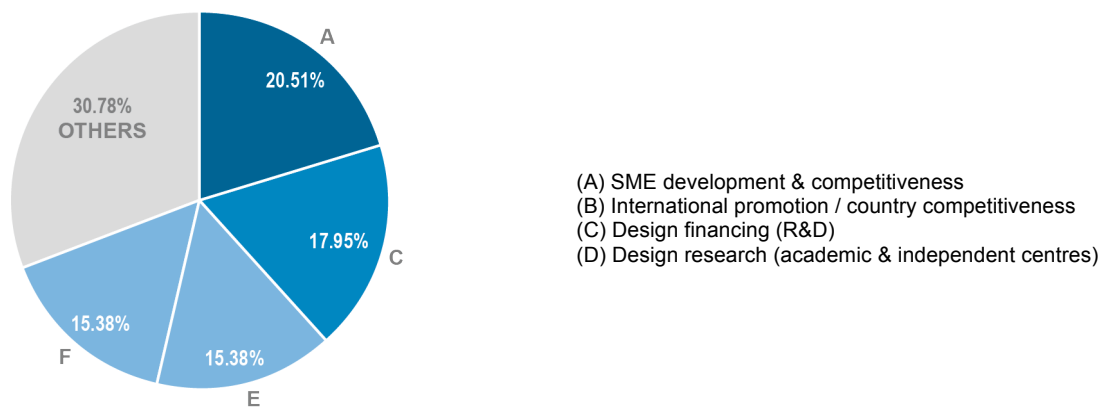
- (A) SME development & competitiveness
- (B) National / regional promotion
- (C) International promotion / country competitiveness
- (D) Designer's professional organisation
- (E) Design financing (R&D)
- (F) Design research (academic & independent centres)
- (G) Design education development & support
- (H) Tax benefits for design sector
- (I) Design registration (IPR)

In a general attribution of importance to nine different factors, the decreasing order of attribution of grade 5 (high impact) was, respectively: (1) Design financing; (2) International promotion and country competitiveness; (3) SMEs development and competitiveness; (4) Design research; (5) Design education;

(6) National / regional promotion; (7) Tax benefits; (8) Professional organizations; and (9) Design registration.

Rather surprisingly, the financing of design projects came in first place highly valued among all other factors. This might be explained by an unprecedented initiative from the Brazilian National Development Bank (BNDES), which started offering loans to support the development of industrial design projects in 2011, around the same time the study was being conducted. These loans could reach R\$ 1 million (£ 330 thousand), and be repaid in 48 instalments with low interest rates.

FIGURE 4-20: Top factors impacting in the performance of DPs

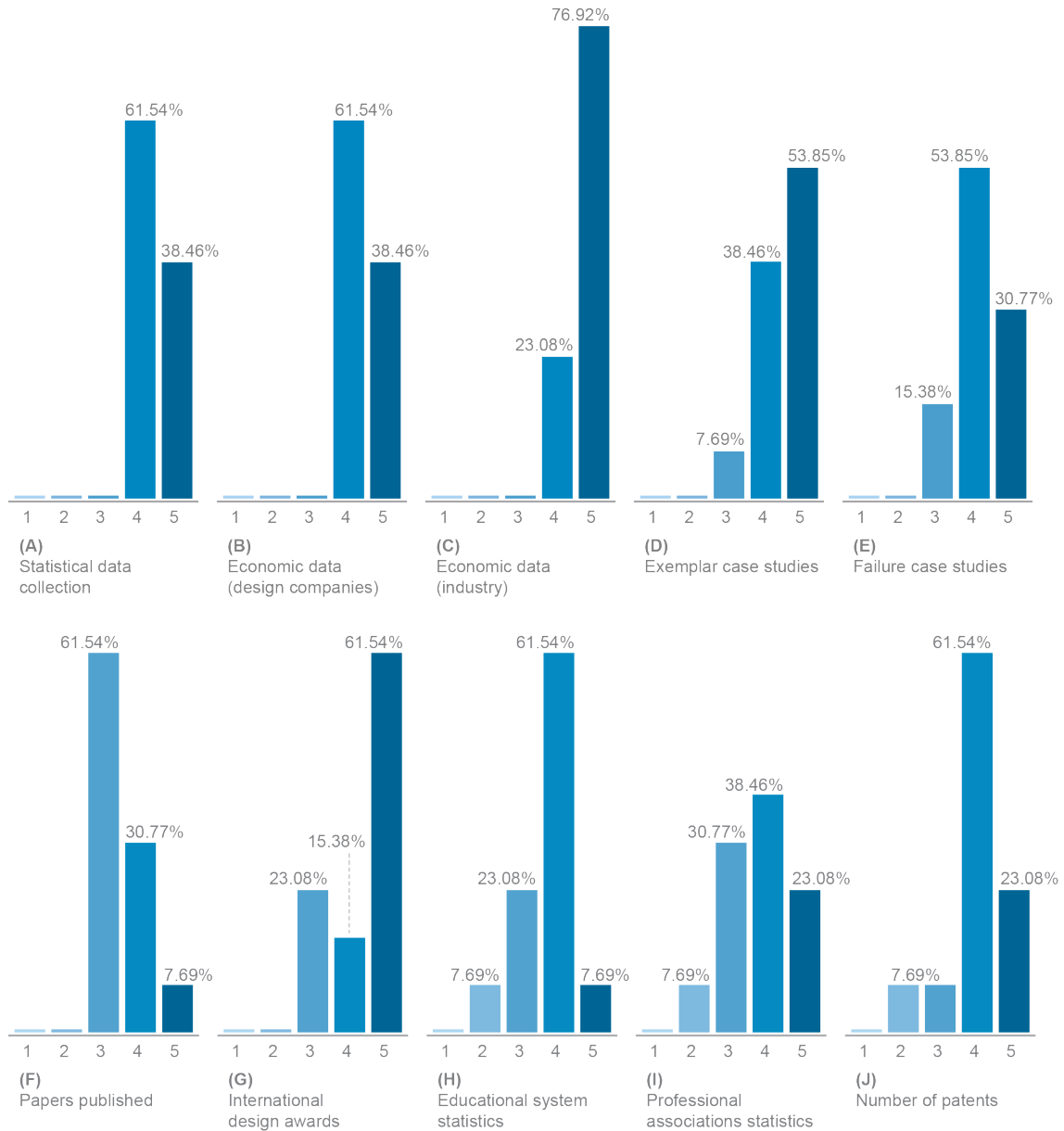


When prompted to name the top three factors impacting on DPs, the SMEs sector development and competitiveness emerged as the most impacting, reaching an agreement of 61.54% among respondents. Therefore according to the key stakeholders interviewed, an effective DP can be measured by how it impacts the development and competitiveness of SMEs.

International promotion and country competitiveness was perceived as second most impacting factor (53.85%), followed by the availability of design financing (already discussed above) and the disseminated practice of design research (both tied in third place with 46.15%). Bringing up design research as one of the top factors impacting DPs is another surprising – and auspicious – outcome of this question. After all, it brings recognition to the role design research is playing in the advancement of DPs in Brazil from the last decade, examples of which were discussed in the review of literature and helped to establish the framework of this present research.

4.2.1.25(Q.22) How effective are the following methods of assessment of public design policies:

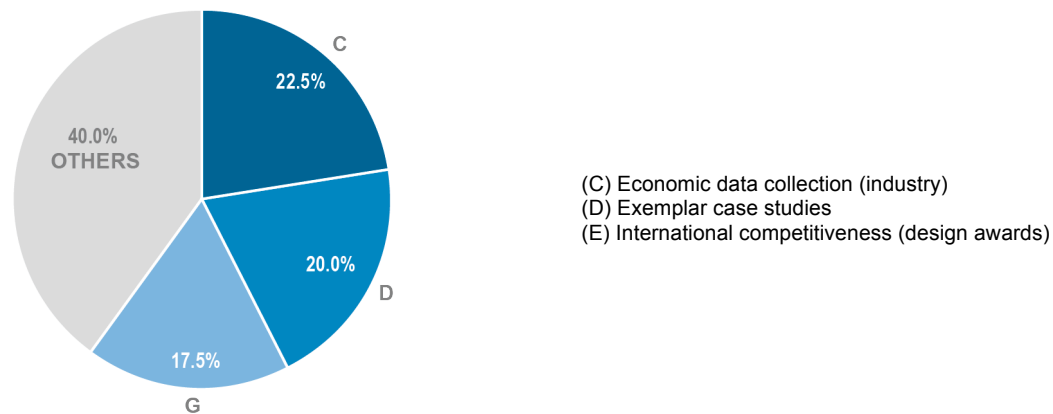
FIGURE 4-21: Effective methods of DP assessment



SCALE: (1) INEFFECTIVE; (2) LITTLE EFFECT ; (3) INDIFFERENT; (4) EFFECTIVE ; (5) HIGHLY EFFECTIVE

- (A) Statistical data collection
- (B) Economic data collection (design companies)
- (C) Economic data collection (industry)
- (D) Exemplar case studies
- (E) Failure case studies
- (F) Papers published (design research)
- (G) International competitiveness (design awards)
- (H) Educational system statistics
- (I) Professional associations statistics
- (J) Number of patents (design registration)

FIGURE 4-22: Top three effective assessment methods



Measuring factors that are perceived as effective, the question first presented Likert-type individual rating scales, then asking respondents what were the top three effective factors.

The performance of companies that adopt design (collection of economic data) is considered to be the most effective factor of assessment of DPs, with 76.92% respondents agreeing as highly effective – and totalling 100% agreement between ‘effective’ and ‘highly effective’.

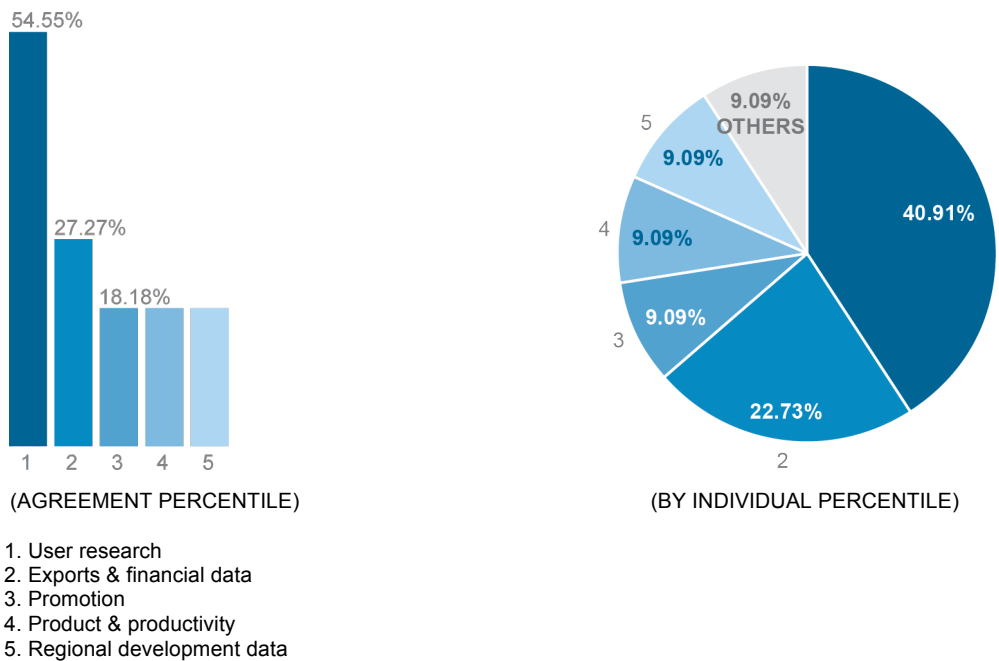
Both the individual results and the top three indications appointed the same highly effective factors: the collection of economic data from companies that adopt design, followed by the performance of national design in international competitions (61.54%) and the publicizing of successful case studies (53.85%). The second most voted factor can be explained by the successful programmes led by APEX since the early 2000’s to promote Brazilian design in international competitions, leading the UK Design Council to dub Brazil as the “*home to a vibrant, serial award-winning design industry*” (Design Council, 2008).

Two other noticeable factors are, respectively, the design registration (number of patents) and the data from educational system, both considered by 61.54% respondents to be effective, although not highly effective. The number of patents is an internationally adopted metric of country competitiveness (by OECD and other organisations), and the ability to provide qualified designers to the market is also frequently cited as a measure of the potential of design.

4.2.1.26 (Q.23) According to your perception, which other metrics / assessment methods should be applied to design policies?

The question measured insights and expectations from key stakeholders towards other metrics for assessment of DPs.

FIGURE 4-23: Other assessment methods for DPs



One issue raised considerable concern among interviewees: 54.55% cited the need for user research data, involving the awareness of design as an attribute of product quality and leading to purchase decision, which is not usually examined while assessing the effectiveness of DPs. It was also noted that data about exports and the vitality of design-using companies should be brought into consideration as well (by 27.27% respondents). Other data were mentioned with less agreement (below 20%), involving the use of data from national and international design promotion and awards; use of design research, quality and sustainability data; and data about regional development.

4.2.2 EMERGING ISSUES

The first phase of the study allowed to measure the importance attributed by key stakeholders to factors affecting DPs, and their understanding of universally

adopted DP-related concepts. Furthermore, the analysis of data collected evinced a series of findings regarding the current development of DPs in Brazil, with insights to instruct the second phase of the study and the general discussion of this research.

- Inconsistency between current stakeholder organisations identified by respondents (Q.1) and the expected stakeholder organisations of a national design system (Q.18);
- Lack of clear perception of key organisations identified as design policy stakeholders (Q.1), spreading originally to 50 different indications, abridged later to 37 (13 indications were suppressed for being either persons, design studios, or generic classes of organisations - professional associations, design schools, regional design centres);
- Centre Design Parana got the highest single indication (7.22%), chosen by 53.88% of respondents as the most important current stakeholder of design policy in Brazil (Q.1); the State of Parana was also appointed by 46.15% of respondents as one of the few of the 27 Brazilian states to be implementing regional design policies (Q.10b);
- The government (state and municipality) and institutions from Rio de Janeiro reached altogether 20.6% of the indications of current key stakeholders of design policy in Brazil (Q.1); the state of Rio de Janeiro was also appointed as the state that invests most in regional design policies in the country, by 61.54% of respondents (Q.10b);
- Lack of perception of the public sector as a potential sector to be impacted by design policies (Q.2), as it is perceived on Europe, and most particularly in the UK;
- Identification with sectors of traditional industry (Q.2) as main targets for design policies (product, fashion, web/digital), against a very low perception of 'new' sectors that are currently receiving more attention in Europe (services, public sector, sustainable, strategic, urban);
- A disagreement in the perception of current focus of design policy (Q.3a), caused by fragmented actions, and an absence of focus for design policy – or ultimately the absence of a formal design policy;

- Inconsistency between the identification of 'life quality, urban problems and development' as the second most important focus of design policy (Q.3b) and the selection of fields to be addressed by design policies (Q.2);
- Extremely low perception of SME segment as potential key target of design policies (Q.3b) – only one respondent suggested it;
- Identification of 'sustainability' as the most important subject to be addressed by design policies (Q.6 - based on rating of five pre-determined issues), although conflicting with other responses (e.g.: Q.2, Q.3b);
- Strong agreement about the need for a national managing body of design policy in Brazil, representing 45% of all issues listed as key characteristics of national design policy (management and assessment strategy; set targets; identify regional characteristics; territorial coverage; articulation; governing body with budget);
- Strong agreement about the need for regional managing bodies of design policy, representing 53.85% of all issues listed as key characteristics of regional design policy (identify regional characteristics; articulation; link to national DP; governing body with budget; management and assessment strategy;);
- Although there is a general perception of design being somehow a component of innovation programmes in Brazil (Q.12 – 6 respondents said 'maybe' and 5 'considerably'), but oddly design was not mentioned by any of the respondents as a component of innovation policies (Q.11);
- IPR data was considered to be from 'indifferent' to 'ineffective' as a measurement of design innovation by more than 60% of respondents (Q.13), as well as a less impacting factor (Q.21 and Q.22);
- The stage of development of design in Brazil is considered to pervade different phases (an expected consequence of the territorial extension and regional inequality of Brazil), although there is a general agreement represented by 80% of respondents that Brazil is currently on the development phase 1 moving to 2 in Alpay Er model of development stages of industrial design in newly industrialized countries (Q.20);

- When submitted to a given list of factors that could impact in the performance of design policies (Q.21), the respondents manifested considerable agreement (61.54%) about ‘SME development and competitiveness’ (different from spontaneous manifestations when SME were little mentioned), followed by ‘international promotion / competitiveness’ and then in third place ‘design financing’, tied with ‘design research’;
- Economic data collection within companies was appointed as the most effective way of measuring the performance of design policies, followed by the results in international design competitions and exemplar case studies (Q.22);
- Spontaneous questioning about other potential metrics to assess design policies (Q.23) had shown considerable convergence (54.55%) around user-related surveys – user satisfaction; user awareness; design-based consumer perception; value perception; presence of design in the media. This was followed by recommendations about trade and export data from design-using companies (27.27%).

4.2.3 DISCUSSION

IDENTIFYING STAKEHOLDERS: The method used to select the interviewees for the first phase of the field study was already described on the introduction (section 4.2 FIRST PHASE - GENERALISED STUDY), as well as the explanation that there were not many institutions or people working in the field that could be considered relevant. As a consequence of this (low) availability, some responses could raise a questioning about the choice of respondents and their qualification: are these the right people to be questioned? Or else, are these the right people to their jobs? The general level of understanding regarding design policies can be considered basic in many cases. This could be understood as an outcome of the non-existence of literature and solid debate about design policies in Brazil (or, as a matter of fact, almost anywhere else). The possible exception would be those exposed to international experiences and exchanges. It is the accumulated international knowledge on the subject that enlightens the debate and instruct the

participants. Such was the case of the team from the design centre that was latter the subject of the second phase of the study.

DISAGREEMENT: Diverging perception of design policy characteristics, drivers, focus, planning, and even in identifying the key stakeholders. This summarizes well the findings of the first phase of the study. Different goals, different agendas, and limited opportunities and inclination to discuss common issues are an obstacle. The lack of a policy formalized in a document, and the proper managing bodies to steer this policy, turns the many design-policy-related actions disperse and less effective, and accentuate disagreements that could jeopardize the environment.

STEERING: How to get together the adequate and representative array of stakeholders to configure a strong national design system? The stakeholder organisations consulted seem to be aware of the need to have some managing body, able to articulate, set targets and strategies that represent all the different regions of the country. There is a clear demand for governability and steering of the national design system, either from an effective managing body or from a strong and well-established national design policy. To ensure national coverage of the design policies, regional bodies are also sought as needed, establishing a strong network and a flow of information and resources with the national governing body.

DESIGN ROLE: Brazil is apparently ignoring the full potential of design, favouring the more conventional approach of a differentiating and competitive tool. Promotion and awareness are also among the main concerns, offering a picture of a rather traditional approach to design policy. The role that strategic design could play sorting national and regional issues is not the first concern, contrasting with current priorities established in Europe, where design is seen as a driver to promote innovation and social improvement. Curiously, to reach the more advanced phases of design policy from the Alpay Er model, it is precisely this level of development of design into a more strategic role what is expected.

It is also noticeable once more the onset of that same historical tension between art and industry in the emergence of design and design policies being

addressed among creative industries by the National Cultural Council from the Brazilian Ministry of Culture. It is the PRODUCT of design (the object, the aesthetical form) gaining precedence over the PROCESS (the method, the strategy), while this later should receive more attention.

PROMOTION AND ASSESSMENT: One first agreed question, resulting from several different responses moving around the theme, was about the need to achieve a broader awareness of the role design plays (and can further play) in our society. The promotion of this awareness should reach different levels of the government, the industry and businessmen, and the general public. A second general agreement could be noticed around the need of data – assessment of design value perceived by industry and the user, exemplar case studies, economic data – to support the development of effective design policies. Otherwise, a promotion-only oriented policy undermine the effectiveness of design impact in the society. When design promotion ascends to a political dimension, NUMBERS-DRIVEN ACTIONS are fuelled rather than IMPACT-DRIVEN POLICIES.

DESIGN IN RIO: Appearing prominently in the responses to some questions, the State of Rio de Janeiro has, since 2002, a design programme within the State Secretary of Economic Development, Energy, Industry and Services.

According to its first coordinator, *“it was an unprecedented policy, both in Rio de Janeiro as in the other states of the Federation”*. The programme originally *“was intended to create a corporate culture which embraced design as a competitive tool essential to boosting the economy of Rio de Janeiro. The goal was to include it in the agenda of interests of major segments of the economy - industry, commerce and services. (...) As is usual with pioneering initiatives - which therefore are not always consensual and prioritized - suffered from a scarcity of resources and lack of staff. But still managed to perform several of its projects, crossing two administrations and imposing itself as government policy in the current administration.”* This scarcity of resources resulted in the development of promotional actions, prioritized over others that never effectively happened.

With a new political cycle (and the new Governor term) beginning in 2007, the programme was re-launched, this time backed by a Design Advisory Group. Formed by six representatives from the design sector, it was appointed by government with the mission of providing support to the planning of design-policy-related governmental actions. These actions have so far, and once again, focused on design promotion. In 2008, the State Government supported a pioneer event, the first Brazil Design Week, that has even hosted an international seminar about design policies.

The City of Rio de Janeiro (capital of the State of Rio de Janeiro) has set in 2009 a very active Sub-Secretary of Heritage, Urban Intervention, Architecture and Design. Working in close collaboration with the local design sector, the Sub-Secretary has developed actions and built the Centre Carioca of Design, which has, since its opening, led many promotion & awareness, as well as training events and discussions in the field of design and its borders.

Enough historical reasons could be found for this role Rio de Janeiro plays in the design panorama. Former capital of the republic – it was only in 1960 that the capital moved to Brasilia – Rio hosted, in 1963, the first university course of design in South America: ESDI, the Escola Superior de Desenho Industrial (Higher School of Industrial Design). The school, ever since funded by the state government, was itself a product of a policy that intended to provide the developing industry of the newborn State of Guanabara (later incorporated to Rio de Janeiro) with the professionals it would need to develop. This pioneering has granted the school the weight of a prominent role in the national panorama of design. In terms of design education, Rio had also the first Master in Design (1994) and the first design PhD (2003) courses in Brazil, at the Catholic University, PUC-RJ.

DESIGN IN THE SME: There is a contrasting situation of positioning SMEs as an issue of high relevance – when SMEs are cited in the question – or almost completely ignoring it in spontaneous responses. The relevance of the subject is doubtless, and perhaps the apparent little concern from respondents – and a few of them even work directly in programmes of design support to SMEs –

could simply mean that they take it for granted. There have been recent experiences in Brazil that should be studied and better understood – such as the SEBRAE Via Design programme, and the Criacao Parana, a very successful programme held by Parana Design Centre, the first design policy stakeholder in the list resulting from the interviews. The subject was considered to be of such relevance that it was chosen to be further and deeply explored by the second phase of the field study. This choice came from the fact that, among the design policy issues emerging from literature, those concerned with development, and more specifically with support to SMEs, seemed to offer a more immediate and adequate reply to a world economy reframed since 2008 by a crisis landscape.

4.3 SECOND PHASE – FOCUSED STUDY

4.3.1 PURPOSE

During the first phase of the study was possible to demonstrate a general perspective of DPs in Brazil, through the lens of the key stakeholders. Evidence was raised about the importance of DPs; how the country is positioned in terms of DPs; the understanding of basic concepts; the identification of key drivers and focus of either national and regional DPs; what relation does it have with innovation policies; which factors affect the planning; the effectiveness of assessment methods. The data collected allowed getting insights from the stakeholders on the highlights and weaknesses of DPs in Brazil, ultimately offering a rich background for the next stage development. The initial stage of the study has also raised questions about the effective drivers and limitations faced during implementation of DPs, the level of participation and involvement of several actors (including those non-directly participants, such as universities and professional associations), as well as its assessment methods.

The second phase was then designed to achieve a deeper understanding of the factors affecting planning, execution and assessment of one specific DP programme in Brazil. It measures, using quantitative and qualitative methods,

the importance of drivers and impacting factors, the effectiveness of strategies, and the outcomes of the programme.

Focused on a specific programme of design support to SMEs – the only programme of this nature in Brazil properly documented, available and accessible for research. This phase was carried out through the study of documental data and three videoconference interviews with managers and advisors of the programme. Criacao Parana was the chosen programme, developed by Parana Design Centre, the most successful of the regional design centres in Brazil, located in the city of Curitiba.

4.3.2 RATIONALE

With the acceleration of the international economic crisis since 2008, providing support to SMEs became a priority in almost every country. These businesses contribute to national competitiveness (Loossens, 2008), generate employment, but frequently have to be inducted to generate innovation. There have been programmes offering design support to SMEs since the 1990s (Raulik, Larsen & Cawood, 2006; Borja de Mozota, 2002; Wood, Pougy & Raulik, 2002), but the advent of the current economic crisis and the recent acknowledgment of design as a driver for innovation (Design Council, 2011; Commission of the European Communities, 2009; Whicher, Raulik-Murphy & Cawood, 2009; Thenint, 2008; Gertler & Vinodrai, 2006) reasserted the importance of providing design support to these businesses:

“The contribution of design to innovation is increasingly recognised across policy levels throughout Europe and this trend is also reflected at EU level. As of October 2010, the European Commission included design for the first time as one of ten priorities in their innovation policy, Innovation Union” (Whicher & Cawood, 2011, p.9).

The role of SMEs is particularly emphasised in this process in the EU:

“The need for new innovation tools and measures are particularly pressing, for example for SMEs (...). Design is one of these innovation tools which deserve

greater political attention at European level as well as in most of EU member states.” (Arwidi,C., 2008, SEE Policy, Innovation and Design Conference, Cardiff, 13 October, cited in Whicher & Cawood, 2011, p.18)

The SEE Project (Sharing Experience Europe – Policy, Innovation, Design) had particularly set up a global collection of case studies about programmes providing design support to SMEs, available online at:

<http://www.seeplatform.eu/seelibrary/>

In Brazil, the recently launched innovation strategy for 2012-2015 (Secretaria Executiva do MCTI, 2012), recognized the great innovative potential of SMEs, and their need for financial and technological support. The strategic plan prioritised a partnership with SEBRAE, which may potentially improve the availability of design support to SMEs.

During the initial stage of the study conducted in Brazil in April/May 2011, all respondents recognized SMEs development and competitiveness as one of the most impacting factors for design policies, and 54% considered it should be prioritized.

4.3.2.1 BRAZIL AND UK: DIFFERENT NATIONAL CONTEXTS

Under the scale of development stages adopted by The World Economic Forum, Brazil is currently reaching a transitional stage from an Efficiency-driven towards an Innovation-driven economy, although its performance still falls slightly below the average of transitioning economies. However, the country’s financial market and business sophistication indexes help to put it forward, and investment in innovation are beginning to detach from the average, supported by a large (and highly above the average) market size. The United Kingdom is rated as an Innovation-driven economy, recently showing some retraction only in the macroeconomic environment – an effect of the international economic crisis. The two countries progressed, from the previous report (2010-2011) in the world ranking of 142 economies. Brazil moved up 5 points, from 58th position to 53rd, and the United Kingdom moved from 12th to 10th position.

Considering only the innovation and sophistication factors, United Kingdom is 12th and Brazil is 35th among the 142 countries surveyed (Schwab 2011).

Using the approach of Porter to the competitive development of national economies, we could perceive Brazil applying efforts to move from an investment-driven to an innovation-driven economy; while the United Kingdom displays the characteristics of a wealth-driven economy (Porter, 1990).

4.3.2.2 SUPPORT TO SMES IN THE LITERATURE REVIEW

The literature review offered an array of authors that discuss the importance of providing design support to SMEs, from different approaches:

1. Choi (2009) stresses the value of business support programmes in design to the success and competitiveness of companies;
2. Raulik-Murphy (2010) advises that a policy that only focuses in encouraging companies to use design is not sustainable;
3. Chung (1993) explores how design support can be focused on industry niches;
4. Miasaki, Pougy & Saavedra (2006) account for industrial-cluster-oriented design policies in Brazil;
5. Malaguti, C. & Scapin, A. (2011) establish a framework for the use of design to support SMEs at the Brazilian programme from SEBRAE;
6. Borja de Mozota (2002) presents a model for design management excellence in SMEs;
7. Wood, Pougy & Raulik (2004) demonstrate how some models of SMEs support can be adapted between Brazil and UK achieving similar results (cases: Criacao Parana and Glasgow Collection);
8. Raulik, Larsen & Cawood (2006) stressed the importance of SMEs for national economies and the need to provide support to foster product and process innovation, through adequate knowledge transfer;
9. Cox (2005, p.16) warns that SMEs are not responsive to awareness initiatives, and *“need to be reached on a local basis, with active support and a practical demonstration of the benefits on offer”*;

10. Cornet, Vroomen & Van Der Steeg (2006) discuss an experiment in innovation policy in Holland, where “*vouchers*” issued to SMEs, to be used hiring to research institutes;
11. Ball & Knecht (2011) discuss a model named Business Support Canvas, that provides a framework for planning, implementing and assessing programmes – however, they do not devise the mechanics or tools for assessment;
12. Moultrie, Clarkson & Probert (2007) propose a Design Audit Tool specifically aimed at SMEs;
13. Livesey & Moultrie (2009) and Lockwood (2007) establish different frameworks to serve as a foundation to assess design value.

4.3.2.3 SME SECTOR IN BRAZIL

According to Portal Brasil (www.brasil.gov.br), the Brazilian government’s official Internet portal, the SME sector represents for the country:

- 99% of businesses
- 20% of GNP
- 60% of job positions
- £ 1.32 billion (US\$ 2 billion) exports in 2010

To boost even more the sector, Brazilian government reduced interest rates of credit from public banks in 2012, lending £ 61.05 billion (R\$ 182.3 billion) to SMEs in 2012, or 34.7% more than in 2011.

4.3.2.4 SEBRAE AND THE VIA DESIGN PROGRAMME

To support development of SMEs rooted on actions from the Brazilian Development Bank, the Brazilian government created in 1972 SEBRAE, Service of Support for Micro and Small Enterprises. Originally created as a governmental agency, in 1990 it turned into a private institution of public interest (Presidential Decree 99579, 09 Oct 1990), working in partnership and with the support from industry, as well as from national and regional governments. SEBRAE is public-funded through a percentile of ‘social contribution’, a taxation of 0.6% applied to all salaries paid in the country (Law 8029, 12 Apr 1990, Art. 8th, §3rd). The

emphasis of SEBRAE is on micro and small enterprises, and also values entrepreneurs coming from 'informal sector' businesses (representing more than 10 million non-taxed businesses in 2003, according to SEBRAE).

VIA DESIGN programme was created in 2001 by SEBRAE to encourage regional efforts offering design support to SMEs. In a presentation from 2004 (at the International Seminar BNDES/ESDI - Design, Production, Competitiveness), Via Design was described as a network of 15 Centres of Design and 85 Nuclei of Innovation and Design, encompassing 13 different design-related areas: crafts; fashion; furniture; shoes; plastics; packaging; jewellery; product; ceramics; graphic; agro-design; building industry; and metal-mechanic. The programme's objectives were described as to *"ensure access to and use of design tools by SMEs to add value to their products and services aiming at increasing competitiveness."* The programme framework was presented as consisting of three basic areas of actions:

1. Structuring Actions:

- *support to Centres and Nuclei of Innovation and Design;*
- *structuring of Statewide Design Networks;*
- *(structuring of) Design Business Incubators;*

2. Promotional Actions:

- *support to exhibitions, lectures, seminars and workshops;*

3. Direct Actions with the productive sector:

- *Trendbooks and evening workshops;*
- *Design workshops;*
- *Technology clinics;*
- *Technology consultancy.*

4.3.2.5 VIA DESIGN: CURRENT STATUS, LESSONS LEARNT AND CHALLENGES

During the development of this study, Via Design programme was apparently terminated. Researching the SEBRAE's website in the beginning of June 2012, the available link to Via Design programme redirected to a private design company from the city of Recife that curiously bears the same name of the programme. Since the contact phone number informed on the SEBRAE website was a freephone (0800), and not available to receive international calls, a designer from Recife was asked to intermediate a contact with SEBRAE. The telephone contact, made in the last days of June 2012, resulted in the information that Via Design programme was terminated, and no one knew why the website still have information about it as if it was still active. They were also unaware of the existence of a design company with the same name (ViaDesign) receiving web traffic redirected from SEBRAE's extinct programme. In January 2013, a website search for "PROGRAMA VIA DESIGN" (Via Design Programme) still listed the programme web pages, leading to broken page links. But if a SME browsed SEBRAE's website looking for support, the programme was still listed in the section "*O Que o SEBRAE pode fazer por mim? / Consultoria*" (*What SEBRAE can do to me? / Consulting*) – with the same misleading link to the private design company. Raulik-Murphy had stated already in her study that "*these support programmes, including centres, hubs and incubators, often have a short life in Brazil*" (2010, p.143).

The legacy of the programme, however, can still be noticed in some of the original regional centres and nuclei, such as *Centro de Design Parana* (Parana Design Centre, object of further study with their programme *Criacao Parana / Parana Creation*). Although no official data is available, there has been also a considerable rate of non-success, caused mostly by failure to reach the expected (and desirable) stage of self-sustenance. The difficulty to generate revenue only from the services provided or from the scarce design-related projects from local governments and development agencies have killed many initiatives. One important lesson to be learnt is that sustainability of the regional programmes should always be a concern from the beginning, and the centres

and nuclei need to be nested and cared for even after the original period of initial support. It is obvious however that the centres and nuclei should not rely solely in their original source of resources. It is important to assure the proper involvement of local government and development agencies, industry federations and associations, universities, and other potential stakeholders that could provide assistance in the long-term continuation, and resources, but also not being dependent on the cycles of 4-year political terms.

The implementation of such programmes (directed to SMEs) at national scale is inherently problematic, especially considering a country with the size and regional inequalities of Brazil. Notwithstanding the otherwise poor comparison between a nation and an organised international community, if a lesson could be learnt from the European Union effort to promote design as a driver for innovation, would be that of establishing best practices and benchmarks for design policies, through programmes like the SEE Project or documents such as the Design For Growth Report (Thomson & Koskinen, 2012). Otherwise, if it is not possible to influence directly the implementation of regional policies - either by the federative structure, geopolitical division or territorial extension and diversity - a central plan can elseways be provided, as well as expert guidance and resources to develop and implement programmes regionally. The emphasis however should be in the centralisation of the development of knowledge and collection and storage of related information that will then be radiated to the regional programmes, centres or nuclei.

4.3.2.6 THE CHOICE OF THE PROGRAMME

In the process of selecting a programme to be the object of the second phase of the field study, series of criteria were established, considering that it should:

1. deliver specific design support to SMEs;
2. be preferably nationwide;
3. be accessible, able and willing to provide information;
4. have assessment policies and assessment data available.

A nationwide programme was not available (and not accessible) to be studied, since the Via Design programme from SEBRAE was shut. However, one very successful regional programme came to notice from the first phase of the study: the Criacao Parana (Parana Creation), from Parana Design Centre.

Parana Design Centre was one of the many regional agencies that received support from SEBRAE's Via Design programme. This regional centre generated Criacao Parana, a well-structured programme with consistent data and contact people available, and bearing some likeliness to other European projects (Ball & Knecht 2011, p.5). The programme had two versions conducted initially in 2002 and again in 2005, and was re-launched in 2012 with a new name: Parana Design.

The re-launch of the programme coincided with a repositioning of Parana Design Centre. The Brazilian Design Programme (PBD) closed down in the second half of 2012, having its small team been dismissed around September. Foreseeing a singular opportunity, in November the Parana Design Centre repositioned itself as a national centre, changing its name to Brazil Design Centre (Centro Brasil Design, CBD). The old centre, despite being regional, had a truly national reach, being a long-time partner of the PBD, a sort of operational arm for research and development – directly responsible for several research projects and reports, as well as the operation of the Brazilian Design Portal on internet (DesignBrasil - www.designbrasil.org.br).

The transition is described at the portal as a natural and almost expected development: *“The staff of the Design Centre Paraná already realized some time ago that the name of the institution no longer corresponded to their performance. After all, the Centre is known to perform actions nationally and internationally, and made no more sense to refer to the brand only at the regional level. It was time to be global.”*

The newly created Brazil Design Centre defines itself as *“a consultancy specializing in devising, developing and implementing strategic projects and design processes for industry and government agencies, with the aim of improving competitiveness and economic and social development in Brazil. It*

has national presence and a team of experts with holistic vision and highly efficient.” (from DesignBrasil portal)

4.3.2.7 METHODOLOGY

The second phase of the study focused on Parana Creation, a Brazilian programme offering design support to SMEs. The study was based on the available documents and archival data about the programme, followed by interviews by videoconferencing. Two interviews were initially conducted in August 2012, and a third interview in January 2013, to allow a better balance with the two previous.

A questionnaire was developed in a similar way as in the previous phase, using an array of questions with both quantitative (binary scales; Lickert-type scales; maturity scales) and qualitative (annotated / unstructured data) data collection methods.

The questionnaire was structured to address the following issues:

- General scope, drivers & planning
- Definitions & structure overview
- Operation & funding
- SMEs involvement
- Assessment

To be able to obtain the most complete and detailed data about the planning, execution and assessment of the programme, the selection of interviewees was based in the following criteria:

- be part of the original planning team of the programme, on a leading role;
- have worked in the selective process of SMEs supported by the programme;
- be directly related to the process of assessment of the programme, preferably one of its planners.

These criteria allow consistency along the data collected, and a considerable depth based on the close experience of the interviewees with the subject.

From the interviews, only those questions that involved personal opinion were statistically processed and analysed. Those merely informative were directly used to build a clearer picture of the programme.

Considering the nature of the study and the questionnaire, as well as the number of respondents (three), the strategy adopted to analyse data in the second phase was different from the first. In the first phase, the number of responses for each individual value were counted: e.g., X responses to 'no impact=0'; Y responses 'average impact=2'; Z responses 'high impact=4'; showing how many respondents have chosen each value. In the second phase, the relative values were summed. So, if respondents 1 and 2 has chosen to rate a factor as 3 (=considerable impact) and respondent 3 decided to rate it 1 (=little impact), the total impact value of that factor will be $3+3+1=7$. This strategy was applied to: Q.1.1; Q.1.4; Q.1.7; Q.4.1 to Q.4.3; Q.4.5 to Q.4.7; and Q.5.2.

4.3.3 PARANA CREATION PROGRAMME

Parana Creation intends *“to present design to the Brazilian entrepreneur as a tool for innovation capable of adding value to products”* – as established in its goal. The programme *“provides design support for manufacturing industries tailoring their design solutions from initial stages to the product prototype stage”*, teaching SMEs *“how to hire designers, manage design projects and understand design as a strategic tool”* (Ball & Knecht 2011, p.5).

The programme was created in the beginning of the 2000's, based on the Glasgow Collection project (Wood, Pougy & Raulik, 2004), and with advising from Professor Bruce Wood, former director of the Glasgow project (1998-2000). Parana Creation was based on the assisted development of companies, and oriented by the Glasgow Collection guidelines:

- *selecting good design ideas;*
- *minimizing red tape (bureaucracy and formalities);*
- *keeping a streamlined relation between all agents;*

- *organizing a personnel management team with people with experience in design and generating a positive attitude.*

Based on these guidelines, the programme offers assistance to companies into:

- Identification of new business opportunities;
- Identification of financing sources;
- Search for designers;
- Identification of suppliers;
- Orientation for product registration and patenting.

Parana Creation had two editions in the 2000's, the first one in 2002, and the second in 2005. For its first edition, in 2002, the programme received support from SEBRAE-PR (the local section of the national SMEs support programme), South Region Development Bank (BRDE), Parana State Industry Federation (FIEP), and Parana Technology Institute, (TECPAR). The second edition (2005) was supported again by SEBRAE-PR and by the National SEBRAE, as well as by FINEP, Financing Agency for Studies and Projects, from the Brazilian Ministry of Science and Technology.

The programme was improved and re-launched in October 2012, now with the name Design Parana. That can be considered virtually as a third edition of Parana Creation programme, as well as a sign of its success.

Between 2002 and 2005 editions, the programme went through a process of evaluation that brought local specialists together with the international experts in design policies Bruce Wood and Gui Bonsiepe.

The programme has a defined methodology, consisting of four stages – as presented in the Survey of International Design Support Programmes, published by SEE Project (Ball & Knecht 2011; and also SEE Design 2007, p.11-14):

1. IDENTIFY THE DEMAND:

plan visits;

define goals;

2. DESIGN MOVEMENT:

create a group of companies;
organize seminars, meetings, workshops;
exchange information;

3. LEARNING BY DOING:

the value of experience (introduction of design management practices);
assisted development (Design Centre team support);

4. VISIBILITY:

public exhibition of prototypes and development processes;
catalogue;
special cases.

The programme methodology has competing assets and requirements. Considerable effort is demanded putting up an efficient team able to steer the programme. Differently from other European experiences (as observed during the interviews), all team members had a design-related background. Nonetheless the team design background – if considered that strategic design is not a well-developed skill in traditional design education in Brazil – they faced an additional challenge, being expected to be able to provide advice to a range of different companies. Another time and energy consuming task is the extensive visiting agenda, to identify companies that could be brought into the programme. A true strength of the programme is the way it promotes seminars and workshops to groups of companies, exchanging experiences and generating momentum. Two factors represent a considerable appeal to the companies: first, the financial support offered to hire design services, minimizing the risk investment; second, the visibility of results that will most certainly impact on the product sales.

This methodology is further explained in a guidebook published by Parana Design Centre, offering detailed advice on each stage of the programme (Camargo 2005). With this publication, the design centre intended to make their methodology available to a broader audience, coherent with their mission to help developing a culture of design in Brazil. The guidebook, that also contains

a few cases, is available for download from the centre’s website, as well as a 2005 catalogue with all 41 products developed in the second edition of the programme.

FIGURE 4-24: publications from Criacao Parana programme



PROGRAMME CATALOGUES FROM 2002 AND 2005, WITH CASE STUDIES AND ALL PRODUCTS DEVELOPED BY PARTICIPATING COMPANIES.

“DESIGN FOR BUSINESS” – REPORT, CASE STUDIES AND THE PROGRAMME METHODOLOGY EXPLAINED.

The documents provide data about the achievements of the first two editions of the programme (2002 and 2005), from the impressive number of companies visited, to the prototypes developed, products reaching the market, and patents filled.

TABLE 4-2: Data from Paraná creation programme 2002 & 2005

	2002	2005
Companies visited	242	153
Companies signing the agreement	47	48
Companies from other states (allowed only in 2005)	-	5
Prototypes goal for exhibit	20	40
Developed prototypes	42	41
Products on the market	12	20
Contracted designers	36	23
Internal company teams working on the development	5	18
Patents filing	19	14

Beyond the results from the above chart, in an article published in 2006 (Fonseca et al., 2006), the staff from Parana Design Centre reported that in 2005, from the participating companies, 12 hired a designer for the first time, and 7 have developed their first product series (these companies had produced only individual products before). By the time of the publication, 19 products had reached the market. Participating companies were divided in 20 micro, 16 small, 3 medium, and 1 large. Although the micro and small companies were the main target of the programme, during the interviews conducted in the study it was explained that medium and large companies were considered to attract smaller businesses, encouraged by the example to take part in the programme.

Parana Design Centre consider two aspects to be the most representative of the programme's success:

1. Allow companies to experience design;
2. Brings forth solid achievements – prototypes, catalogue and exhibition.

Their methodology is supported by the 'power of example': instead of holding seminars discussing benefits of design, companies are allowed to have a controlled and supervised experience (the 'assisted development'), being instilled with practical examples of design management tools and practices. This is meant to confront a risk-aversion scenario where some companies view suspiciously the investment in new product development. *"Motivated and visionary companies can spur more timid companies to see the benefits and realize the opportunities of design"* (Wood, Pougy & Raulik, 2004).

The first edition finished with an exhibition of the 42 prototypes, in August 2002. Intending to broaden the experience for a larger audience, the second edition had its final exhibition in June 2005 (this time with 41 prototypes) at a local shopping mall, with an estimate number of 590.000 visitors, and the catalogue was published as an insert of ARC Design – the main Brazilian design magazine (Fonseca et al., 2006). Publicizing results from the first edition helped to attract new companies, which spontaneously came to participate in the second edition of the programme.

Appointed as a lesson learnt from the first edition, the focus of the second edition was on the business, rather than innovative (high risk) products. The interviews also unfolded that an excessive emphasis on formal aspects of design – or the intention of having ‘good design’ products to be exhibited later – could be misleading. From the second edition, the programme looked for good and innovative design, but focused on the company’s business.

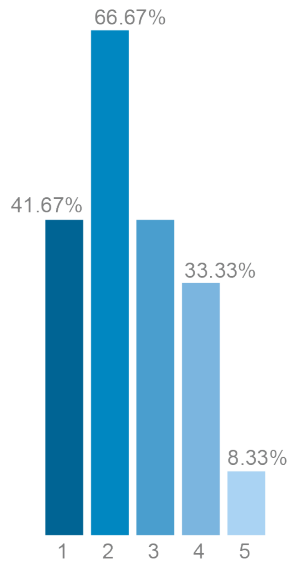
4.3.4 THE QUESTIONNAIRE

Intending to deepen the knowledge about the programme, its drivers, planning, structure, operation and assessment, a questionnaire was submitted to three senior staff members, including the current general manager of the programme. The questionnaire was divided in five sections, each discussing one aspect of the programme: Planning and development; Structure overview; Operation and funding; Level of involvement of participants; and Assessment. The questions submitted to the interviewees are presented and analysed ahead, with data processed in graphs, or referring to the collected responses available in the Appendix 4.

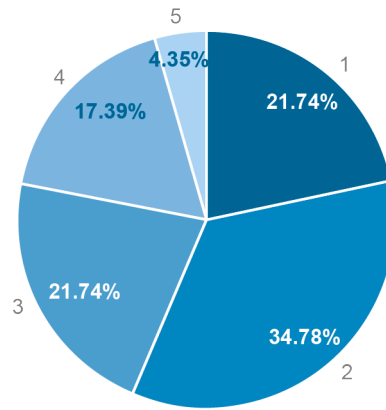
(PART 1) PLANNING AND DEVELOPMENT

4.3.4.1 (Q.1.1) What drivers impacted on the creation of the programme? How much impact?

FIGURE 4-25: National policy drivers impacting the creation of programme



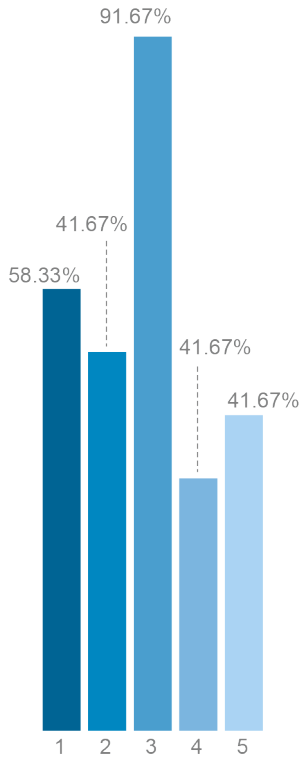
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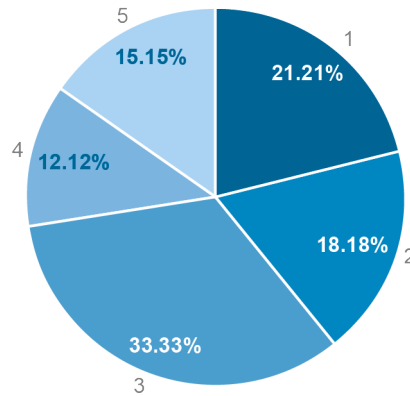
(COMPARATIVE PERCENTILES)

1. Industrial
2. Innovation
3. Science & Technology
4. Development
5. Design

FIGURE 4-26: Regional policy drivers impacting the creation of programme



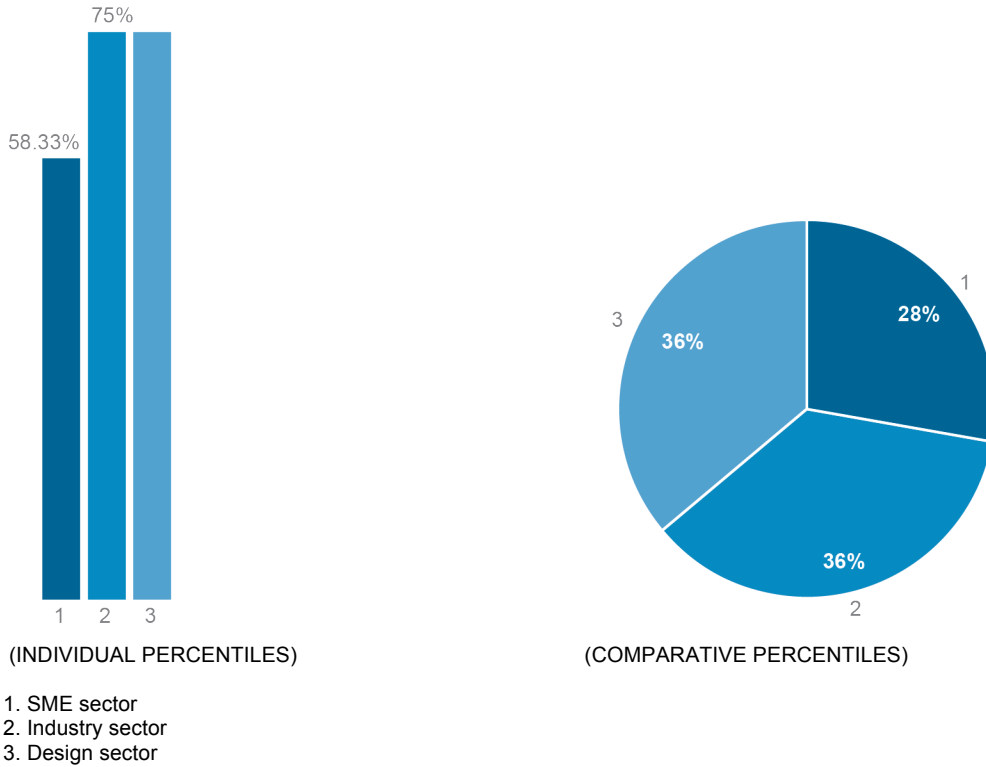
(INDIVIDUAL PERCENTILES)



(COMPARATIVE PERCENTILES)

- 1. Industrial
- 2. Innovation
- 3. Science & Technology
- 4. Development
- 5. Design

FIGURE 4-27: Demand drivers impacting the creation of programme



Innovation (34.78%) was, among national policies, the most impacting driver on the programme, followed by industrial, and science & technology policies (tied with 21.74%). From the regional policies, science & technology was appointed as the most impacting driver (33.33%), explained by the origin of the programme in 2000, launched with support from the State Secretary of Science & Technology. There was a considerable demand from industrial segments and from design sector as well (36% each). The strong backing received from Governor Jaime Lerner was appointed as a driver as well, raising the issue of the support of champions in design policy. An architect and urban designer himself, he has been involved in championing design along his political career. One of his former co-workers (from his architecture studio), architect Geraldo Pougy, is still a member of the board of directors of the current Brazil Design Centre. Respondent 3 stated that the growth of design schools that occurred in the country in the 1990's increased considerably the number of professionals acting on the market, leading to greater awareness – and consequent observed demand from the design sector. On the issue of regional industrial policy, respondent 3 observed

that they have allowed the state of Parana to go from an agriculture-based economy to host the second largest automotive industry in Brazil.

4.3.4.2 (Q.1.2) Did the programme originate a policy? Or was it created responding to a policy?

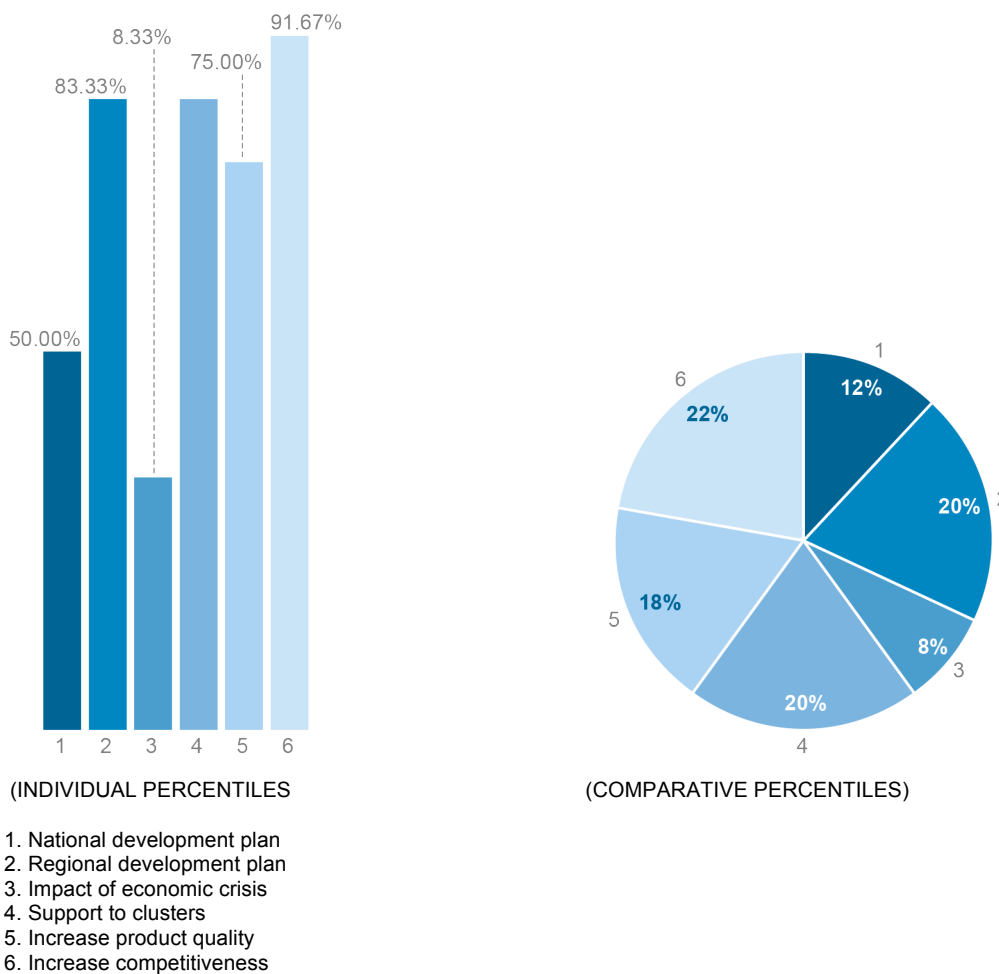
The programme responds to regional policies of development and innovation (although these policies are not recognized as existing formally).

4.3.4.3 (Q.1.3) Was the programme built upon any previous experience of either the agency / department or any other external model?

As explained before, the programme was based on the experience of the Glasgow Collection.

4.3.4.4 (Q.1.4) How do you rate the contribution of the following issues on the formulation of the programme?

FIGURE 4-28: Issues contributing to the creation of programme



Regional development issues were identified as the most influential on the creation of the programme – increase competitiveness (22%); regional development plan (20%); support to clusters (20%). This was followed by increase of product quality (18%), that also relates to competitiveness of local industries. Two other factors were appointed as significant, both related and engendered in the design segment – to connect design to industry and a direct demand from designers. Respondent 2 stated that, although the support to local clusters was not the concern of the first and second editions of the programme, it is currently one of the main drivers in the third edition (2012) of the reformulated programme – Design Parana. Respondents 2 and 3 observed that the world economic crisis had a positive impact in Brazil, with commodities export boosting the country economy, providing the environment to envisage also industrial growth.

4.3.4.5 (Q.1.5) What situation best describes the development process of the programme?

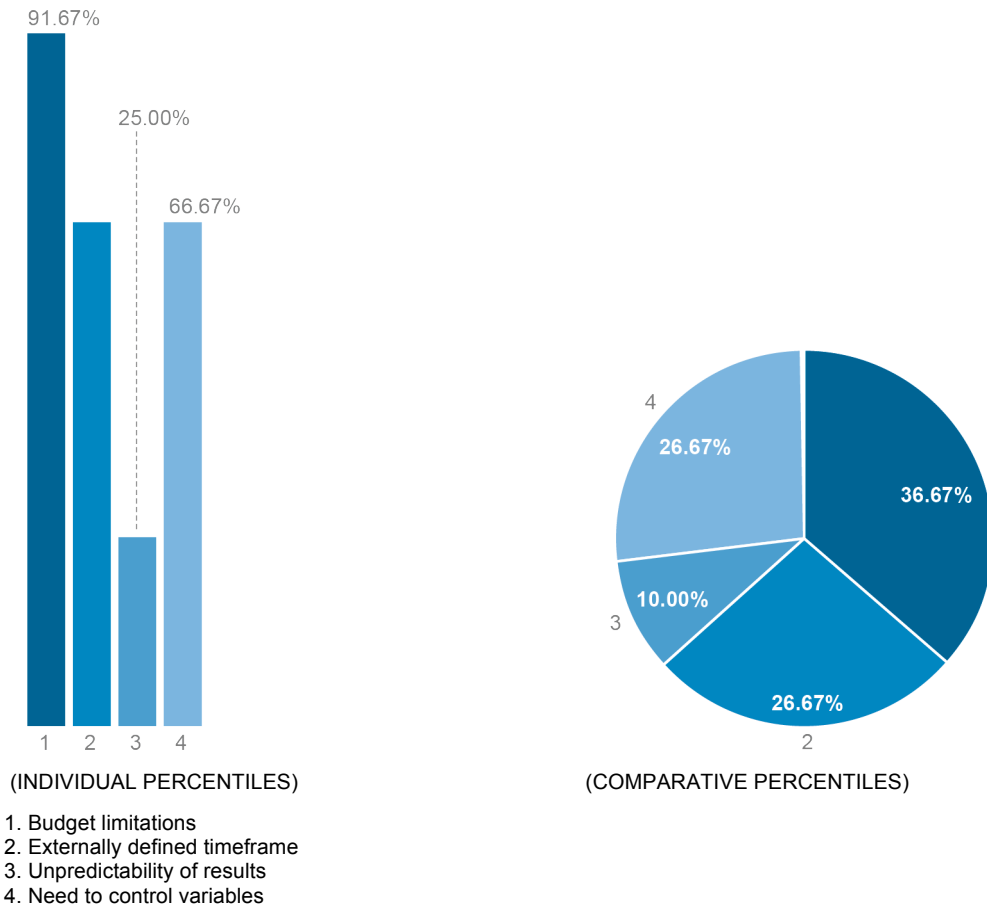
Following the model of the Glasgow Collection, the programme was originally developed and managed by a small team with design background, with advise from Glasgow Collection director, Bruce Wood.

4.3.4.6 (Q.1.6) Was the programme conceived to operate continuously or within a pre-defined timeframe?

The programme's two editions were established with a pre-defined timeframe of 24 months each.

4.3.4.7 (Q.1.7) Please define the importance of the following factors on determining the length of the programme (in terms of operating continuously or within a pre-defined timeframe):

FIGURE 4-29: Factors impacting programme timeframe



Budget is the most impacting factor on determining the programme timeframe – and also *“the main barrier to the success of this project”* (Fonseca et al., 2006). External factors – mainly political cycles, as observed by respondent 3 – and the need to control variables involved in the project, were also determinant.

4.3.4.8 (Q.1.8) Are other parties involved in the operation of the programme? If so, who they are, and what are their roles?

The State Secretary of Science & Technology was appointed to be involved, in that it provided infrastructure and political endorsement. Another regional centre, the Maringa Centre for Innovation and Design, offered support to the

interiorisation of the programme, attending companies in smaller towns (Maringa is the third largest city in the State of Parana, with a population around 370 thousand according to the 2011 Census).

4.3.4.9 (Q.1.9) Is the programme solely design-oriented, or offered as part of a broader programme that embodies other aspects of SMEs support?

The programme is design-oriented only.

(PART 2) STRUCTURE OVERVIEW

4.3.4.10 (Q.2.1) The definition of SME may vary according to national characteristics, even though using the same measure units (annual turnover, and number of employees). In Brazil, e.g., the class of micro enterprises is often incorporated in the usual definition of SME (of MPME, the Portuguese acronym that stands for Micro, Small and Medium Enterprises) – and there are six different definitions in concurrent use, according to the Ministry of Development, Industry and Foreign Trade (MDIC/SDP/DMPME, 2002).

What definition does the programme adopt to select suitable SMEs?

The programme uses the definition from SEBRAE, but it is non-restrictive, meaning that companies from any size could participate, as a strategy to attract more micro and small-sized companies. In 2005 there were 20 micro, 16 small, 3 medium, and 1 large-size company taking part of the programme. According to respondent 1, if the company did not qualify to receive the support from SEBRAE (which funded part of the costs of product development), they could pay fully the services and continue in the programme.

4.3.4.11 (Q.2.2) How many people are directly involved in running the programme, and what is their academic / expertise profile?

There were seven designers (or design-related professionals – one is architect) and three supporting staff with other qualifications.

4.3.4.12(Q.2.3) How are the Design experts selected to work on the programme?

4.3.4.13(Q.2.4) What criteria is used to select design experts to work on the programme?

The core team is all staff members. The selection is based on experience, portfolio, and previous experience advising companies. Respondent 3 highlighted the ability to communicate with businessmen and credibility as a frequent concern when hiring new member of the team.

4.3.4.14(Q.2.5) Regarding the design services used by the SMEs, does the programme offer any support in the selection of designers or design companies?

4.3.4.15(Q.2.6) What kind of support is offered to the SMEs hiring design services (if any)?

The programme supports the participating companies in the selection process to hire designers, offering a directory (in the second edition there was also a standardized one-page portfolio), and advising the production of the design briefing. A pre-briefing with the profile of the designer needed is also a concern, according to respondent 3.

4.3.4.16(Q.2.7) Should the programme offer a directory of selected designers or design companies – what criteria is used for selection?

There was no agreement about the process of selection of participating designers and design companies. Although a preference for design companies was noted, it didn't inhibit some participating companies to choose some young free-lance designers. The programme coordinator has also highlighted the collaboration from the regional designers association to find experienced professionals.

4.3.4.17(Q.2.8) From the following categories, what kind of design support is offered to the SMEs through the programme?

All categories of advice (strategic design; financing; briefing and procurement; management; product, visual and communication design), except for design

research advice, which was not required. All services were not provided by the programme, and should be hired directly from design companies and designers.

4.3.4.18 (Q.2.9) In addition to the design support, does the programme provide any kind of design promotion activities?

The core of the programme has provision to offer seminars, workshops and networking events to participating companies. Some of these events were open to other companies and to the general public. The programme also provided exhibitions and publication of catalogues with case studies. It was noted by respondent 3 that the programme adopted a strategy of offering exclusive seminars with special guests to companies only, producing at the same time an open-access seminar with the same lecturer for a larger audience (of design students, for example). Another strategy adopted was to allow designers to join the workshops or events only if they bring their clients. Respondent 3 also noted that the programme developed special activities aimed at young designers.

(PART 3) OPERATION & FUNDING

4.3.4.19 (Q.3.1) How do the SMEs apply to participate in the programme?

Although they also must fill an application form and need to conform to the rules, companies are scanned in a long visiting process. In the first two editions (2002 and 2005) the programme team visited 395 companies, from which 95 signed the contract to participate.

4.3.4.20 (Q.3.2) What are the three main selection criteria for an SME to get onto the programme?

Willingness, commitment and the capability to go through the programme, determined after an initial diagnose. This diagnose, made during the visit from the programme team, is based on the Design Ladder model – the company should be at least on second step.

4.3.4.21 (Q.3.3) REGARDING THE PROGRAMME BUDGET:

The budget informed was from the current phase (2012):

Budget (Total): R\$ 2,220,160.00 (£ 741,160.45)

Target activities: 62.83%

Support activities: 30.29%

Background activities: 6.88%

4.3.4.22 (Q.3.4) How is the programme funded?

The programme is funded by Fundo Parana, a State of Parana research funding managed by the Secretary of Science and Technology. The participating companies may receive – if they qualify – funding from SEBRAE, that pays for design services. If the company does not qualify to SEBRAE criteria, they may choose to fully pay for the design services and still participate in the programme. All the support provided by the programme team is available with no cost to the participants.

4.3.4.23 (Q.3.5) REGARDING THE COSTS OF DESIGN CONSULTANCY AND SERVICES:

Do the programme provides a preliminary design diagnosis to the SMEs?

Who pays for this preliminary design diagnosis?

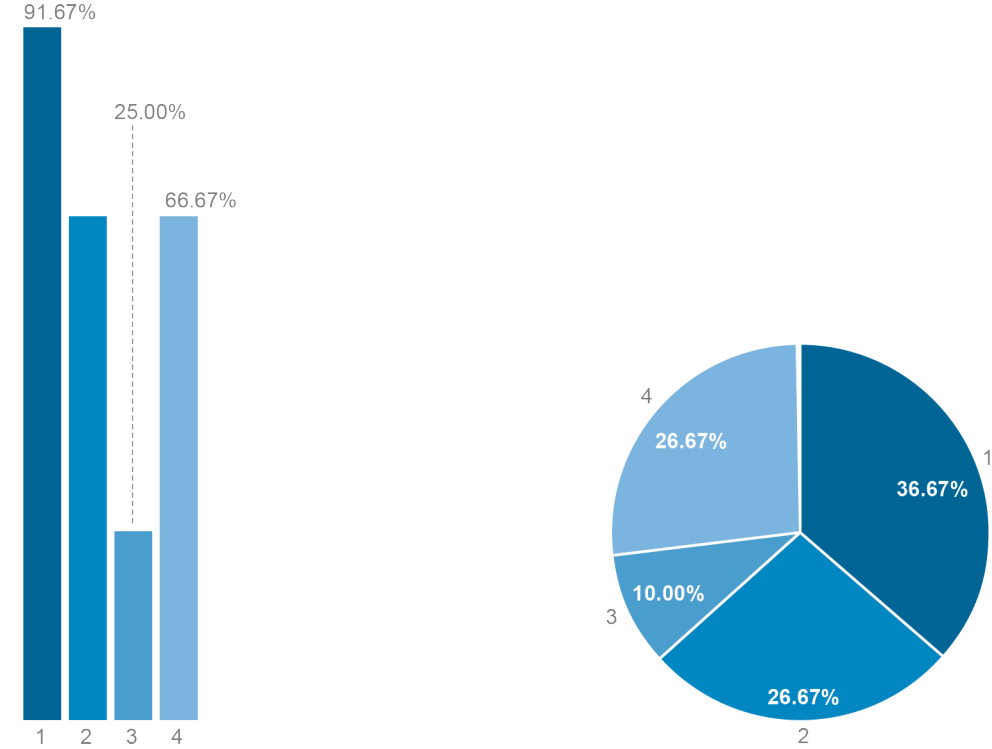
If there are other criteria for cost breakdown, please explain:

All costs of the initial diagnosis, performed by the programme team, are fully covered, with no cost to participating companies.

(PART 4) LEVEL OF INVOLVEMENT OF PARTICIPANTS

4.3.4.24 (Q.4.1) How would you rate the involvement of business and government segments with the programme?

FIGURE 4-30: Factors impacting programme timeframe



(INDIVIDUAL PERCENTILES)

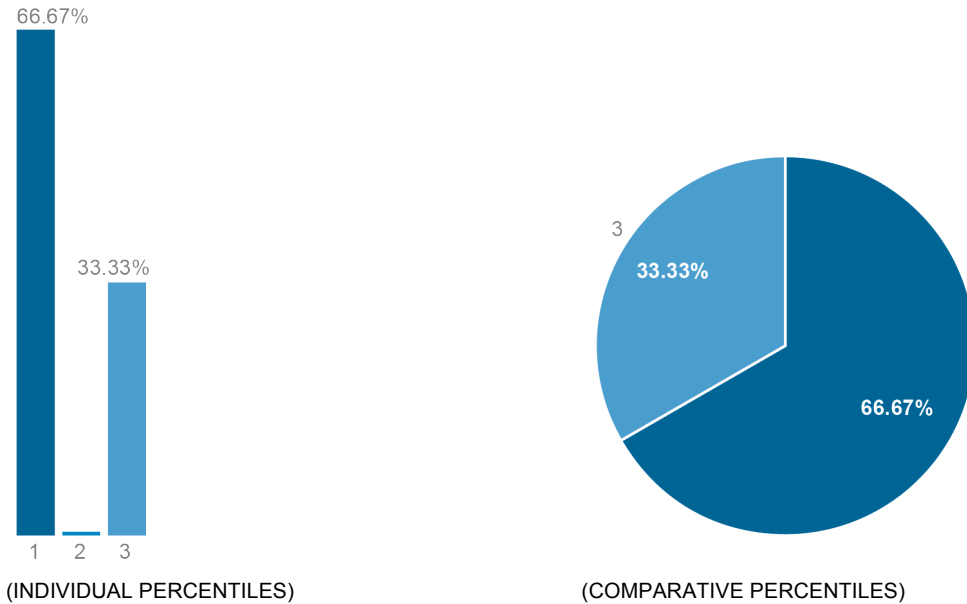
(COMPARATIVE PERCENTILES)

- 1. Budget limitations
- 2. Externally defined timeframe
- 3. Unpredictability of results
- 4. Need to control variables

All respondents considered the three segments to be only partially involved – except for respondent 1, which considered the SMEs and business associations segment to be fully involved in the programme.

4.3.4.25 (Q.4.2) How would you rate the involvement of design community with the programme?

FIGURE 4-31: Involvement of design community

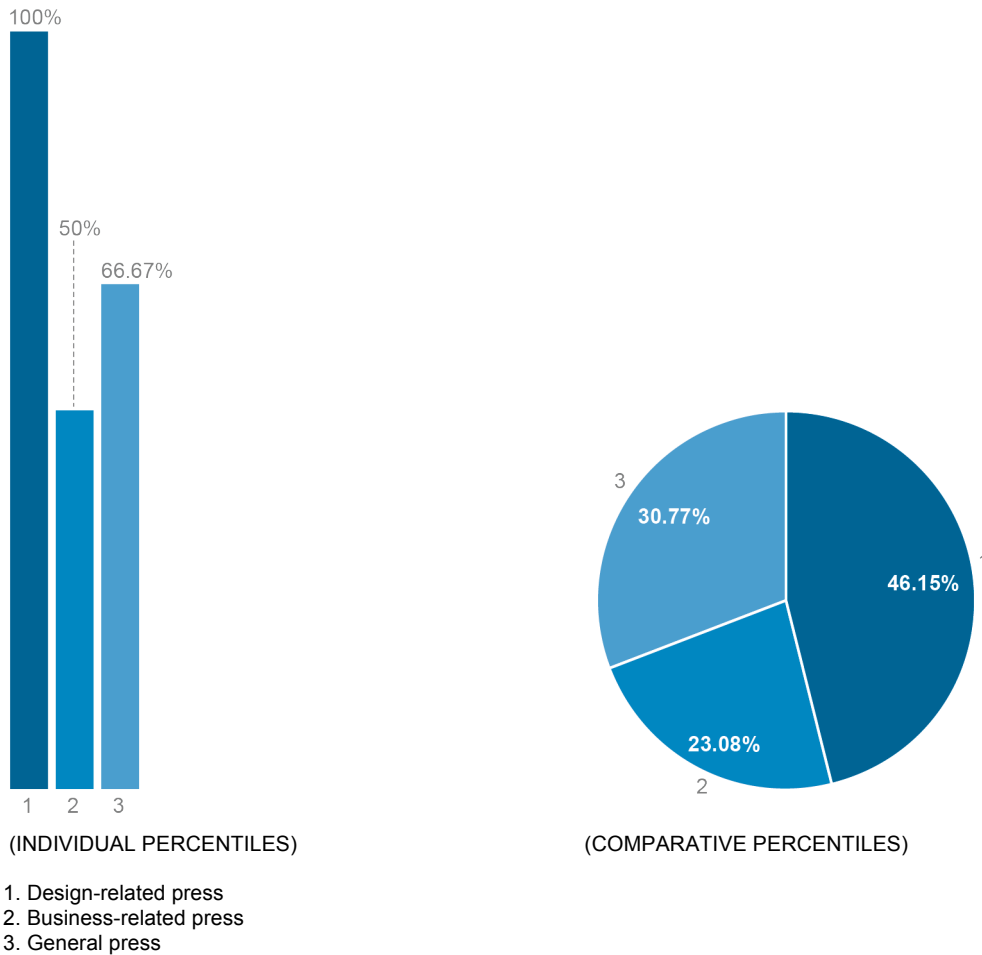


- 1. Professional design associations
- 2. University
- 3. University design departments

No involvement at all from universities, although some involvement from the design departments was noted by two respondents. The professional segment of designers, however, was considered involved (fully involved, according to respondent 2). Respondent 3 observed that professional associations are cyclical, but the design community was always involved.

4.3.4.26 (Q.4.3) How would you rate the public impact of the programme, as reflected by the press coverage it receives?

FIGURE 4-32: Public impact / press coverage



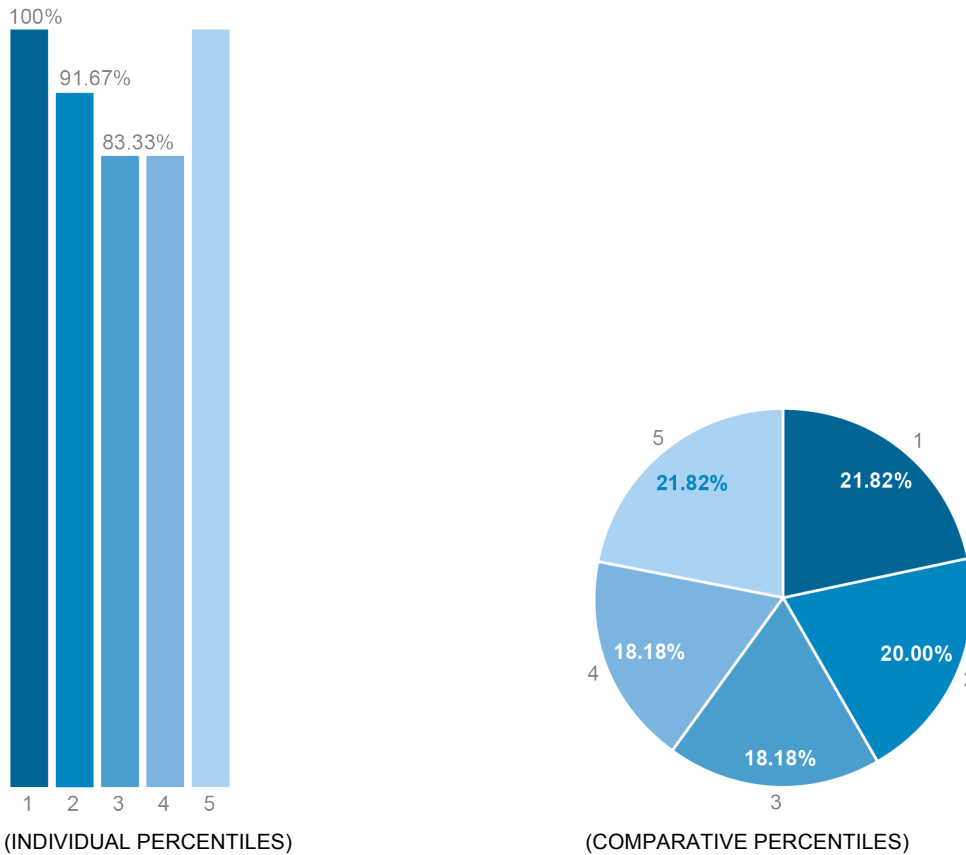
The programme raised high impact in the design-related press, and also some media coverage from general press and the business-related press.

4.3.4.27 (Q.4.4) How many SMEs are/were assisted by the programme? Over which period of time?

During the first phase of the programme, in 2002, 242 companies were visited and 47 signed the contract of participation. In 2005, during the second phase, 153 companies were visited and 47 signed the contract. The third version is still running, with no data available so far about new participants.

4.3.4.28 (Q.4.5) How important is the direct involvement of the SME's senior staff to delivering a successful programme?

FIGURE 4-33: Importance of involvement of SME senior staff

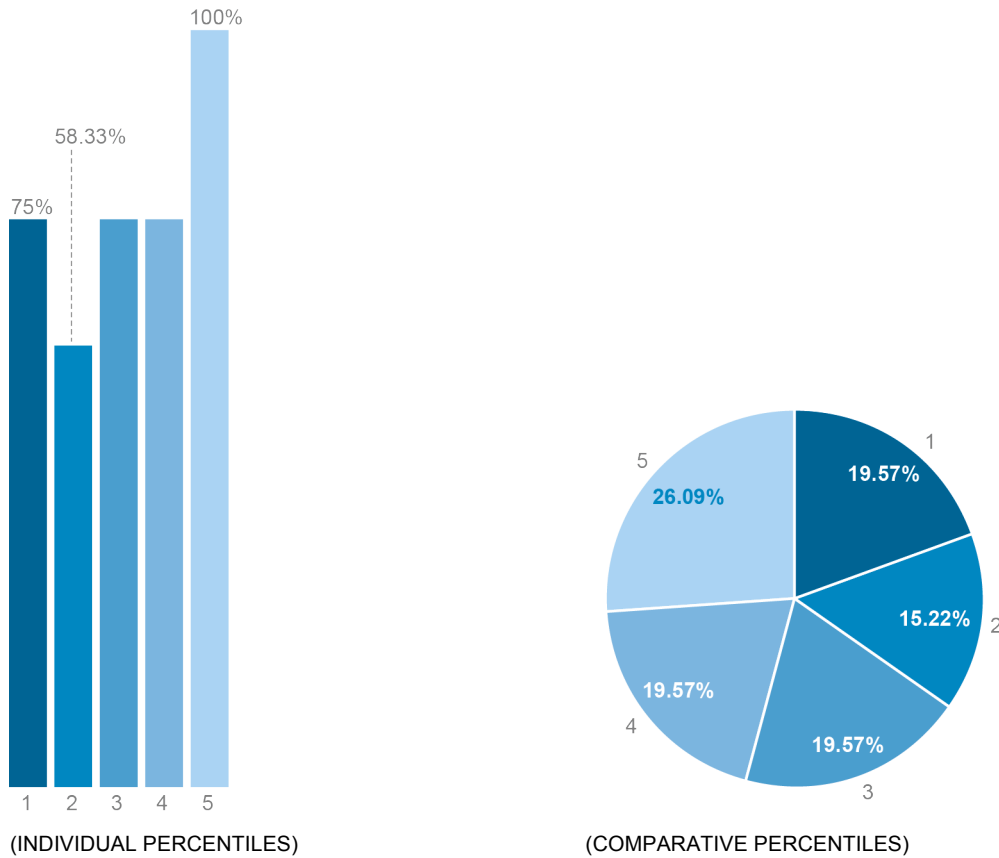


- 1. CEO
- 2. Managing Director
- 3. Manufacturing Director
- 4. Product Development Director
- 5. In-house Designer

Participation of the senior staff was compulsory, according to the rules of the programme. Respondent 3 observed that, considering the size of the companies assisted, there were not usually directors for marketing, manufacturing, or product development, but a frequent figure was the sales manager, that was present in the large majority of companies, and should also be involved in the process.

4.3.4.29 (Q.4.6) How frequently the SME's senior staff are identified to be effectively involved in the programme?

FIGURE 4-34: Effective involvement of SME senior staff

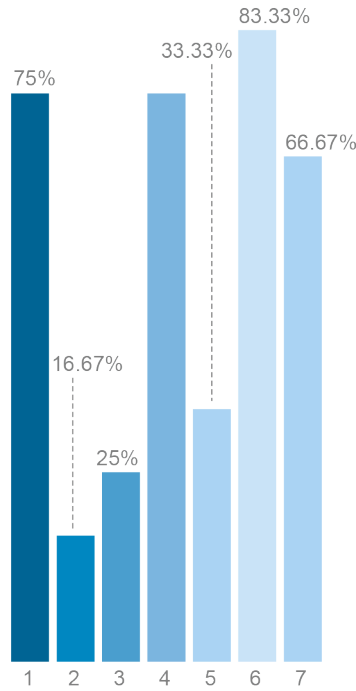


- 1. CEO
- 2. Managing Director
- 3. Manufacturing Director
- 4. Product Development Director
- 5. In-house Designer

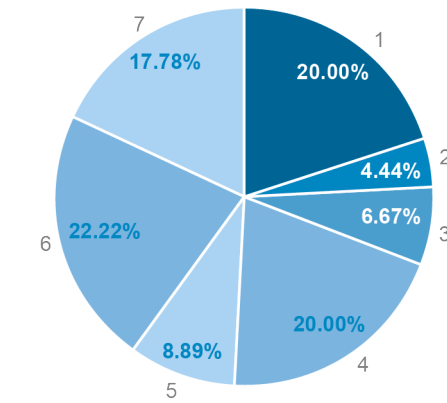
Although compulsory, the involvement of all the senior staff was not observed along all the process, but were mostly frequently involved.

4.3.4.30 (Q.4.7) How frequently do participating SMEs demand the following design services?

FIGURE 4-35: Most demanded design services in the programme



(AGREEMENT PERCENTILE)



(BY INDIVIDUAL PERCENTILE)

1. Product Development
2. R&D
3. Design research
4. Visual identity
5. Branding
6. Packaging
7. Web design

Product development was the main focus of the programme, but items frequently demanded were also packaging, visual identity and web design (all revolving around the product creation). Very little demand was observed regarding research (R&D and design research), and some eventual demand related to branding.

(PART 5) ASSESSMENT

4.3.4.31 (Q.5.1) REGARDING THE ASSESSMENT OF THE PROGRAMME:

Does the programme have an assessment system?

(If YES) Is the assessment system Internal or external?

(If YES) What does it measure?

(If YES) How does it measure?

(If YES) How frequently does it measure?

Are the participating SMEs monitored for the results?

Are all cases thoroughly registered for later assessment?

Are the data about the programme outcomes publicly available?

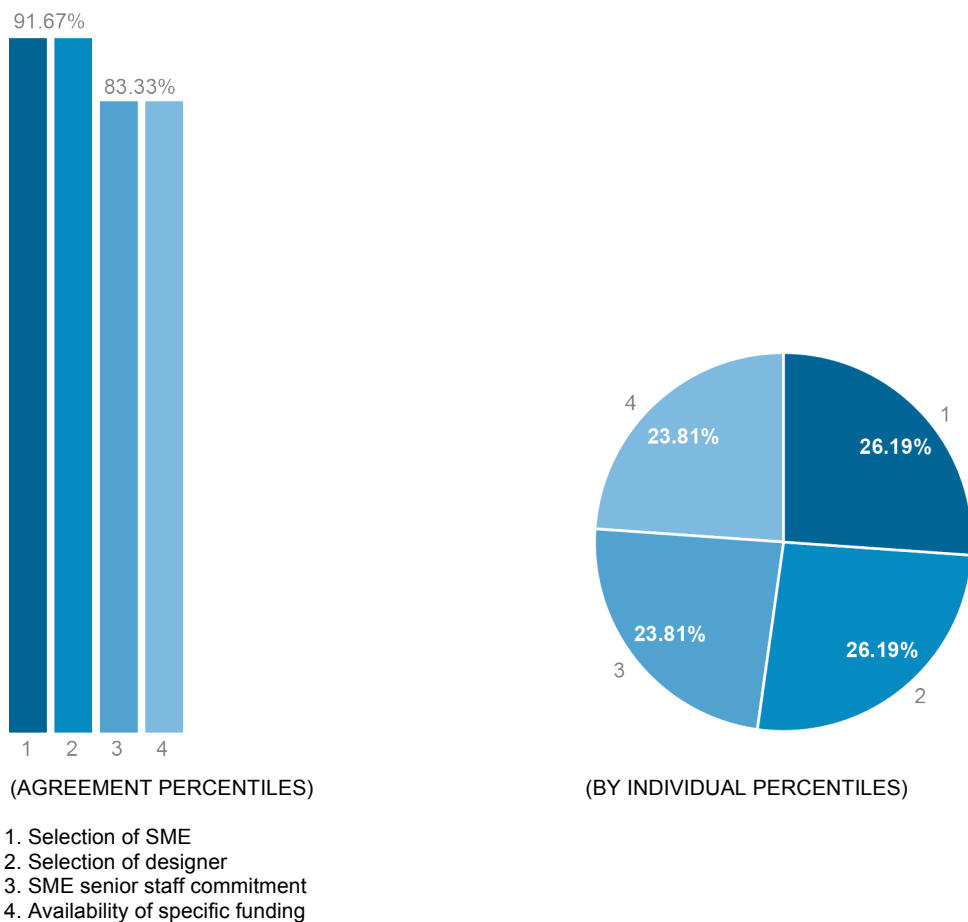
Does the programme keep records of failures?

As explained above in the programme analysis, the programme was originally conceived to generate tangible results, and the intention to keep record of case studies was a premise. So, the programme had an assessment plan from the beginning. During the execution of each programme, regular (monthly) staff meetings allow to keep track of the performance of the projects being developed and to do eventual corrections. After the end of the first phase in 2002, a series of workshops was promoted to discuss the programme results, involving the staff of the centre, local experts and international consultants as Bruce Wood (former director of the Glasgow Collection programme) and Gui Bonsiepe. The visits (initial diagnosis and monitoring) were used to record data, keeping constant track of the progress. Basic data was recorded initially, such as number of companies visited, number of contracts signed, designers hired, etc (as shown above), to which were added complete case studies of each participant later. The participating companies were not followed after the introduction of products in the market, to get medium to long-term data about the product success or failure. Most of the data is publicly available from the programme publications and reports (available at the centre website), as well as

the methodology of the programme, made available with the intention to be possible to replicate it anywhere. There is no consistent recording of failures with the objective to serve to assess the effectiveness of the programme, although localized failures emerge and are discussed in the assessment in the continuous assessment methodology adopted, with monthly staff meetings. Respondent 3 observed that the attempt to collect ‘sensitive data’ (financial, legal, fiscal) from the companies usually turns the company suspicious and less cooperative, since these data is usually hidden from competition (and sometimes even for fiscal reasons, since the programme is identified with local government – ultimately with tax collection and enforcement).

4.3.4.32 (Q.5.2) How do you rate the importance of the following factors to the success of the programme?

FIGURE 4-36: Factors impacting the success of the programme



A good selection process – both of companies and designers – is considered to be the most impacting factors on the success of the programme, followed by the commitment of the senior staff and the availability of funding to the participating companies.

4.3.4.33 (Q.5.3) Based on the original goals of the programme, how would you rate its level of success?

The three respondents rated the programme as having reached a good (one respondent) or a very high level of success (two respondents).

4.3.4.34 (Q.5.4) What are/were the three most significant challenges to the programme?

Several different issues were observed by the respondents, and only the first three challenges were agreed between two respondents:

1. raising awareness of design in the companies;
2. persuade supporters about the economic relevance of the programme;
3. achieve the current challenge of bringing 70 companies to the 2012 programme (the former editions had 48 and 47 companies respectively);
4. make designers understand company needs and avoid 'author projects';
5. maintaining motivation and quality of projects.

4.3.4.35 (Q.5.5) What are/were the three most significant threats to the programme?

Again a series of issues were raised, with very little agreement, but otherwise offering a considerable panorama of the threats faced by the programme:

6. economic factors;
7. political factors (instability);
8. (high) number of participants;
9. excessive focus of formal outcome (aiming exhibition, catalogue, publicity) instead of the business;

10. short term projects prevents high technology oriented products, leading focus to low-tech, immediate projects;
11. poor skills of designers to deal with business issues and management processes;
12. low offer of qualified design companies (locally).

4.3.4.36 (Q.5.6) How would you rate the success of the programme?

All respondents agreed that the programme is considered to be very successful by its supporting bodies, as well as the SMEs segment. Reflecting the success of the previous two editions, a new version was planned and implemented in 2012 – notwithstanding the long interval of seven years. This success also motivates its frequent use as an example of good practices and inspiration for other programmes. The model of the programme was made available, and according two respondents, had already been used as a reference to other design support programmes.

4.3.5 FINDINGS

The second phase of the field study brought to light a very successful programme, well planned and managed, that additionally was fruit of an UK-Brazil partnership in design policies, between the Glasgow Collection and the Parana Design Centre.

The archival documents and interviews allowed a series of findings, that sum up to those achieved in the first phase of the study:

- Parana Creation is a very successful example of cooperation UK-Brazil in the field of design policies, and a strong argument for further collaboration and exchange of experiences;
- Developing regional programmes instead of adopting general national models apparently work better in an environment where local political will (and championing) is a strong component. In a long term, Via Design (a national programme) disappeared, while Parana Creation managed to survive and reinvent itself. The problems of addressing the large territory of Brazil are much bigger than local issues, especially after a successful experience that becomes motivating to local industry and design sectors.

- The existence of one successful regional programme - although facing many problems along its history - does not disqualify the need for national (and regional) long-term policies. It is paramount to understand that it came to be what it is (the Parana Design Centre) precisely after a national programme of support (Via Design) was set in the past. That national programme, however, was not established as (or even within) a long-term policy, but rather as a short-term programme. The majority of the centres and nuclei established originally by Via Design had a very short life, almost coinciding with the short-term of the programme.
- It is important, on national level, to make funding available to foster regional initiatives such as Parana Creation;
- National innovation policies of the 2000's decade were the strongest influence on the creation of the programme;
- Bigger Brazil Plan (Plano Brasil Maior) a broad national policy for industry, technology, and trade issued in 2011, was appointed as the strongest influence for the latest version of the programme;
- Regionally, the S&T policy from the State of Parana was considered to be the most impacting factor, followed by industrial and innovation policies;
- The programme responded to a strong demand from both the industrial (and SME) sector and the design sector;
- Importance of local politicians awareness of design as a development tool;
- Championing: the State Government, and particularly Governor Jaime Lerner was appointed as a major supporter in the creation of the programme;
- Increase competitiveness (20%) and product quality (18%); support to clusters (20%) and regional development plans (20%) were appointed as the issues that most contributed to the creation of the programme;
- The factor with highest impact on the length of the programme phases was appointed to be the available budget (36.67%), but also an externally determined timeframe (such as political goals and terms) was also considered significant (26.67%), in the same amount as the need to control the programme variables (26.67%);
- Partial involvement of government

- 'Cross-pollination' of programmes (nationally & internationally);
- A good programme can survive with different supporters along the time;
- Programme creation responds to availability of funding, and not to a designed policy;
- Successful case studies of bigger industries can attract SME/MSE to the programme;
- Importance of political terms (cycles) in defining programme timeframes;
- Design awareness raised through the increase of design schools;
- Need for designers to develop communication skills - specially to address businessmen;
- In the assessment, trying to collect 'sensitive data' turns the company less cooperative;
- Excessive focus on successful case studies can hamper the business outcomes (sometimes the best idea may not be the best design);

4.3.6 DISCUSSION

UK-BRAZIL PARTNERSHIP: As already mentioned, the Parana Creation Programme was shaped through an UK-Brazil partnership in the field of design policies, that involved the Glasgow Collection (a successful Scottish design-support initiative from the late 1990's; see Wood, Pougy & Raulik, 2004) and the Parana Design Centre. This partnership brought the State of Parana to be in contact with design policy thinking and planning in Europe and the world, generating a series of studies commissioned by local government or by the Brazilian Design Programme (such as: Miasaki & Pougy 2006; Miasaki, Pougy & Saavedra 2006; Fonseca et al., 2006; Camargo, 2005; Wood, Pougy & Raulik, 2004). It also brought as direct consequence that one of the project managers from Parana Design Centre, Gisele Raulik (later Raulik-Murphy), developed in the UK initially her Master studies, and later a PhD thesis (Raulik-Murphy, 2010) about design policies. Furthermore, Gisele became coordinator of SEE Project, think-tank of design policy in Europe (from 2008 to 2011).

Discussing the experiences of Glasgow and Curitiba after the first edition of Parana Creation, it has been said: *“It is interesting to note that the economic positions of Brazil and the UK are very different, with huge differences in histories and aspirations. Nonetheless, the two regions were able to achieve remarkably similar benefits from these projects even while adapting them to local conditions and factors. Importantly, this highlights the need for such projects to act at the tactical, as well as the strategic, level if they are to be successful.”* (Wood, Pougy & Raulik, 2004)

However evincing the opportunities of international collaboration in the field of design policies, this is apparently an isolated example in Brazil.

CONTINUITY ISSUES: Observing the Parana Creation / Design Parana case, the seven-year hiatus from the 2005 edition of the programme could be considered a strong argument to rebrand it and stage a re-launch in 2012. However, this could be seen as a portrait of the cycle of design programmes and policies in Brazil.

Policies and programmes does not have a budget to maintain their work, but rather have to crusade for funding from different government agencies. There are no trusts or supporting bodies that would allow the establishment of long-term programmes. This is indeed the current model of operation of the UK Design Council – that have to dispute funds based on projects. But it could be said that, by adopting this model based on the sustainability of the programme (or the centre itself), Brazil would be leaping a necessary step of a government-supported model. SEBRAE tested this later model with the Via Design programme, when it promoted the creation of country-spread design centres and nuclei. What went wrong? This is indeed a subject for further research, but we could risk crediting it to a blend involving primarily a lack of local government commitment, and of adequate skills – basically strategic design, design management, and business skills, which can not be learned in short-term workshops intending to qualify regional teams.

The problem with the short life of programmes pointed out by Raulik-Murphy (2010), is confirmed by examples such as Via Design, or the Rio Design Centre – appointed as a significant stakeholder in the first phase of the study, and shut

down a few months after. This apparently chronic discontinuity favours the immediacy of actions, or the short-term effectiveness of programmes over policies (the later having usually longer cycles). The prevailing cycle is that of politicians, rather than policies – while the cycle of a policy ranges from near “*five years to multiple generations*”, the cycle of politicians is usually limited to 4-10 years (according to Dror, 2006). Continuity seems to be disregarded as a compromise with the old and outdated, then a new programme is a sign of commitment with the present, albeit the self-imposed corollary of spoiling the future - if only short-term programmes exist, therefore there is no stability and improvement coming from experience. However, there may be a paradox in this situation: the challenge to innovate is always present, to outlive the preceding programmes or actions - even if this is not always true, or possible.

INNOVATION FROM DISSENT: Key stakeholders reach some level agreement when it comes to making choices from a given framework, but very little (and sometimes virtually none) when challenged to offer spontaneous contribution. Dissent, however, is not the only point here. A good number of innovative ideas or different approaches could be observed, and one could observe that the apparent dissent could result from a lack of formalisation of a national debate about design policies. Consent could only be achieved by ample debate supported by research and data – and these three elements (debate, research, data) are missing in the environment of design policies in Brazil.

4.3.7 CONCLUSION

The field study have achieved its objectives, initially in analysing the issues that emerged in the literature review:

- **DEFINITIONS:** It was not detected any significant disagreement about the comprehension of key terms;
- **DRIVERS and IMPACTING FACTORS:** There was a considerable dispersion in the perception of the factors driving and impacting national and regional design policies. This can be explained by the absence of formal policies and steering

bodies, causing the topic of design policies to be subjected to fragmented actions and a diversity of actors / stakeholders with undefined roles;

- NATIONAL DESIGN SYSTEMS: In what could be seen as a consequence of the previous factors, there is little comprehension of the concept and its components;
- DESIGN INNOVATION AND COMPETITIVENESS: Design is seen as an important player to achieve competitiveness and in trade policies, but its role in innovation is still reduced, and not even cited in Brazilian innovation policy documents; design support to SMEs appears as a contrasting issue: at the same time that a well-structured programme is implemented successfully in the State of Parana since 2002, the national programme that should offer support to regional initiatives have been shut down;
- DESIGN AND DEVELOPMENT: Although design is recognized as a potential tool to foster regional development, there are in fact few initiatives directly related to it; most initiatives are directed to promotion and awareness, as observed by the majority of respondents;
- DESIGN VALUE: There is considerable agreement about the most adequate data collection metrics for the assessment of the outcomes of design policies; the relevance of IPR (design registration and patents) as a design policy metric is perceived as very low;
- DESIGN SUPPORT: Support actions are mostly based on promotion; more oriented and stable (continuous) design financing is sought – the constitution of a ‘national design fund’ was suggested; the educational sector is not perceived to be engaged.

The second part of the study also allowed conclude:

- The relevance of international partnerships and exchanges in developing design policies;
- The importance of establishing processes of continuity of successful programmes and actions, that should not be so much dependent on the cycles of political terms;
- Design support to SMEs demands well-trained teams to be prepared, and qualified local support from design companies;

- Design support to SMEs deserves more attention from Brazilian government, especially having an already successful programme to mirror;
- The absence of formal policies and steering bodies should be a concern to the Brazilian government, if it wants to advance to a higher level of development – having an ingrained design culture and a well-established design policy is characteristic of innovation-driven economies.

4.3.7.1 INSIGHTS

CROSS-POLINATION of international programmes, with a considerable exchange of ideas and personnel.

Example: Parana Creation Programme, inspired by Glasgow Collection, was a successful case of UK-Brazil collaboration in DPs.

EMBEDDED PROMOTION in hybrid actions that bring together induction and promotion, enhancing the impact potential.

Examples:

(1) Parana Creation Programme was itself a hybrid of inductive and promotional actions. At the same time it worked inducing companies to adopt design as a product innovation and competitiveness tool, the programme attracted applicants offering publicity and visibility with exhibitions, catalogue, and wide press coverage. Awareness (promotional) and instructional actions were also embedded in the programme, with seminars oriented to the companies' senior staff.

(2) "Design de Botequim" (design for bars) was a furniture design competition promoted in 2008 by Rio Design Centre, with support from SEBRAE-RJ, SENAC-RJ, and SINDIMOVEIS (Union of Furniture Manufacturers from Rio de Janeiro). The Union provided manufacturers to prototype furniture designs pre-selected by a jury. The prototypes were then distributed in the nightlife district of Lapa, where users could try and vote for their favourites. More than a simple competition, it allowed manufacturers and designers to test products in high visibility places, with large public and wide press coverage.

5 DISCUSSION

This chapter discusses factors impacting on DPs, identified in the literature review and supported by the field study, and proposes a framework to better explain and understand these factors. From these, a conceptual model and a framework was developed to help to frame and develop effective DPs. It is important to highlight that only the issues considered to be relevant to the aim, objectives and research questions were addressed in this chapter. Many topics covered by the literature review and later developed in the field study could lead in the future to further study and are specified as such in the next chapter.

5.1 TENSIONS AND MOTIVATIONS

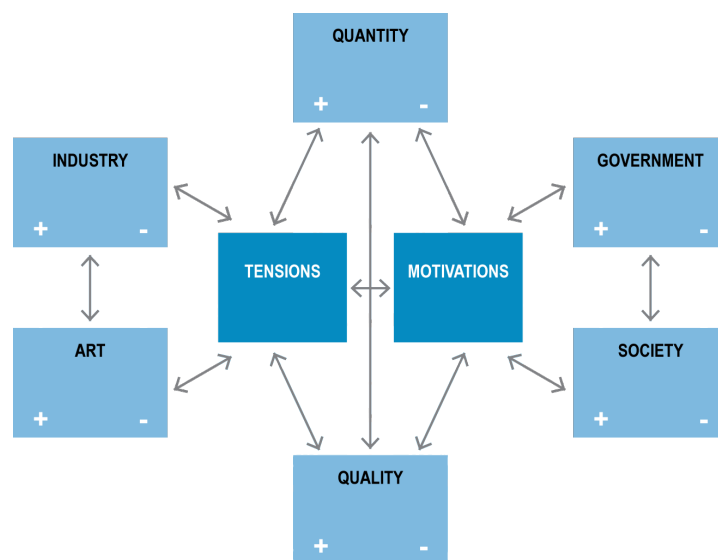
History repeats itself, as one classic discussion in the discipline of design, appointed by design historians and theoreticians (such as Heskett, 2005, and Maguire & Woodham, 1997) permeates the discourse of design policies along the time as well and characterises the frequent tensions between designers and governments. Such is the question, or tension, between art and industry.

Back in the Industrial Revolution, industries had the need to develop competitive products. Design was an internal process, incorporated into industry – but needed to be externalised, bringing innovative freshness to this process. But design, as an activity, would only exist from the beginning of the twentieth century. Industrialists then appealed to artists to provide this fresh new approach to products (Heskett, 2005). The contradiction was in the diversity and the distance of the approaches to the product. From the viewpoint of artists, it was quality and integrity of their conception. For industry, it was technology, productivity, costs, and quantity.

The equivalent tension between ART and INDUSTRY can be found between QUANTITY and QUALITY. Ultimately, these tensions and motivations – displayed in the figure below – are also reflected in the relations between GOVERNMENT and SOCIETY expressed in the development and implementation of DPs.

The historical tension between art and industry that lurks from the genesis of design seems to feed the perception of design in the realm of the cultural industry instead of the economic, industrial, and innovation policies. This misplacement evinces a prevalence of the PRODUCT of design (the object) over the PROCESS. It is however in the process where lies the truly strategic - and most important - role of design. Rather than the cultural aspects of design industry, what should be valued and discussed are the economic impacts, regional development, and the effective increment of competitiveness brought by a well-implemented (and well-managed) design policy. The debate about design should be shifted from its cultural aspects to the industry economic agenda.

FIGURE 5-1: Tensions and motivations



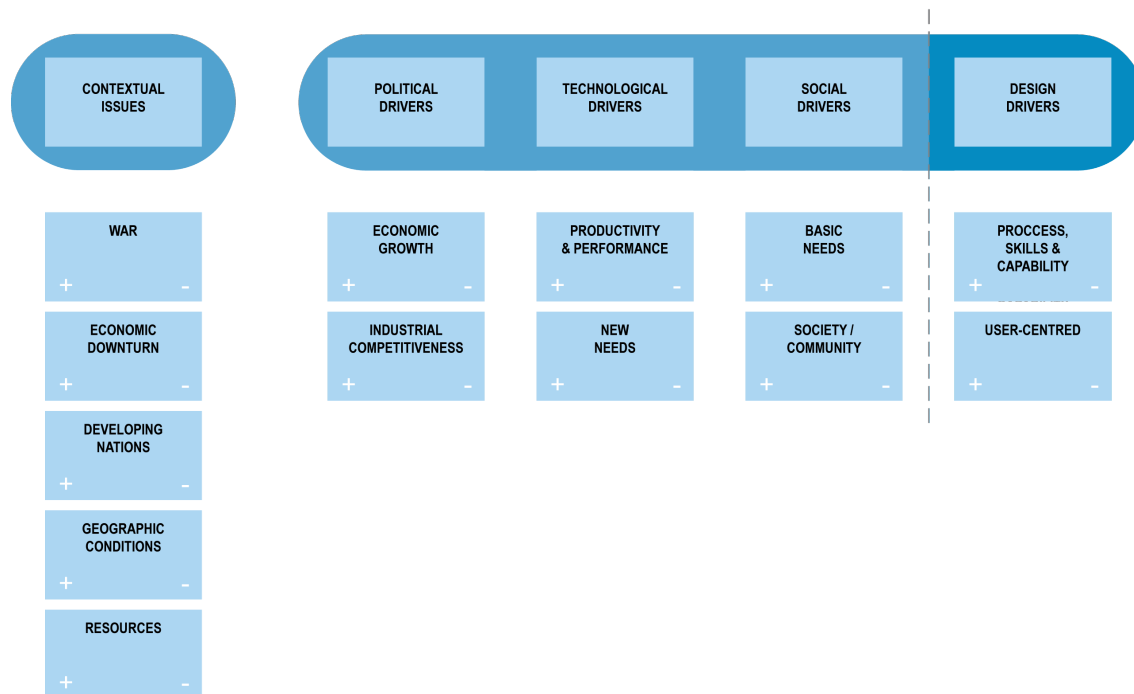
5.2 CATALYSTS AND DRIVERS OF CHANGE

5.2.1 DRIVERS AND CONTEXTUAL ISSUES

Issues and drivers are vectors that could affect policies with a positive or negative impact. 'War' could be a factor or not, and in different intensities. Economy can be a positive factor or otherwise negative, if there is stagnation or decrease. An accurate identification and assessment of the vectors affecting

the scenario in a positive or negative way is paramount for the development of effective policies.

FIGURE 5-2: Context and drivers

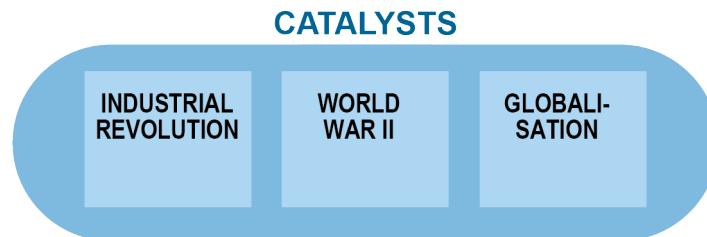


5.2.2 CATALYSTS

Literature identifies three KEY CATALYSTS that historically leveraged the deployment of DPs: the INDUSTRIAL REVOLUTION, the SECOND WORLD WAR, and the GLOBALISATION. Alpay Er (2002) and Heskett (2005), among others, associate the adoption of design by governments in the early nineteenth century (particularly the British government), as a direct effect of the Industrial Revolution, using technological advance to achieve competitive advantage, economic growth, and wealth. The Second World War, by its turn, was the paramount catalyst of the twentieth century for DPs according to Maguire & Woodham (1997). DeLeon (2006) states it was paramount for many policies – with the urge to reconstruct nations, to foster world trade and the economy, all affected by the war. The third catalyst, GLOBALISATION, impacted over DPs and brought design to the scene at the end of twentieth and beginning go twentieth-first century - initially as a vital tool to add value and promote competitiveness, but ultimately as a paramount tool for innovation policies in the

dawn of the new century. As discussed in the literature review, Alpay Er (1994) claims that the globalisation of markets and manufacturing industry as the drivers for the development of design, majorly in developing countries.

FIGURE 5-3: Historical Catalysts of Design Policy



INDUSTRIAL REVOLUTION, the first catalyst, urged in the nineteenth century for policies focused in **COMPETITIVENESS** to support **ECONOMIC GROWTH**. **NEW NEEDS** of the infant industry also demanded policies to support the development of new products applying the latest technological achievements.

The end of the **SECOND WORLD WAR** sparked a demand to address **BASIC NEEDS** and generate **ECONOMIC GROWTH**, or rather the recovery from the unsettling effects of the war. The application, in times of peace, of the scientific and technological development brought forth during the war generated **NEW NEEDS**, and the concern for basic needs triggers **SOCIAL CHANGE**. With all four vectors playing their roles, the model became fully functional and enabled with the second catalyst.

Other more or less similar circumstances could also act as local catalysts – or ‘strong drivers’ – for DPs. The industrialization (or de-industrialization) of a country or a region, and different levels and intensities of social conflicts, represent possibly favourable conditions and can also act as catalysts.

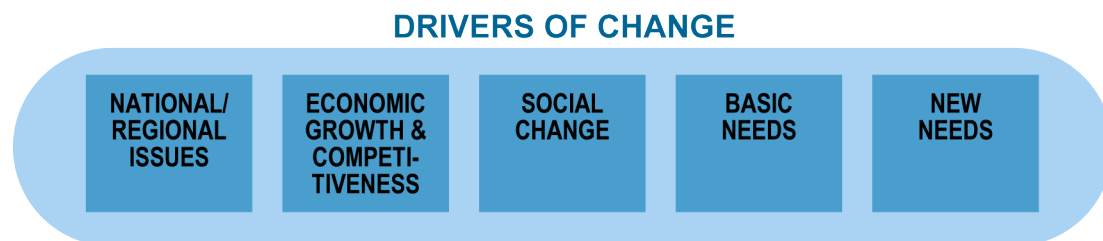
At the end of the twentieth century, another robust economic transformation came to play the role of the latest DP catalyst: **GLOBALISATION**. It can be said the globalisation promoted design as an economic imperative: there is a need

to improve competitiveness, to add value to products, and ultimately to innovate through design. ECONOMIC GROWTH and NEW NEEDS are the ruling drivers of globalisation.

5.2.3 DRIVERS

The effective scope and drivers adopted by implemented DPs is fairly limited, notwithstanding the many discussions and idealised expectations about the potential of DPs to promote social change. The key factors influencing DPs can be summarised in five categories of ‘drivers of change’ (Fig. 5-4):

FIGURE 5-4: Drivers of Change Affecting Design Policies



NATIONAL AND REGIONAL CONTEXT AND ISSUES: DeLeon (2006) emphasises the importance of context, or external factors, to the development of policies. Local contexts are determining factors to the deployment of DPs. Be it in national, regional, or local level, this is the most immediate pressure over governments and politicians.

ECONOMIC GROWTH AND COMPETITIVENESS: Authors as Heskett (2010) and Raulik-Murphy (2010) highlight economic development and competitiveness as the most important and frequent drivers of DPs. Wealth generation is indeed the most frequent objective of any government, either in advanced or developing economies.

SOCIAL CHANGE: Designers had always liked to discuss the relevant role of their activity in promoting social change. Numerous initiatives promoted by organizations like the ICSID have addressed the subject, following the international debate about critical conditions as climate change, and the depletion of natural

resources. In the same way as Papanek (1985) pioneered the discussion in the 1970s, Thackara (2012) and Nussbaum (2010), have more recently addressed this perspective of design as an instrument of social change. There is an undeniable role to be played by design in sorting our way out these circumstances, but there are also other approaches to the promotion of social change. The improvement of public services is one of the factors that is increasingly receiving attention from governments and society – and as a driver for DPs.

DESIGN FOR BASIC NEEDS: Authors as Schumacher (1973), Papanek (1985), Bonsiepe (1973, 1977, 1979, 1991), Bicknell & McQuiston (1977), all have brought different contributions towards the use of design to address basic needs, usually linked to populations in regions suffering from the effects of climate, poverty, or war. But to address basic needs has also been one of the factors associated with the creation of the Council of Industrial Design in 1944. According to Maguire & Woodham (1997), the initiative was directly linked to the post-war reconstruction efforts. The target populations were the '*bombees*' – those who have lost their homes in the bombings – as well as newly-wed couples, aiming to re-establish normal life. This situation – providing for basic needs – would always be replicated under different contexts, and drives specific DPs.

DESIGN FOR NEW NEEDS: Innovation policies have been the dominant policies driven by wealth generation (economic growth and competitiveness) in the last decade – and DPs have somehow subjected to it. Design for new needs, responding directly to the latest development of science and of technology, is yet another key driver for DPs.

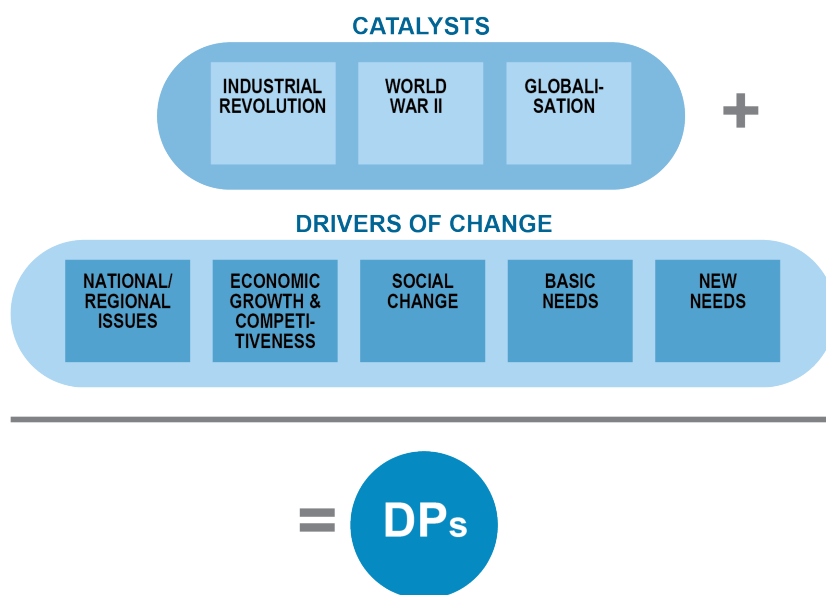
It is important to state, as informed by literature (Maguire & Woodham, 1997, and Bonsiepe, 1973, among others) and adopted as a basic definition in this research, PROMOTION is one factor or an aspect of a policy. DESIGN PROMOTION is not, by itself, a policy. Raulik-Murphy (2010), however, calls attention to the fact that, in developing economies, the need to promote design awareness is a very significant factor influencing DPs, different from advanced economies where the author detected a trend towards social-oriented factors.

That trend in developing economies explains the frequently adopted focus on design promotion, which sometimes acts as a surrogate of a DP.

5.2.4 CATALYSTS + DRIVERS

The influence of historical catalysts of DPs discussed above, interacting with the identified drivers of change can be expressed by figure 5-5:

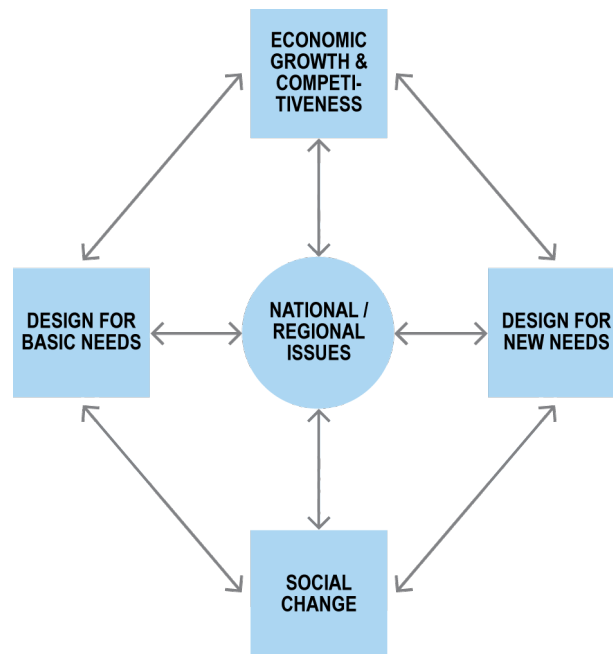
FIGURE 5-5: Catalysts and drivers of change



5.2.5 MODEL OF DESIGN POLICY DRIVERS

The five drivers described above are represented in the following model (Figure 5-6), where the contextual driver – NATIONAL / REGIONAL ISSUES – is shown in the centre, a mediating point interacting with the other four drivers around it. This model can be used to represent and discuss different approaches to DP, analyse the *entry point* or *core drivers* of these policies, and the presence and relevance of each other driver.

FIGURE 5-6: Model of Design Policies Drivers



5.2.5.1 DESIGN POLICY CATALYSTS: CORE DRIVERS

Using the model of DP key drivers, it is possible to establish the *core drivers* or *entry points* of the historical catalysts identified.

The first historical catalyst of DPs, the Industrial Revolution, had as a key entry point the *economic growth and competitiveness*, interacting directly with *national and regional issues* and specific needs. The new industry generated

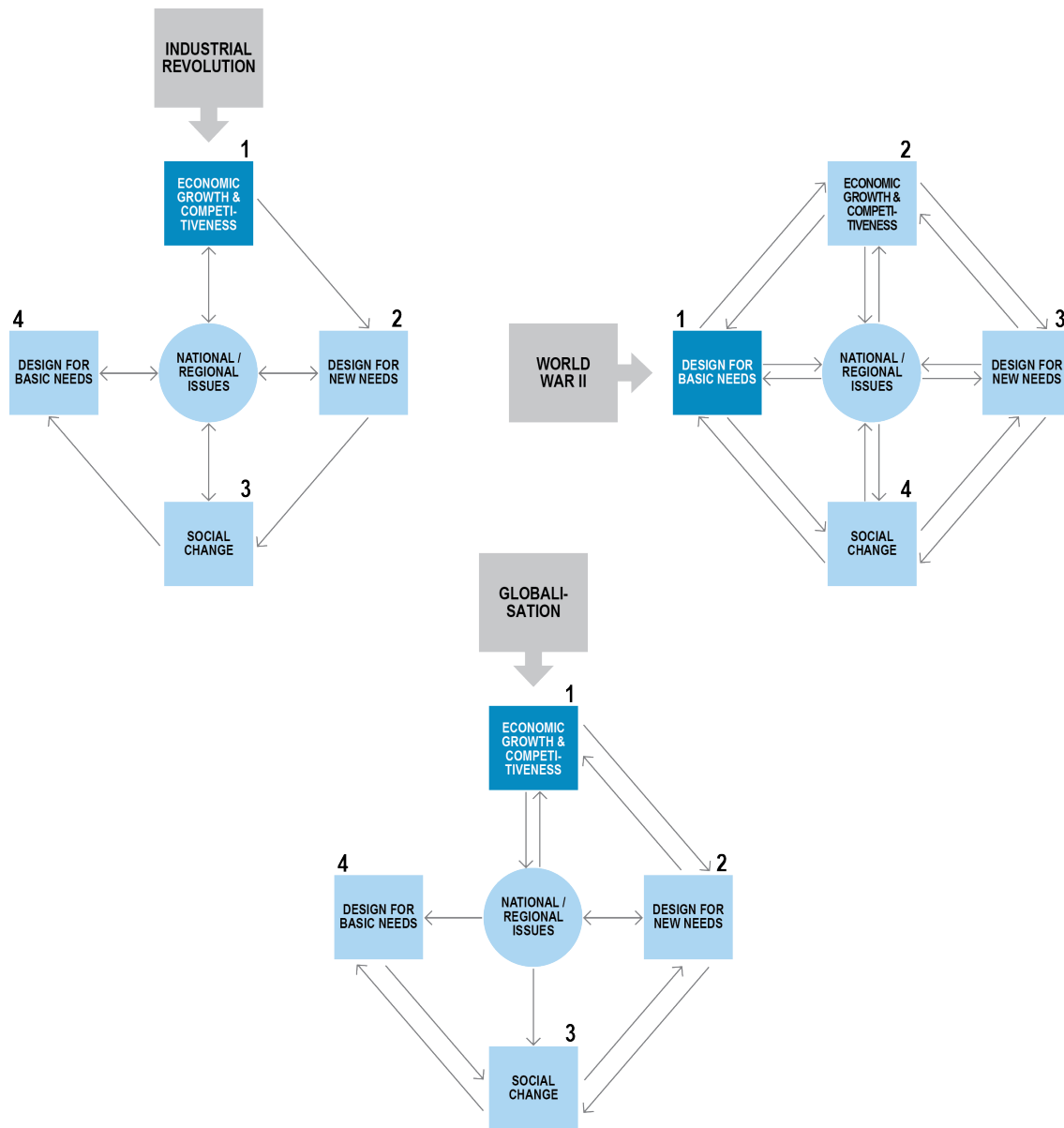
new needs to be addressed, leading to changes in society and ultimately the need to address basic needs, related to specific regional issues.

The second catalyst, the Second World War, had as a core driver the urge of *design for basic needs*. The pressure of rebuilding homes and public services and get life back to normal was determining factor, directly connected to *national and regional issues*. Although this was undoubtedly the core driver for DPs at that moment, the urge to rebuild also impacted (and was impacted by) the other factors: *economic growth and competitiveness*, *design for new needs*, and ultimately the necessary and expected *social change*. The interaction and flow between all factors after the Second World War was much more dynamic than during the period of the first catalyst (Industrial Revolution).

For the third catalyst, Globalisation, the core driver and entry point is *economic growth and competitiveness*, and this driver interacts again directly with *national and regional issues* and *design for new needs*. The drivers of *social change* and the *design for basic needs* are secondary, if not tertiary to this process, and are reached through vectors more related to local issues, mostly as a consequence of the excessive pressure put over the *economic growth and competitiveness*.

The three examples are represented on figure 5-7:

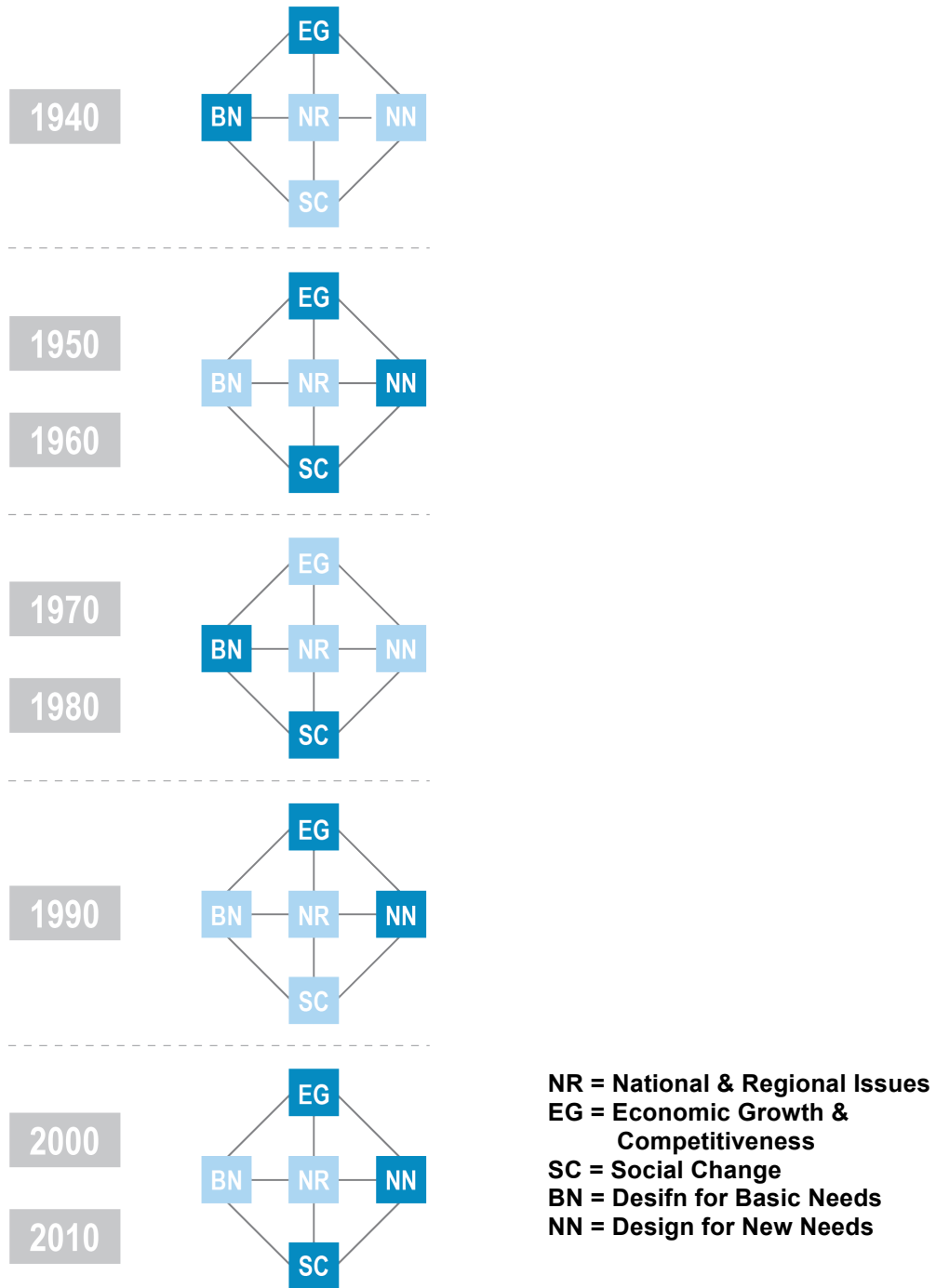
FIGURE 5-7: Core Drivers (entry points) of DPS after Industrial Revolution, Second World War, and Globalisation



5.2.5.2 DESIGN POLICY OVER TIME

Using the model of DP drivers presented above, and based in authors as Sparke (1987), Valtonen (2007), Heskett (2005, 2010), and Maguire & Wodham (1997), among others, it is possible to highlight the most important drivers over the last decades, since the end of the Second World War:

FIGURE 5-8: Design Policy Drivers Over Time



1940s: Achieve ECONOMIC GROWTH AND COMPETITIVENESS and to meet BASIC NEEDS were the key drivers for DPs immediately after the war. Nations affected needed to recover their economies, their cities, and the lives of their citizens. The Council of Industrial Design was established in the UK in 1944

based on these two premises, giving birth to an era of institutionalisation of DPs, as appointed by Heskett (2005) and Maguire & Woodham (1997).

1950s/1960s: During the first two decades after the war, to achieve ECONOMIC GROWTH AND COMPETITIVENESS was still a key driver, but technologies developed during the war had to find their way to the markets, and the building of a new society was an overall goal. So the NEW NEEDS and promotion of SOCIAL CHANGE became significant concerns of DPs (Sparke, 1987).

1970s/1980s: The following decades, under the influence of ICSID and UNIDO, and authors as Schumacher (1973), Papanek (1985) and Bonsiepe (1973), DPs shifted to engage in the challenges of SOCIAL CHANGE and to supply for BASIC NEEDS. Although economic growth has been always on top of the key drivers for DPs, the economic downturn of developing countries causing deep social problems brought design to shape social-engaged policies.

1990s: An entirely new catalyst was introduced on the 1990's decade - Globalisation - impacting the economic scenario and bringing ECONOMIC GROWTH and NEW NEEDS to stand out as key drivers of DPs in the decade.

2000s/2010s: Innovation and competitiveness, and design as an innovation driver, had shaped the beginning of the new century, according to Valtonen (2007). Once again ECONOMIC GROWTH AND COMPETITIVENESS is the most prominent driver, followed by NEW NEEDS supporting the shift of focus of competitiveness from price to innovation. To balance the excesses of the globalisation liberal policy the driver of SOCIAL CHANGE was brought back to the scenario of DPs, with challenges such as economic instability, the fight to eliminate poverty, and climatic changes.

5.2.5.3 HIGHLIGHTING CORE DRIVERS

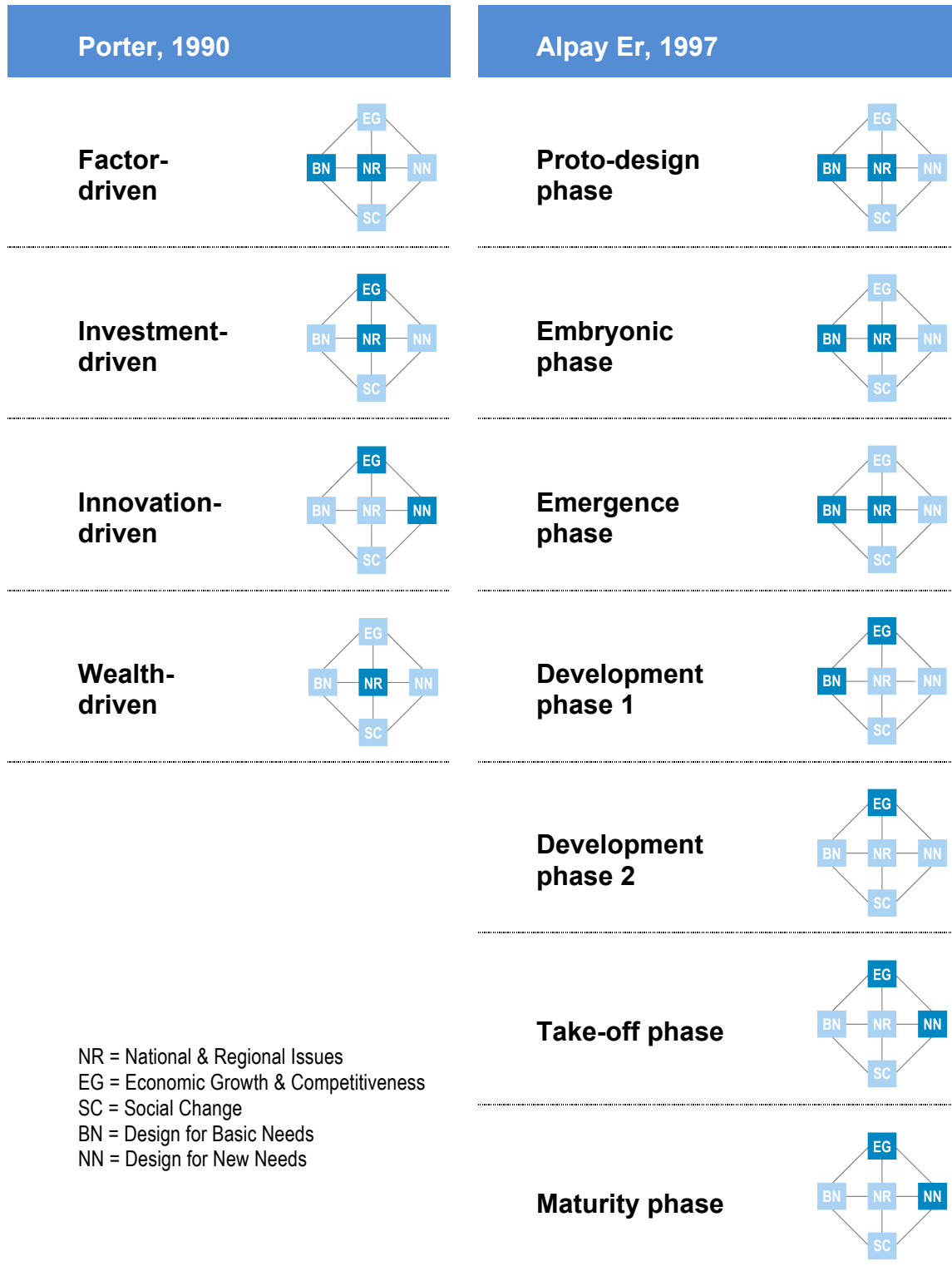
Porter (1990) and Alpay Er (1997) development frameworks (see Chapter 2, item 2.3.1 Frameworks) can be crossed with the model of policy drivers proposed in this research, exposing some similarities (Figure 5-9). The first discusses aspects of macro economy, development, and competitiveness,

while the second, dealing with national design systems, includes also contextual elements of macro economy.

We can exemplify the application of the model of policy drivers by crossing it with the frameworks from Porter (1990) and Alpay Er (1997). The first discusses macro economic aspects, while the second, dealing with national design systems, also includes contextual elements of macro economy. When analysed with the policy drivers model, the frameworks show some similarities.

Starting phases are strongly driven by contextual factors (national and regional issues) and aim to supply basic needs – the core drivers coincide in Porter (first phase) and Alpay Er (three initial phases). When basic demands are answered, next phases address directly economic growth and competitiveness, although still also driven by contextual factors and/or basic needs. Further ahead, the key drivers become a combination of competitiveness and new needs, or the generation of innovative products to boost competitiveness – that's where Porter's third phase (innovation-driven) meets Alpay Er's sixth and seventh phases (take-off and maturity phases). Porter (1990) also describes a post-development or decline phase, where the main concern turns into maintaining wealth (hence the emphasis on contextual issues manifesting itself again, related to the maintenance of the *status quo*), but where competitiveness and productive capacity are decaying.

FIGURE 5-9: Crossing Porter (1990) and Alpay Er (1997) frameworks with policy drivers model



5.3 DEVELOPING EFFECTIVE DESIGN POLICIES

From the identified drivers for DP, can be argued that very few are *adopted*, some have a recognizable *influence*, and many are only *discussed* in professional and academic circles. The most usual – or most sought after – entry point is economic growth (and competitiveness), to promote national or regional development, as demonstrated above.

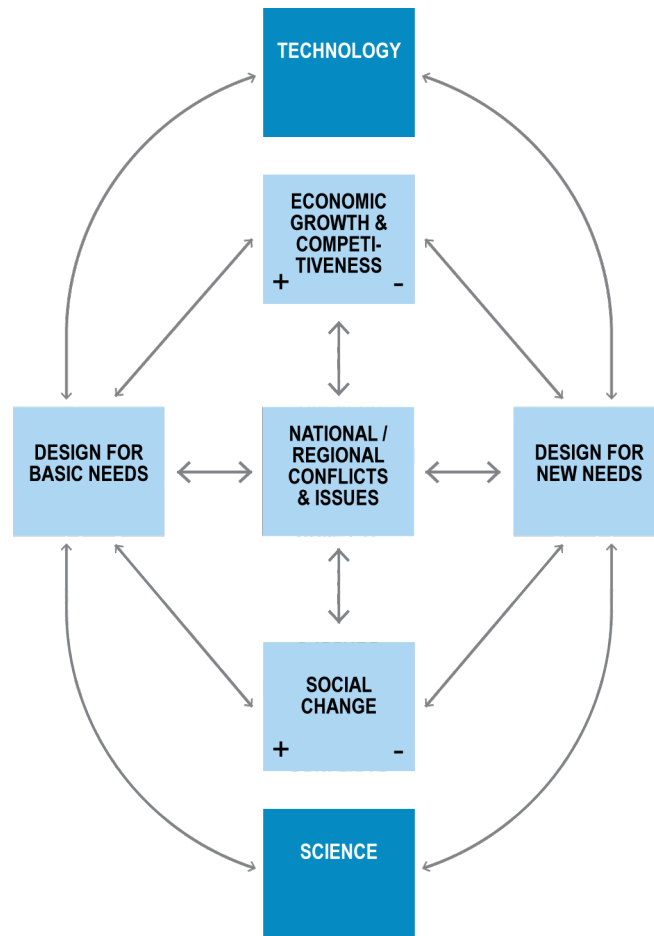
As evinced by the review of literature and field study, DPs are often fragmented and uncoordinated, with high levels of uncertainty. Very few countries have formally adopted a DP. Innovation policy is usually the dominant policy – and design promotion used to facilitate it rather than adopting a DP. In this sense, design promotion is frequently used as a surrogate for DP, if not as a pseudo-DP.

Hence the importance of understanding the drivers and contextual issues involving DPs. This knowledge helps to establish, with lower levels of uncertainty, the ENTRY POINTS for a DP, dosing the expectations, achieving more controlled outcomes, and performing better assessments. Following this understanding, there is a need to develop models and frameworks that may help building more effective DPs. That had led the creation of such instruments, as described below.

5.4 A COMPASS FOR DESIGN POLICIES

The findings from both literature review and the field study evinced the need to reach higher levels of agreement and effectiveness, lowering the uncertainty that surrounds the development, implementation and assessment of Design Policies. Acknowledging this demand, a CONCEPTUAL MODEL was developed to contextualise, explain, and consequently to enable the development of more effective Design Policies: the DESIGN POLICY COMPASS (Figure 5-10).

FIGURE 5-10: The Design Policy Compass



The DESIGN POLICY COMPASS typify:

- how DPs respond and interact with CONFLICTS and ISSUES at a NATIONAL or REGIONAL level;
- existence of TWO BASIC AXES OF ACTIONS, where DPs are identified:
 - (1) with ECONOMIC GROWTH and/or SOCIAL CHANGE;
 - (2) with DESIGN FOR BASIC NEEDS or DESIGN FOR NEW NEEDS;
- occurrence of this interplay in the domain of SCIENCE and TECHNOLOGY.

TERRITORY: DPs are developed within a NATIONAL or REGIONAL context, addressing existing conflicts and issues that emerge from these contexts. (or coverage)

TWO AXES: A DP can be geared towards the promotion of ECONOMIC GROWTH (as in a programme of design support to SMEs) or SOCIAL CHANGE (to address a community issue, or to improve a government service). The identification of a DP with ECONOMIC GROWTH does not exclude its potential generation of SOCIAL CHANGE. The DP can be routed to achieve either one or another end of the axis, but it can also be graded somewhere in between the two extremes. Set at an intermediate point, the DP contemplates equally both economic growth and social change; when located elsewhere along the axis, although identified with both ends, the DP is geared towards one. Meaning that if a DP is identified in the segment of the axis between the intermediate point and the Economic Growth end of it, this DP is geared towards Economic Development, while also intending to promote some Social Change.

As design can be used to address BASIC NEEDS (e.g. in the development of solutions for water and sanitation) or NEW NEEDS (in new product development; to improve competitiveness), in the same way can DPs be identified with either one of the ends of this axis. One extreme – BASIC NEEDS – is identified with SOCIAL CHANGE, while the other – NEW NEEDS – relates to ECONOMIC GROWTH.

DOMAIN: SCIENCE and TECHNOLOGY are the resources feeding the system with knowledge and technique. There are different levels of interaction, from the use of basic technologies to address a known problem, to the interface with science to develop applications for the latest technology and knowledge.

5.5 NAVIGATING DESIGN POLICIES

Navigation issues (coming from the review of literature) informed the development, and were subsequently validated by the field study, its findings and discussion. These issues were reframed based on the outcomes of that study, generating a six-point framework, shown below with their original

corresponding issues. The first issue considered originally in the field study navigation framework – definitions – was not included here. Basic definitions are considered, as already discussed in the review of literature, as a basic point to achieve agreement, and despite being one factor to be considered, this study already offers a basic set of definitions to be followed.

TABLE 5-1: Navigation issues related to field study

NAVIGATION ISSUES - REFRAMED	FIELD STUDY NAVIGATION ISSUES
1. SPECIFIC DRIVERS	Drivers and impacting factors
2. TARGET	Design value
3. INFLUENCING FACTORS	Design innovation and competitiveness / design and development
4. STAKEHOLDERS	National design systems
5. INFRASTRUCTURE FACTORS	National design systems / design support
6. METRICS	Design value

5.5.1 THE CREATE DP FRAMEWORK

Using the DESIGN POLICY COMPASS framework shown above (Figure 5-10), and according to the NAVIGATION ISSUES raised on Table 5-1, it was developed a NAVIGATIONAL MODEL (Table 5-2), as a matrix where the six navigation issues are set against the five orientation factors from the Compass.

This matrix sets a framework to help the development of DPs, where specific drivers, targets, influencing factors, stakeholders, infrastructure factors, and metrics, should be identified and planned considering their insertion within the five orientation factors: national & regional issues; economic growth & competitiveness; social change; basic needs; and new needs. This matrix or navigational tool, intending to facilitate the development of DPs, was named CREATE DP (Table 5-2).

TABLE 5-2: CREATE DP - a navigational model

	ORIENTATION				
NAVIGATION	ECONOMIC GROWTH & COMPETITIVENESS	SOCIAL CHANGE	BASIC NEEDS	NEW NEEDS	NATIONAL & REGIONAL ISSUES
SPECIFIC DRIVERS					
TARGET					
INFLUENCING FACTORS					
STAKEHOLDERS					
INFRASTRUCTURE FACTORS					
METRICS					

5.5.2 USING THE COMPASS MODEL AND THE CREATE DP

The Create DP framework should be used to identify and map factors influencing or contributing to the development of any specific action of design policy. Usually a DP will lean towards one of the five given Orientations:

- **Economic Growth & Competitiveness** – is it the motivator or the main focus of this policy?;
- **Social Change** – does social aspects, or the need to address social issues, play a primary role in this policy?;
- **Basic Needs** – does this policy address basic needs? (in which case it might also be related to Social Change, but not as its main focus);
- **New Needs** – does this policy relate to new or more sophisticated needs (e.g., related to induction of design-centred businesses in start-ups or technology parks);

- **National & Regional Issues** – does this policy operates responding to national or regional issues? What are the consequences of being national or regional to this policy?

The framework should then be filled from this axis or Orientation:

- **Specific Drivers** – what drivers are influential to this policy in a more specific level?;
- **Target** – what targets is this aiming?;
- **Influencing Factors** – what factors might contribute or impair the development of this policy?;
- **Stakeholders** – who are the stakeholders involved, and what role do they play?;
- **Infrastructure Factors** – what does it need to operate properly and achieve the expected success? What infrastructural factors might impair its development or continuity?;
- **Metrics** – how the policy outcomes will be recorded and measured?.

Go back to the other Orientation columns – there are other factors that will certainly influence or even play important roles in the planned policy. The other fields are so filled in as their importance is identified. There is no need to fill each cell in the framework, so leaving some cells blank will help to notice how or where the factors are clustered when planning the policy.

The final assemblage of factors will provide a clear picture of the intended policy, its strengths and possible weaknesses, who are the stakeholders involved and their roles, and how will it be measured at the end of its cycle.

VALIDATION: Regarding the validation of the models and frameworks proposed to help in the development of more effective Design Policies, it should be remembered what Dror (2006) defines about policy cycles – that these cycles may range from a minimum of five years to the reach of generations – which is indeed a timeframe much beyond that of a doctoral research. The models and frameworks developed are presented here as a contribution of this research to the field, pre-validated by the existing knowledge found in the

literature review (from where the emerging issues for the field study were originally taken) and the findings and discussion of the field study (that helped reframe the research topics into the navigational issues). These models and frameworks are not meant to be used or considered as the sole instrument to instruct future development of design policies, but rather, as its name says, it is intended as a compass to facilitate the navigation.

6 CONCLUSIONS

6.1 THE FUTURE OF DESIGN POLICIES

Many conclusions can be drawn from the research process as a whole, and from its broad record presented in this volume. Being one of the first few contributions - at doctoral research level - to the field of Design Policies, it raises possibly as many questions for future research (if not more) as it brings contributions.

Design is emerging as an economic imperative, heading us to a new design economy. This is not anymore a discourse of designers to convince the society. *"We've come to the end of the runaway on maximizing productivity and re-engineering processes"* (Liedtka & Ogilvie, 2011). Economists are beginning to notice the role design should play in leading economic development, and has become subject of discussion for the World Economic Forum (WEF Global Agenda Council on Design, 2010). In Brazil, economist Lidia Goldenstein champions the role design should play in the new economy: *"(Design) is the lowest common denominator of all sectors. It permeates everything. It leverages all the others, because it has direct influence over the value of any product"* (Goldenstein, 2011). Carlos Lessa the former president of Brazilian Development Bank, have been talking about design for decades, and has even promoted an international seminar to discuss design policies (Lessa, 2004).

In this context, Design Policies are to be seen as paramount governability and development tools, which shall be more and more called in to address growing problems in the sphere of social, environmental, educational, and managerial issues, to name a few. That means a new role with major impact on economy, but also means we need to form designers with proper skills to address such important mission. It doesn't mean designers will save the world - designers alone are powerless, unless they have the ability to summon design's transdisciplinary competence, congregating expert teams. Being leaders or team members, this is no longer about the DESIGNER-AUTHOR, but rather the rise of the DESIGNER-STRATEGIST.

As documented here, Design Policies have been used throughout history with greater or lower impact – mostly depending on political cycles rather than policy cycles, or pushed by visionaries or champions. Being a recent and non-formalised field of study (meaning that there aren't programmes aimed to form human resources for the field), and with a surprisingly low level of stability, programmes are much more dependent of transitory individual competencies. By low level of stability is understood the frequent confusion between design programmes and design policies, or design promotion being taken for a design policy – as shown in this research. Without the steadiness of an established policy and the guidance of a fully operative managing body, design is much likely to be treated as a "cherry on top" than a useful strategy.

6.2 LIMITATIONS

This study deals with an emerging field, with long-term applications – the minimum life cycle of a DP programme is about five years, involving planning, implementation, and assessment. As a consequence, it was limited from start by the timeframe and availability of stakeholders and organisations to get involved and collaborate offering data to be analysed and opening of their senior staff to be interviewed. An extraordinary openness and collaboration was found in Parana Design Centre, that allowed to overcome most of the limitations faced by the study.

6.3 FUTURE RESEARCH

The research evinced a general lack of references about Design Policies, which need to be addressed by future studies. The literature review chapter highlighted several issues, and should serve as a starting point for future studies. Some possible topics include:

- a comprehensive annotated bibliography bringing together key authors and institutions that have published works on DPs, offering also the perspective of a timeline of themes addressed;

- an historical perspective of British Design Policies: being the United Kingdom a well-known reference for its development of design policies, it would be a great contribution to the field an academic review that contemplate its historical roots and offered a comprehensive inventory of actions;
- the same could be said about the need for a comprehensive review of the recent documents (from 2008) of the European Commission discussing the use of design as a strategy for regional development, proposing policies, aligning design as a driver for innovation, and examining design in the context of the creative economy.
- a comparative study (beginning with a mapping) of design support programmes focused on SMEs around the world – despite the expected difficulty in obtaining data from the agencies involved in several countries.

6.4 FINAL NOTES - CONTRIBUTION

The research contribution can be acknowledged in four different levels of outcomes: a ***comprehensive review of literature*** (1), combining an assortment of very significant documents and discussing their connections and specific contributions to the field; the application of an ***interview and archive based case study*** (2) about design policies in Brazil, corroborating Case Studies as a leading research tool for the area; a ***discussion on the impacting factors and effective practices of design policies*** (3); and finally the conceptual models named ***Compass Model*** and ***Create DP*** (4) that set together a framework intended to reduce levels of uncertainty in planning design policies.

The research methodology, the extensive review of literature, the processes of data analysis, and the resulting discussion, allow to address the original research questions, and constitute an original approach to the study of design policies in emerging countries, and in particular, the Brazilian case.

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APPENDIX 1:

FIELD STUDY / PHASE 1 / QUESTIONNAIRE 1

Survey

National & Regional Design Policies

This survey is integral part of the doctoral research about National and Regional Design Policies being conducted by Gabriel Patrocínio, under the supervision of Professor Simon Bolton, at C4D, the Centre for Competitive Creative Design from Cranfield University, United Kingdom, with the support of CNPq, the National Council for Scientific and Technological Development, Brazil.

The survey will be initially submitted, in Brazil, to interviewees from the following organizations:

*Programa Brasileiro de Design (Brazilian Design Programme) - Brasília
Ministerio da Cultura (Ministry of Culture) - Brasília
Centro Design Paraná - Curitiba
Programa Rio é Design - Rio de Janeiro
Centro Design Rio - Rio de Janeiro
Centro Carioca de Design - Rio de Janeiro
Secretaria Municipal de Cultura - Rio de Janeiro
Centro de Design do Recife - Pernambuco*

Besides the interviews, each organization will be asked to provide basic data from all the actions promoted during the last three years (a list with a short description of actions). This data will be applied to the initial analytical / assessment tools developed.

1. What are currently the key stakeholder organisations in public design policies in Brazil?

.....
.....
.....

2. What fields of design should be typically considered within Public Design Policies?

Product Crafts Architectural Interior
 Graphic Packaging Web / Digital Fashion
 Other(s):

3. What (are / should be) the key focuses for public design policies today?

Are:

Should be:

4. How important are design policies for Brazil today?

1. definitely not important
 2. maybe
 3. don't know
 4. considerably
 5. extremely

Why?

5. What do you consider to be the key drivers for design policies in Brazil?

National:
Regional:

6. What is the importance of the following subjects in the planning of public design policies?

Please choose according to a scale that goes from "less relevant" [1] to "very relevant" [5] where the middle value [3] means "indifferent":

Sustainability	[1] [2] [3] [4] [5]
Wealth generation	[1] [2] [3] [4] [5]
Innovation systems support	[1] [2] [3] [4] [5]
Regional development	[1] [2] [3] [4] [5]
Competitiveness	[1] [2] [3] [4] [5]

7. How would you define the key characteristics of the following Design Policies?

National DP:
.....
Regional DP:
.....

8. How would you differentiate between Design Policy and Design Promotion?

.....
.....

9. According to your understanding, does Brazil has a National Design Policy?

[] Yes [] No Why? :
.....
.....

10. According to your knowledge, are there Regional Design Policies being currently adopted in Brazil?

[] Yes [] No
Where? :

11. What are, in your opinion, the key drivers for innovation policies and programmes?

.....
.....

12. Do you believe that Design is currently seen as key component of Innovation fostering programmes and initiatives in Brazil?

- 1. definitely not
- 2. maybe
- 3. don't know
- 4. considerably
- 5. totally

Why? :

13. How do you rate the effectiveness of gathering data about design innovation from patents filled (IPR design registration)?

- 1. ineffective
- 2. little effect
- 3. indifferent
- 4. effective
- 5. highly effective

Comments:

14. Do you believe that cost is the key barrier to designers protecting their work and their clients?

Yes No Why? :

15. Do you believe that reducing the complexity of protecting design will encourage more designers to protect their work and their clients' work?

Yes No Why? :

16. Do you believe that introducing a more flexible way to protect design will help the use of design in industry?

Yes No Why? :

17. Are you aware of the concept of National Design Systems?

Yes No

18. If so, what are (or should be) the components of a National Design System?

.....
.....
.....
.....

19. How would you describe the key development stages of a design policy in the emerging markets (ex: BRICs)?

.....
.....
.....
.....

20. According to the model by Alpay Er, what stage do you currently perceive Brazil's design policy to be? *(see Appendix 1: model by Alpay Er, 1997, after Bonsiepe)*

- 1. Proto-design phase
- 2. Embryonic phase
- 3. Emergence phase
- 4. Development phase 1
- 5. Development phase 2
- 6. Take-off phase
- 7. Maturity phase

Would you please comment your choice:

.....
.....
.....

21. What impact do the following factors have on determining the performance of design policies? (Use the scale: [1] none [2] low [3] indifferent [4] some [5] high)

- SMEs development and competitiveness [1] [2] [3] [4] [5]
- national / regional promotion [1] [2] [3] [4] [5]
- international promotion / country competitiveness [1] [2] [3] [4] [5]
- designers' professional organisation [1] [2] [3] [4] [5]
- design financing (R&D) [1] [2] [3] [4] [5]
- design research (academic / independent research centres) [1] [2] [3] [4] [5]
- design education development & support [1] [2] [3] [4] [5]
- tax or other benefits to foster design sector [1] [2] [3] [4] [5]
- IPR (design) registration [1] [2] [3] [4] [5]

Comments:
.....
.....

22. How effective are the following methods of assessment of public design policies: (Use the scale: [1] ineffective [2] little effect [3] indifferent [4] effective [5] highly effective)

- statistical data collection [1] [2] [3] [4] [5]
- economical data collection within design companies [1] [2] [3] [4] [5]
- economical data collection within companies [1] [2] [3] [4] [5]
- exemplar case studies [1] [2] [3] [4] [5]
- failure case studies [1] [2] [3] [4] [5]
- papers published about design research [1] [2] [3] [4] [5]
- international competitiveness (design awards) [1] [2] [3] [4] [5]
- educational system statistics [1] [2] [3] [4] [5]
- professional associations statistics [1] [2] [3] [4] [5]
- number of patents (design registration) [1] [2] [3] [4] [5]

23. According to your perception, which other metrics / assessment methods should be applied to design policies?

.....
.....
.....

Thank you very much for taking part in this survey!

If you have any questions, or would like to get in contact, please email me at gabrielpatrocinio@cranfield.ac.uk

*April 2011
Cranfield, UK*

Development Stages of Industrial Design in Newly Industrialised Countries (Alpay Er, 1997, pp.301)

DEVELOPMENT STRATEGY		Sectorial Scope of Industrial Design	Industrial Design at Firm Level	Industrial Design Education and Research	Government Design Policy	Design Discourse
1	Primary Specialization in Raw Material Export. Pre-industrial Growth	N/A	N/A	N/A	N/A	N/A
2	Import Substitution I	Design-oriented lowscale, low-tech industries, e.g. giftware and furniture for home use.	Self-formed artist-designer or architects. Outsider to industry. Design as a cultural mission.	Individual courses are created as extension to art or architecture programmes. First ID schools in India and some Latin NICs.	ID is seen as a sort of development tool, but there is no dear policy about how to use it within an ISI framework. Finance of the establishment of some early design schools.	Articles on ID as a cultural phenomenon appear in art journals. Design is an image of modernization.
3	Import Substitution II / Export Promotion I	Design-oriented, large-scale, investment-driven industries, e.g. furniture for home and office use, ceramics and some basic consumer goods.	ID as a tool of 'imitative' product modification. Individual designers employed by firms.	First generation ID teachers with art, architecture degrees or from foreign countries. 4 or 3 years ID degree programmes.	Finance of the ID education at university level. Scholarships for postgraduate education in advanced countries.	In architecture, interior and graphic design journals, articles written by industrial designers dealing with ID as a separate discipline.
4	Export Promotion II / Liberal Trade Policies	Investment-driven, standard technology industries, e.g. household appliances and most consumer goods.	In-house ID teams. ID as a tool of systematic product differentiation and adaptation on the basis of product modification (redesign). The recognition of ID as a competitive tool.	Second generation ID lecturers with mostly postgraduate degrees from advanced countries.	Design groups are incorporated into government agencies in some NICs such as small scale industry promotion, but there is no overall design policy.	In related design journals, special sections or issues on ID.
5	Export Promotion III [deepening]	Specialized export industries e.g. consumer and business electronics, sports equipment etc.	In-house design teams + use of design consultancy firms. Design as a marketing factor.	Postgraduate ID courses. Faculty staff with professional experience. Localization of ID education starts.	ID is incorporated into some government policies such as export promotion.	Same as above. But ID discourse is differentiated from the others.
6	Global Strategy	Investment-driven, relatively more capital and technology-intensive sectors, e.g. capital goods such as transport vehicles.	Large specialized ID departments. ID is recognized as part of corporate strategy.	Specialization occurs within design like transportation design. Study programmes get a strong theoretical input.	ID is recognized as part of a national competitive strategy.	Specialized magazines dedicated to ID.
7	...	New product development is practised in all major branches of industries.	Design as a leading force in company strategy. Product innovation.	Differentiated and fully equipped institutions. Courses contain scientific lecture programmes	ID as an element of innovation is part of industrial culture. Design centres run by professionals.	Books on ID are published dealing with standard practices, history, theory.

APPENDIX 2:

**FIELD STUDY / PHASE 1 / TABULATED REPLIES TO
QUESTIONNAIRE 1**

#	RESPONDENT 1	RESPONDENT 2	RESPONDENT 3	RESPONDENT 4	RESPONDENT 5	RESPONDENT 6
date	11.04.2011	12.04.2011	13.04.2011	19.04.2011	25.04.2011	26.04.2011
institution	Centre of Design Parana	Centre of Design Parana	Ministry of Development, Industry and Foreign Trade	Ministry of Culture	Rio Design Centre	Secretary of Culture, City of Rio de Janeiro
Question 1: key stakeholder organisations in DP (In Brazil)	MDIC/PBD; APEX; SEBRAE; ABDI; Design Centre Parana; Design Centre Rio de Janeiro; Design Centre Minas Gerais; Design Centre Sao Paulo.	MDIC; MINC; SEBRAE; Public Universities (knowledge and actors generation)	APEX; SEBRAE; SENAI; ABDI; Design Centres from the states of Parana, Minas Gerais, Pernambuco, Goias; Government of the State of Rio de Janeiro.	<u>Government:</u> MDIC, City Government of Rio de Janeiro, City Government of Curitiba (urban solutions); <u>Industry-realted:</u> Design Centre of Parana, SEBRAE; <u>NGO:</u> MBC (Competitive Brazil Movement); <u>Museums:</u> MCB Museum of the Brazilian House' Tomie Ohtake Institute; <u>Design</u> <u>Schools:</u> ESDI/UERJ, SENAI/CETIQT, Anhembi-Morumbi; <u>Companies:</u> Petrobras (historical portfolio), Itau Bank, FIAT MG, Gerdau Steel; <u>Design</u> <u>Companies:</u> Adelia Borges, Sergio Rodrigues, Indio da Costa, Campanas, Tecnopop, OEstudio.	PBD/MDIC; MINC; MCT; Design schools (highlighted: ESDI); Centre of Design Parana; Centre SP Design (FIESP); INT (National Institute of Technology).	MDIC; MCT; BNDES (as from the administration of Carlos Lessa); APEX; MINC; Secretary of Development of the State of Rio de Janeiro (SEDEIS); Secretary of Culture of the City of Rio de Janeiro; ABEDESIGN; SEBRAE (with reserves / there are ups and downs of activity); Centre Design Rio (losing relevance); FIRJAN. Schools do not assume the expected role.
Question 2: design fields that should be considered in DP	Product; Fashion; <u>Others:</u> Services (obs: considers Graphic, Packaging and Web/Digital to fall in the category of Product as well).	Product; Graphic; Crafts; Packaging; Web/Digital; Fashion; <u>Others:</u> Strategic Design	Product; Packaging; Architectural; Interior; Web/Digital; Fashion; Urban/Cities; <u>Others:</u> Social welfare; Sustainable/Eco-design.	Crafts; Architectural; Web / digital; Fashion; <u>Others:</u> Urban furniture; Cultural facilities.	Product; Graphic; Crafts; Packaging; Architectural; Web/Digital; Interior; Fashion. The broader the concept, the more productive / interdisciplinarity.	Product; Graphic; Fashion; <u>Others:</u> Branding.

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27.04.2011	27.04.2011	28.04.2011	20.05.2011	21.05.2011	25.05.2011	26.05.2011
Centre Carioca of Design, Secretary of Culture, City of Rio de Janeiro	National Council for Cultural Policies, Ministry of Culture	Rio Design Centre	Centre of Design Parana	Recife Design Centre	Programme Rio is Design, Secretary of Development, State of Rio de Janeiro	Centre of Design Parana
PBD/MDIC; APEX; ABEDESIGN; ADG; regional Design Centres; ESDI and PUC-Rio (locally); Centre Design Rio (locally).	MDIC; MINC; professional organizations(including regional, such as APDesign/RS and ADEGRAF/DF); SEDEIS/RJ	PBD; SEBRAE; Industry Federations (notably from SP, RJ and PR); APEX; universities (some - eg, ESDI); ADG; ABEDESIGN.	Federal Government: MDIC and MINC; Industries Federations through SENAI; State and City Governments with isolated initiatives (as in Rio de Janeiro and Recife); professional associations. Obs: The industries trade unions do not influence the activities of the sector (as they should).	Design Centres from the states of Parana, Rio de Janeiro, Pernambuco; professional associations from the states of Rio Grande do Sul (APDesign-RS) and Pernambuco (APD)	PBD/MDIC; Centre of Design Parana; SEDEIS/RJ; FIRJAN; City Government RJ; Rio Design Centre; DVDI/INT; Recife Design Centre.	PBD/MDIC; APEX; SEBRAE; SENAI (within the Industries Federations); MINC; ABEDESIGN; ADG; ADP; Centre Design Parana. (However, there are not public policies neither synergy between the institutions)
Product; Graphic; Crafts; Architectural; Web / digital; Interior; Fashion; <u>Others</u> : Urban; Public sector (design aimed to).	Product; <u>Others</u> : Sustainable design.	Product; Graphic; Crafts; Packaging; Architectural; Web / digital; Interior; Fashion.	Product; Graphic; Crafts; Packaging; Architectural; Web / digital; Interior; Fashion. (Design is a way of thinking, but "product" should be priority in public policies).	Product; Graphic; Crafts; Packaging; Architectural; Web / digital; Interior; Fashion; <u>Others</u> : Strategic.	Product; Graphic; Crafts; Packaging; Architectural; Web / digital; Interior; Fashion; <u>Others</u> : Design management.	(Design should be borderless - all areas must be worked)

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Question 3a: what are key focuses of DP today?	There are no national policies, only programmes and regional actions.	Development of global products; Innovation focused on technology.	Productivity; sustainability; production & processes.	Design companies (private sector outlook)	Product-oriented; industrial development.	Traditional industry (BNDES, MDIC, APEX); dissemination and promotion of events (SEDEIS); articulation businessmen / designers (SEDEIS, FIRJAN, SEBRAE); conceptual / cultural with urban view; cluster identification.
Question 3b: what should be the key focuses of DP?	Focus on product/industry, involving the design system; innovative products involving design; design education; design professionals.	(each country has its own characteristics) Large countries with policies focused (also) on the internal market; Smaller countries focused on exports (lack internal market scale); Sustainability / sustainable consumption.	Urban solutions; research; transportation; climate change; new materials.	Design institutions (public sector outlook) as brokers; creation of a support and investment fund for design.	Beyond industrial development, innovation, industrial quality, it should focus on: improving quality of life; public services; revitalization of the city; improving quality of design education.	Currently lacks a line of communication of design for the whole society, articulating goals, cultural dissemination (promoting the sector), contributing to processes of the physical (urban) territory.
Question 4: how important are DP for Brazil? Why?	(5) Ability to establish projects and programmes based on defined goals.	(2) Currently incipient; self-adjustement of the market that doesn't reflect a formal policy, even though the outcomes might be aligned with general policies.	(2) Large country with emergency and diverse priorities; under this context there is no strategic vision of design.	(5) Cultural globalization times where design is a key ordering tool; change of focus from technological to creative dependence (product ahead of industry; Furtado, Celso. Criatividade e dependencia, Ed Paz e Terra, Rio de Janeiro, 1978)	(5) Design is an important tool to see problems and try to solve them.	(5) We have a high quality material culture, that would be excellent to help in our global insertion, moving from a commodities exporter into a producer of more sophisticated products.

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Design as a marketing tool for cities / countries; design for urban and social renewal.	Make design known / promotion (yet it is done at primary level).	Industrial policy (focused in regional priority sectors); exports.	There are common threads and main focuses. Each country has its focus.	Design promotion aimed to industries.	Design promotion (benefiting the public agencies/agents more than the designers).	There are not.
Design for social welfare (promoting welfare through its transversality with other disciplines); promotion of national / regional design.	Make it public knowledge that the activity (Design) is strategic.	Industrial policy (focused in regional priority sectors); exports; SMEs; training (workmanship qualification); incentives to business community (dissemination and support / fostering); welfare and life quality.	Evangelizing the government (the model of the UK Design Council). People who are in strategic roles are unaware of Design.	Cultural aspects; public awareness; strategic design; value-adding to products.	Investment in public management of design (financial, staff, etc.) with an understanding of design fully inserted in the supply chain.	Medium to long term planning of the insertion of design in industry as a strategic tool; promote the alignment and synergy between institutions working in the area; allow the government to understand that design is an innovation tool.
(5) Because of the needs discussed above. There is also a significant quality loss of design in the public sector - that used to be much better in Brazil.	(5) To change the profile of the presence on the international market and to reduce unnecessary imports (which could be produced locally).	(4) It is extremely important to use design as a tool for development; public policies would be important to speed up the process; however, this could also be caused by mobilization of the class and / or productive sector.	(5) At least conceptually (the impact is unimportant or there is no impact so far). However, Brazil needs to have a Design Policy while the world is discussing the future of industrialization.	(5) The average person sees design as merely superficial; strategic design should be applied to think public policies.	(5) Not treated like this - there is an discourse to which there are no corresponding actions.	(5) Public design policies should be a strategic factor to develop high quality and sustainable products in our industry.

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Question 5a: key drivers for National DP in Brazil	Industrial competitiveness; innovation; strong brands.	Market / competitiveness; vision of future / design adding value.	Industrial development policies; cultural policies; innovation policies; next sports events (2014 and 2016).	The young design.	There are not public (governmental) policies of design in Brazil currently. There is an organization in the segment (even if fragile), which is not incorporated by government.	Economic impact, with an overlook of traditional industry and export.
Question 5b: key drivers for Regional DP in Brazil	Regional (internal) competitiveness.	Areas of government investment.	Industrial development policies; design biennials (exhibitions).	Sport events (FIFA World Cup 2014 / Olympic Games 2016); joint-ventures of companies and cultural institutions (Ex: Gerdau Steel / Ibero Camargo Foundation)	(the same)	(the same)
Question 6: importance of issues for DP	4;5;5*;5*;5*	5*;4;5*;5*;4	5*;4;5*;4;5* (drivers for PBD); would add "job generation".	5;3;4;5;4.	5*;5;5*;5*;5.	5*;5*;3*;2;3.
Question 7a: key characteristics of National DP	Wide territorial coverage considering regional characteristics.	<u>Alignment</u> with national policy (in general); <u>schedule planning</u> (short / medium / long terms); <u>indicators</u> for measurement / assessment.	Support policies of innovation, sustainability, industrial development and competitiveness.	Geopolitical; economics-oriented; linked to structural development; model development.	Promoting design nationally / internationally; urban development and quality of life; national compromise with regional applicability; identify regional problems; establishment of sectorial targets (education, industrial development, etc).	Processes to foster innovation as support to regional development; communication policies to produce an outlook of the area.
Question 7b: key characteristics of Regional DP	Regional context, needs and relevance (Ex: strong furniture industry of Parana state); connected with national policy.	<u>Alignment</u> observing regional characteristics; <u>schedule planning</u> ; <u>indicators</u> / <u>assessment</u> .	Support policies of innovation, sustainability, industrial development and competitiveness (with less emphasis on sustainability).	Focus on the city; solve local questions; translate to the user the importance of design and the role of government.	Mirror the national macro strategies; implementation in conjunction with local stakeholders (within the identified segments); design promotion.	Implementation actions starting from the local characteristics.

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Design promotion (national / internationally).	Pressure of the professional class because there is no consciousness among politicians and businessmen (of national capital) on the subject.	Industrial and economic development; valuation of the national product. (obs: can not perceive social and educational motivators, are perceives as necessary)	Innovation; "everyone else does"; international trend.	Design as added value to both industrial and craft products (an obsolete discourse).	Adding value to exports.	
Design promotion (internationalisation); public space quality (at least in the City of Rio e Janeiro).	(the same as previous)	Need for industrial / economic development.	Create / foster an environment for design and innovation (innovation-friendly cities). Eg, Rio de Janeiro and Recife.	Design as added value to both industrial and craft products (an obsolete discourse).	Political articulation and motivation (self-promotion).	Articulation of the productive sectors (industries federations), professional design associations, innovation - the producer feels the need, demands design.
5*;3;5*;5*;3.	4;5*;5*;4;5*.	5*;4;4*;4;4*.	5*;4;5*;5;5*.	5*;5;5*;5*;5.	5;5;5*;5*;5*.	5*;5;5;5*;5*.
Tend to be demonstrative (strengthen national image linking to design).	Strategic factor; national / international competitiveness; (stimulate) creation of suitable products to the country / regions; adequate use of natural and regional resources.	To stimulate research and innovation, industrial development, international competitiveness / global brands.	Have a strong management body; have a proper budget (human resources / funding).	Generic (should be); observatory of new fields (of design); macro vision; foster research; map regional needs; enable funding sources.	Establish guidelines for actions and an dialogue with the different regions (there is shortage of public investment in design).	Alignment with the proposal to create synergy; strategic planning; prioritizing; creating funds to enable it.
Consolidating design as a problem-solving strategy; regional self-assertion within the country.	(same as previous)	Integration between supply and demand; insertion of professional research in the productive sector.	(same as before)	Implementation of local / immediate questions; local partnerships; application of funds (actions / projects).	Integration and dialogue among institutions; establishing partnerships; public investment in design with team building and management of public design policy.	Local development; sustainability; point out sectors, institutions and regional structures that may be triggered; interaction between regional and national systems.

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Question 8: difference between DP and DPromotion	Policies relate to economics, industry federations, businessmen, society. Promotion is the implementation of goals established by policies, is about awareness, education.	<u>Policy</u> : strategic positioning; alignment; resources; opening or consolidating markets; and promotion as well. <u>Promotion</u> : as the name says, promotes.	Promotion is a part of Policy.	<u>Policy</u> : identification of structural weaknesses; can not act on the entire cycle. <u>Promotion</u> : involve consumption and repertoire fixation; work with what already exists.	<u>Policy</u> : creating strategies (bringing together different actors); <u>Promotion</u> : implementation of policies.	<u>Policies</u> must necessarily include the promotion of Design, although "promotion" should not be considered as being in a lower level. <u>Promotion</u> tends to work with stereotypes.
Question 9: does Brazil have a National DP? Why?	No. There are specific actions trying to play this role, mostly regionally.	No. There are actions that do not clearly indicate a policy.	No. There is no political input for this (although there are signs of development); the players very seldom work together, there is no common strategy.	No. Brazil is becoming aware of the need for it.	No. There is no structure, no staff, no representativeness.	No. Fragmentation of actions due to the goals still being primary (industrial policy / exports); a lot of promotion actions are done, creating an illusion of the existence of a policy; lack of planning culture rooted in the public sector.
Question 10: does Brazil have Regional DPs? Where?	Yes. Design Centres of Parana, Rio de Janeiro and Minas Gerais (promoting regional actions with national impact).	Yes. Pernambuco.	Yes. Rio de Janeiro, Minas Gerais, Pernambuco.	Yes. Rio de Janeiro, Curitiba, Porto Alegre, Minas Gerais (emerging).	Yes. Rio de Janeiro, Curitiba, Pernambuco and Rio Grande do Sul (nonetheless fragmented and fragile).	No. Only fragmented actions.
Question 11: key drivers for innovation policy / programmes	Industrial competitiveness (agregating value to products; stronger products; stronger national brands); strengthening of industry.	Opening of markets; competitiveness / global market; knowledge transfer between academia and market (still incipient).	International competitiveness; Science and technology policy; industrial policy.	Training (education, cultural institutions, publishing industry); technology; research; funding model for innovation.	Industrial production competitiveness facing the global context.	The end of the welfare state and the liberal policies that deepened problems reflecting on urbanization / human ecology; dissolution of industry; fragmentation of economic and productive activities; allow the "homo urbanus" to act differently / innovatively.

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<p>Policy: has a structuring character; Promotion: to reinforce an already structured field; may be part of a policy; characteristic of diffusion.</p>	<p>Policy: goes beyond promotion; thinks design as a development factor, propelling the economy, improving the quality of material and immaterial goods (eg services). Promotion: make those factors public.</p>	<p>Policy: has strategic planning, structuring character; Promotion: is not necessarily linked to the public sector.</p>	<p>Promotion is part of design policies (as one of the actions). In some places it might be more important.</p>	<p>Policy: general understanding about design activity; use of design thinking to solve social problems. Promotion: has commercial aspects and didactic aspects (disclosure of policies).</p>	<p>Policy: Structuring; Promotion: Specific actions.</p>	<p>Policy: Promotion / Training / Support (ref. Raulik-Murphy triangle model); Promotion: inserted into policy.</p>
<p>No. Design is only inserted into very specific initiatives (at the MDIC and MINC).</p>	<p>No. By ignorance of politicians and business classes (national capital) of the importance of Design. By not consider design as a strategic tool and competitiveness.</p>	<p>No. (The country) does not see design as strategic and structuring; there is no understanding of design in Government and in the industrial and economic development policies.</p>	<p>Yes. We have PBD - although it is unassisted, discredited and disarticulated.</p>	<p>No. There are just unclear essays with this intention.</p>	<p>No. There is no political motivation; there is no continuity; there is no common interests shared by the professionals; there is no public awareness.</p>	<p>No. There are only disconnected actions, without any guiding policy.</p>
<p>Yes. Rio de Janeiro (State and City); Parana; Minas Gerais; Para; Amazonas.</p>	<p>Yes (to a limited extent). Rio de Janeiro.</p>	<p>No. There are only isolate and non-structuring actions, serving specific interests, and the absence of clear goals.</p>	<p>No. There have been initiatives that lacked continuity.</p>	<p>Yes. Rio de Janeiro, Paraná, Rio Grande do Sul, Minas Gerais, Pernambuco, Ceará, Pará, Amazonas.</p>	<p>Yes. Parana; Recife; Rio de Janeiro (this last rather focused in actions).</p>	<p>Yes. Minas Gerais.</p>
<p>Competitiveness; insertion in global markets; need to adapt to the world changes from the last two decades; welfare (more discourse than practice).</p>	<p>Response to the need for competitiveness; public incentives; job creation and tax collection; survival of economic sectors.</p>	<p>Economic and social development; wealth generation; (and maybe) sustainability.</p>	<p>Perception that innovation is at the root of differentiation. Quest for value creation and competitiveness.</p>	<p>To solve problems in an effective and optimised way. (including cost-optimised)</p>	<p>Search for new markets new solutions (competitiveness).</p>	<p>Competitiveness; global market; economic development.</p>

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Question 12: is design seen as key component of innovation programmes in Brazil? Why?	(2) Design is not seen as a tool for innovation; design is not mentioned in innovation events (conferences / congresses).	(2) Innovation is still seen as technology and process only - since the great wealth drivers in the country are the sectors of agriculture, oil and mining (Ex: EMBRAPA, a centre of technological innovation in agriculture that does not use design - ou believes that needs no design)	(4) Is currently inserted; accepted in some biddings; design should present itself as innovation.	(2) Brazil is still focused on the industrial model.	(2) It is considered only in some specific situations, but there is still room for improvement.	(5) Because of the stereotypes of Design as Innovation "in natura".
Question 13: effectiveness of IPR data? Comments?	(2) Does not reflect innovation; does not show incremental or process innovations.	(3)	(5)	(1) Is an important indicator, but not in Brazil.	(2) Not every design innovation in design registered. The IP area requires extensive discussion and review.	(2) An important data, but with little effectiveness as measurement.
Question 14: is cost a barrier to protect design (IPR)? Why?	No. Not necessarily the cost - the process is not simple, is time consuming and difficult.	No. It is not much expensive or bureaucratic (nonetheless might be perceived as the opposite).	Yes. Generally speaking, if the product will not be exported there is not much concern.	Yes. (High cost of registration and management (maintenance) - a cost that needs to be translated into revenue through licensing.	Yes.	No.
Question 15: less complexity encourage design protection? Why?	Yes. The process is not simple, is time consuming and difficult.	No. The real problem lies on the enforcement.	Yes. There has been improvements in the last 10 years.	Yes.	Yes. The need for hiring professional advice, increases costs and complexity. Beyond that, some projects developed are unsure of its application by industry.	Yes. Perceived as not being either expensive or too complex, and having little relevance - although it might be relevant in a restricted universe.

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(4) Design is considered to be a tool (but not a key component).	(2) One realizes that design is not mentioned, for example in the Innovation Law and in the Industrial Policy established in the last government. The first Seminar on Creative Industries promoted in Rio de Janeiro by FIRJAN didn't mentioned Design (only in the second seminar).	(2) It is in some cases, but not in others.	(3) There is a perception, but not an understanding of the mechanism.	(4) It is considered but not as a key element.	(4) It is part of the discourse but not a practice.	(4) There are a few initiatives, programmes or institutions working on it, but it is still poorly understood especially in the realm of Science & Technology.
(4) Can't be the only criterion.	(5) The Patents Law allows to highlight ID registrations from other patents.	(4) Can not be the only factor.	(3/4) It is not effective in a culture where one is not used to it - but it is an important factor.	(3) There are few ID patents filled in Brazil - but in the world it might have higher importance.	(4) Is an important data to rank the country.	(2) There are other factors / markers that allow better measurement.
Yes. In smaller size initiatives.	No. Cost is relatively low.	Yes.	No. Who fills the patent is the industry, not the designer.	Yes. Usually patents are filled by the industry instead.	Yes. Designers can not afford the costs to fill patents.	Yes.
Yes. These processes are exhaustive in Brazil, and smaller developers give up.	Yes. Those who fail to protect their designs are fleeing the bureaucracy, not cost - and also the time of evaluation (the life cycle of products is becoming shorter and the registration / evaluation, longer).	Yes. There is a fear of copy, but at the same time, too many barriers to fill a patent.	Yes. Need to do a wider use of internet. One of the problems of cost-Brazil is the INPI, which is inefficient, bad.	Yes. Because the process is complex.	Yes. The system is complex.	Yes. The barrier of bureaucracy is still the biggest problem.

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Question 16: impact of easier design patent on industry? Why?	Yes and No. Perhaps. Yes, when the initiative comes from the designer (taking his own design to industry). Not, when a product is designed by request of the industry.	Yes. If it is understood as a whole system (including the effectiveness of the protection / enforcement)	Yes. It would not be too relevant. It is not a barrier to industry, but it is to the designer.	Yes.	Yes. Perhaps the records could be used by industry to scan design solutions for its problems.	Yes. The protection systems are anachronistic in relation to contemporary society. However, in a micro scale, protection might still be important.
Question 17: knowledge of Nat. Design Systems concept?	Yes.	Yes.	Yes.	Yes.	No.	No.
Question 18: components of Nat. Design System	Government (governmental institutions, ministries, agencies, national systems such as SEBRAE, etc); Industries Federations; Designers (associations, professional organizations); Design Centres.	Education and training; media (publicity); designers (practitioners); patent system; suppliers; laboratories (tests, certification); support centres (SEBRAE, SENAI); promotional spaces (museums, etc); documentation centres; Government.	Support (infrastructure; production chain); training; promotion (national and international).	Interministerial programme (Ministries of Culture, Development, Industry and Foreign Trade, Economy, Education, Science & Technology); National Fund for Design Development; Management of territorial networks (universities, companies, cultural venues, design centres); International promotion.		

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Yes. It would help to minimize plagiarism.	Yes. (same as previous) ex: furniture industry does not patent anything.	Yes. It has been proven that innovation participatory / collaborative generates significant results (eg Web 2.0, wikis, open platforms, etc.); Creative Commons is an example of an uncomplicated protection that encourages its use.	Yes. Also in the area of graphic design, in the copyright registration.	Yes. Something similar to Creative Commons applied to product design will be helpful.	Yes.	Yes. Several businessmen claim that it is difficult, expensive, and decide not to invest. They do not believe the patent system.
Yes.	Yes.	No.	Yes.	No.	No.	Yes.
Promotion programmes; professional associations; schools / Academy; design centres; industry (represented by federations, etc).	A national programme (or council); regional departments (design centres); professional organizations; Academy.		Articulating organism (network hub); established language / grammar to measure effectiveness; policy to access fundig (strong but at the same time more free).			Infrastructure / support; funding; direct and indirect suppliers; training; professional associations; support organizations (fostering / promotion).

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Question 19: development stages of DP in emerging markets	Strong national brands (internally); strong international brands.	Similar to the step-by-step from the Danish Design Ladder.	Danish Design Ladder as a good reference; (assessment of companies - mortality / vitality of companies adopting design; does the population adopts design?)	1. Generate models (economic / cultural) and networks; 2. Investment / funding; 3. Research / innovation.	1. Fragmented stage (uncoordinated - design seen as superficial); 2. Strategic perception of design (contributing to national development).	1. Mapping / identification / diagnose of regional potentials, strenghts / weaknesses, cluster identification; 2. pointing to potentials and sustainability (legacy); 3. comprehensive communication plan (with the lines previously identified).
Question 20: what stage (Alpay Er table) occupies Brazil DP? Comment?	(4) In relation to industry, it lies between stages 3 and 4. In other aspects it is more advanced, maybe between stages 4 and 5. (see notes on table)	(4) Development strategy: there are sectors on phases 5 and 6; ID at firm levels: there are sectors on phases 5 and 6, and even 7; Design discourse: phase 7.	(4/5) Different levels.	(4) Observed survival of factors from early stages (2/3) and advanced levels on stage 5.	(4) Coexistence of different levels.	(2/3)
Question 21: impacting factors	5*;5;4;5;5*;5;4;5*;4	5*;4;4*;2;4;4;5*;3	5*;3;5*;4*;4;3;3;1;4	5*;4;5;3;4;5*;5*;3;3	4;5*;5*;4;5;4;5*;4;5	4*;5*;4;3;4*;4;3;2;2
Question 22: effectiveness of assessment methods	4;4;5*;5*;5*;5*;4;4;4. Fourth and fifth are understood as the same, and equally important (case studies).	4*;4;5*;4*;4;3;3;3;3;4.	5*;5;5;5*;3;4;5*;4;5;5.	4;4;4;5*;5*;4;5*;4;3;4.	5*;5*;5*;5;5;3;5;5;5;5;4.	4;4;4;5*;4;3;4*;3;4*;2.
Question 23: other assessment methods/metrics?	Data about exports from companies that use design; Which awarded companies (design awards) do export.	Customer satisfaction with the use of products; value perception.	Vitality / growth of companies that use design; trade balance (industrialized products); regional development; individual purchasing power / adoption of design / consumption decision.	Constructing indicators from the use of design; setting goals; differentiation of focuses.		Perception of an intangible brand associated with a place; international validation.

RESPONDENT 7	RESPONDENT 8	RESPONDENT 9	RESPONDENT 10	RESPONDENT 11	RESPONDENT 12	RESPONDENT 13
1. Industrial production / copy; 2. design identity recognized; 3. design assumes a role of greater relevance; moves from an industrial base to a knowledge base.	1. Awareness of the actors (industry, commerce, services); 2. Dissemination to the wider public (final user - via design centres); 3. Appreciation of design, design used as a competitive advantage (eg, President of the Republic talking about design); 4. Critique / periodical renewal.	1. Training / qualification / international exchange; 2. Promotion / dissemination / awareness; 3. Support / fostering / incubation / effective actions (public bids, funding); 4. Market opening national / international; 5. Evaluation / validation.	1. Awareness of the importance of design; 2. Funding / policy / organisation (programmes); 3. Articulated promotion / policy with continuity; 4. Design as the country's strategy for industrial policy. (reference: Danish Design Ladder) (Goals: strong international brands; exports basket)	1. Mapping: cultural, social and economic; 2. National / regional policy thinking; prospective research; 3. Strategic design; create investment funds to support regional needs.	1. Knowledge / understanding of design; 2. Understanding of the benefits design can bring to society; 3. Design providing economic benefits to the country.	1. Mapping; 2. Create markers; 3. Strategic planning; 4. Create infrastructure; 5. Structuring funds; 6. debureaucratize. (then follows the application / enforcement)
(4) Coexistence of the different levels occurs when comparing regions. There are different development levels and approaches (ranging from sophisticated industry to regional crafts).	(4/5) Coexistence of distant phases – specially on third column, where the designer/producer fits on phase 2 and the global companies on phase 6.	(3/4) Caused by the lack of a policy as an induction vector and of structuring actions; a development strategy tends to leverage the other vectors, but a structuring policy would do more effectively.	(4/5)	(3/4) Brazil has regions which are in different levels.	(5) Although there are situations where it is still in early stages, there are others that are in later stages. Stage 5 corresponds to average.	(4/5)
4;3;3;2;5;5*;5*;5*;4	5*;4;5*;3;5*;3;4;4;4	5*;4;5*;4;4;4;4;5*;3	4;4;5*;4;5*;4*;4;3;3	4;5;5*;5;5;5*;5;5*;3	4;5*;5;4;5*;5*;4;5;4	5*;4;4;4;5*;5*;5;4;4
5*;4;4;5*;5*;3;3;4;2;4.	4;5*;5*;4;3;3;5*;4;3;5.	4;5*;5*;3;4;4;4*;3;4;4.	4;4;5*;4;4;3;5*;4;5*;4.	5*;5*;5*;4;4;3;3;2;3;3.	4;4;5*;5*;4;4;5*;4;4;5.	5*;5*;5*;4;4;3;5;4;4;4.
Satisfaction surveys with users / consumers / citizens.	Evaluation of performance / satisfaction / recognition by user.	Public opinion research (focus: quality of products and services and knowledge about the contribution of design); Insertion (of design) research / researcher in companies; Penetration in the media (resilience).	Exports basket (if products created with internal design are being exported).	Collect data about national events and awards; collect data about public awareness of design.		Qualitative questions - aimed to improve quality and sustainability of products.

APPENDIX 3:

FIELD STUDY / PHASE 2 / QUESTIONNAIRE 2

RESEARCH QUESTIONNAIRE

**EVALUATION OF DESIGN SUPPORT PROGRAMMES FOCUSED
ON MSE/SME IN BRAZIL.**

This questionnaire is part of the main study for a doctoral research about National and Regional Design Policies being conducted by Gabriel Patrocinio, under the supervision of Professor Simon Bolton, at C4D, the Centre for Competitive Creative Design from Cranfield University, United Kingdom, with the support of CNPq, the National Council for Scientific and Technological Development, Brazil.

Programme name:

Implementing agency/department:

.....

Governmental agency/department: Yes No

Supporting body:

.....

Respondent's position:

Respondent's role: Planning Execution Assessment

Date: __ / __ / ____

1. PLANNING & DEVELOPMENT

1.1. What drivers impacted on the creation of the programme? How much impact?

*Circling 0 means you believe there was **no impact** over the programme*

*Circling 1 means you believe there was **little impact** over the programme*

*Circling 2 means you believe there was **some impact** over the programme*

*Circling 3 means you believe there was **considerable impact** over the programme*

*Circling 4 means you believe there was **a major impact** over the programme*

GOVERNMENTAL POLICY DRIVERS

Please identify the specific policy that impacted over the programme, naming it:

NATIONAL Policies:	Impact:	What policy?
Industrial Policy	0 1 2 3 4	.....
Innovation Policy	0 1 2 3 4	.....
Science & Technology Policy	0 1 2 3 4	.....
Development Policy	0 1 2 3 4	.....
Design Policy	0 1 2 3 4	.....

REGIONAL Policies:	Impact:	What policy?
Industrial Policy	0 1 2 3 4	.....
Innovation Policy	0 1 2 3 4	.....
Science & Technology Policy	0 1 2 3 4	.....
Development Policy	0 1 2 3 4	.....
Design Policy	0 1 2 3 4	.....

DEMAND DRIVERS

Direct demand (from):	Impact:
SMEs segment	0 1 2 3 4
Industries Organization	0 1 2 3 4
Design segment	0 1 2 3 4

OTHER DRIVERS

<i>Please identify:</i>	Impact:
.....	0 1 2 3 4
.....	0 1 2 3 4

..... 0 1 2 3 4
 0 1 2 3 4

1.2. Did the programme **originate a policy**? Or was it created **responding to a policy**?
Please identify / name the specific policy.

Originate or **Respond to:**

If the programme could fit in more than one case (initiating one policy while responding to another), or relates to more than one policy, please use the spaces further available to complement the answer:

Originate or **Respond to:**

Originate or **Respond to:**

Originate or **Respond to:**

1.3. Was the programme **built upon any previous experience** of either the agency / department **or any other external model**?

Yes No

If YES, please identify the previous model or experience:

1.4. How do you rate the contribution of the following issues on the formulation of the programme

*Circling 0 means you believe it did **not contribute***
*Circling 1 means you believe there was **little contribution***
*Circling 2 means you believe it brought **some contribution***
*Circling 3 means you believe it brought **considerable contribution***
*Circling 4 means you believe it brought **a major contribution***

National development plan	0	1	2	3	4
Regional development plan	0	1	2	3	4
Impact of economic crisis	0	1	2	3	4
Support for local economic/industrial clusters	0	1	2	3	4
Need to boost product quality	0	1	2	3	4
Intensify competitiveness	0	1	2	3	4
Other aspects - <i>Please name:</i>					

..... 0 1 2 3 4
 0 1 2 3 4
 0 1 2 3 4

1.5. What situation best describes the development process of the programme:
Please check the corresponding options, or fill the space below with a summary of the process, if it differs from the descriptions offered.

The programme was developed after a preceding one. *Please name it:*

The programme was co-created by representatives from the following segments:

The programme was developed by an expert team, with the following backgrounds:

The programme was developed by a consultant. *Please name it:*

The programme was developed differently from the above.
Please describe briefly how it was developed:

1.6. Was the programme conceived to operate continuously or within a pre-defined timeframe?
Please inform the month and year (mm/yyyy).

Continuous operation Pre-defined timeframe

Date beginning: __/____ Date end: __/____

If the programme had more than one phase, please indicate the periods or phases using the space available below.

DesA

..... BusA

Role: Uni other

1.9. Is the programme solely design-oriented, or offered as part of a broader programme that embodies other aspects of SMEs support?

Please select the most appropriate:

- The programme is solely design-oriented.
- The programme is design-oriented, but occasionally refer participating companies to other external programmes that offer complementary support.
- The programme relates a broader system that offers other kind of support or advice to SMEs. *(Such as marketing, legal, financial, management, etc.)*

2. STRUCTURE OVERVIEW

- 2.1. The definition of SME may vary according to national characteristics, even though using the same measure units (annual turnover, and number of employees). In Brazil, e.g., the class of micro enterprises is often incorporated in the usual definition of SME (of MPME, the Portuguese acronym that stands for Micro, Small and Medium Enterprises) – and there are six different definitions in concurrent use, according to the Ministry of Development, Industry and Foreign Trade (MDIC/SDP/DMPME, 2002).

What definition does the programme adopt to select suitable SMEs?

Please select one of the options below, or filling the blanks in the basic criteria of turnover and employees if the programme adopts its own criteria.

Definition from

The programme's own definition:

Annual turnover:

Number of employees:

(other criteria):

.....

- 2.2. How many people are directly involved in running the programme, and what is their academic / expertise profile?

*Please specify the **number of people** (only those directly allocated to the programme – even if part-time) according to their qualification.*

..... Design experts (with a full degree in design)

..... Design experts (with other related degrees)

..... Management experts (with business or management degrees)

..... Management experts (with other degrees)

..... Support staff

(other qualifications):

.....

- 2.3. How are the **Design experts** selected to work on the programme?

Please check one or more options, and use the space that follows to indicate if another process was used.

appointed by a designers association

- appointed by an university
- appointed by
- are members of the staff of the agency operating the programme
- selected through public procurement or an open competition
-
-

2.4. What criteria is used to select design experts to work on the programme?

*Circling 1 means you **totally disagree** with such statement*

*Circling 2 means you are **not sure if you agree** with such statement*

*Circling 3 means you **partially agree** with such statement*

*Circling 4 means you **totally agree** with such statement*

Knowledge, experience and skills in the field	1	2	3	4
Previous experience of successfully advising companies in product development	1	2	3	4
They have applied to be part of the programme	1	2	3	4
Did not have to prove their specific skills to advise companies	1	2	3	4
Their design portfolio and interview	1	2	3	4

2.5. Regarding the design services used by the SMEs, does the programme offer any support in the selection of designers or design companies?

- YES**, the programme offers support to select design services.
- NO**, the choice of design services is responsibility of the SME.

2.6. What kind of support is offered to the SMEs hiring design services (if any)?

- Directory of selected designers / design companies.
- Support to design briefing.
- Support to design procurement.
- Other support:

2.7. Should the programme offers a directory of selected designers or design companies – **what criteria** is used for selection?

Please check one or more options:

- only **design companies** are selected
- freelance** designers can be selected
- appointed** by professional organization
- selected through **portfolio** submission only
- selected through **portfolio** submission and **interview**
- Other criteria:

2.8. From the following categories, what kind of design support is offered to the SMEs through the programme?

Please check the categories below, adding any other in the space that follows.

*By “**advice**” we mean the offer of design expert advice on the subject.*

*By “**services**” we mean the offer of design project development directly through the programme, with own staff or third-party designers.*

- | | |
|---|---|
| <input type="checkbox"/> Strategic design advice | <input type="checkbox"/> Strategic design diagnosis |
| <input type="checkbox"/> Design financing advice | <input type="checkbox"/> Design financing services |
| <input type="checkbox"/> Design procurement advice | <input type="checkbox"/> Design briefing advise |
| <input type="checkbox"/> Design management advice | <input type="checkbox"/> Design management services |
| <input type="checkbox"/> Design research advice | <input type="checkbox"/> Design research services |
| <input type="checkbox"/> Industrial / Product design advice | <input type="checkbox"/> Industrial / Product design services |
| <input type="checkbox"/> Visual / graphic design advice | <input type="checkbox"/> Visual / graphic design services |
| <input type="checkbox"/> Communication design advice | <input type="checkbox"/> Communication design services |

Other(s):

.....

2.9. In addition to the design support, does the programme provide any kind of design promotion activities?

Please check one or more options:

- Design lectures focused on SMEs
- Design lectures opened to general public
- Design workshops focused on SMEs
- Participation in regional or segment-oriented fairs and exhibitions
- Other awareness events oriented to SMEs
- Other awareness events oriented to general public
- Design exhibitions
- Case studies exhibitions
- Case studies publications (printed)
- Other(s):
-

3. OPERATION & FUNDING

3.1. How do the SMEs apply to participate in the programme?

Please check one or more options:

- The SME has to fill an application form.
- The application process is available online.
- The programme scans for suitable SMEs and invites them to participate.
- The applying SME has to go through a selection process.
- Every SME that applies to the programme is assisted.

3.2. What are the three main selection criteria for an SME to get onto the programme?

Please summarize below:

1.

.....

2.

.....

3.

.....

3.3. REGARDING THE **PROGRAMME BUDGET**:

What is the programme budget: TOTAL:

ANNUAL:

What is the **approximate percentile of the budget** applied, respectively, to the **target activities** (programme goals, design consultancy services), to **support activities** (such as design promotion, lectures, workshops), and to the **background activities** (planning, publicity, office infrastructure, support staff)?

target activities:%

support activities:%

background activities:%

3.4. How is the programme funded?

Please check one or more options:

Governmental agencies / programmes – please specify:

.....

Tax waives to beneficiary companies

– please specify if related to a specific governmental programme:

.....

Private banking system

Directly by the SMEs

– please specify if totally or partially, and which approximate percentage:

.....

International funding – please specify:

.....

Other sources – please specify:

.....

.....

3.5. REGARDING THE **COSTS OF DESIGN CONSULTANCY AND SERVICES:**

Do the programme provides a **preliminary design diagnosis** to the SMEs?

YES NO

Who **pays** for this **preliminary design diagnosis**?

SME All costs Programme All costs

..... % %

Other criteria

If there are other criteria for cost breakdown, please explain:

.....

.....

4. LEVEL OF INVOLVEMENT OF PARTICIPANTS

4.1. How would you rate the involvement of **business and government segments** with the programme?

*Circling 0 means the segment is **not involved***

*Circling 1 means the segment is **partially involved***

*Circling 2 means the segment is **fully involved***

SMEs and/or business associations 0 1 2

Sectors of Government related to innovation 0 1 2

Sectors of Government related to regional development 0 1 2

4.2. How would you rate the involvement of **design community** with the programme?

*Circling 0 means the segment is **not involved***

*Circling 1 means the segment is **partially involved***

*Circling 2 means the segment is **fully involved***

Professional design associations 0 1 2

University 0 1 2

Universities' design departments 0 1 2

4.3. How would you rate the **public impact** of the programme, as reflected by the **press coverage** it receives?

*Circling 0 means it gets **no coverage** from the press*

*Circling 1 means it gets **some coverage** from the press*

*Circling 2 means it gets **full coverage** from the press*

Design-related press 0 1 2

Business-related press 0 1 2

General press 0 1 2

4.4. How many SMEs are/were assisted by the programme? Over which period of time?

Please check the approximate range of companies and/or give the exact number of companies assisted.

less than 10 from 11 to 20 from 21 to 30

from 31 to 50 from 51 to 100 more than 100

(if you know the exact number): companies assisted

(period of time):

4.5. How important is the direct **involvement of the SME's senior staff** to delivering a **successful programme**?

By direct involvement is meant their understanding, participation and support to implement a design strategy.

- Circling 0 means it is considered not important*
- Circling 1 means it is considered of little importance*
- Circling 2 means it is considered of some importance*
- Circling 3 means it is considered of good importance*
- Circling 4 means it is considered of major importance*

CEO	0	1	2	3	4
Marketing director	0	1	2	3	4
Manufacturing director	0	1	2	3	4
Product director	0	1	2	3	4
In-house designer	0	1	2	3	4

other team members:

.....	0	1	2	3	4
.....	0	1	2	3	4

4.6. How frequently the **SME's senior staff** are identified to be **effectively involved** in the programme?

- Circling 0 means it is usually not involved*
- Circling 1 means it is involved very seldom*
- Circling 2 means it is involved some times*
- Circling 3 means it is frequently involved*
- Circling 4 means it is always involved*

CEO	0	1	2	3	4
Marketing director	0	1	2	3	4
Manufacturing director	0	1	2	3	4
Product director	0	1	2	3	4
In-house designer	0	1	2	3	4

others:

.....	0	1	2	3	4
.....	0	1	2	3	4

4.7. How frequently do participating SMEs demand the following design services?

Circling 0 means there is no perceived demand from this area

Circling 1 means there is very little demand from this area

Circling 2 means there is some demand from this area

Circling 3 means there is good demand from this area

Circling 4 means the area represents the most significant demand

Product development	0	1	2	3	4
R&D	0	1	2	3	4
Design research	0	1	2	3	4
Visual identity	0	1	2	3	4
Branding	0	1	2	3	4
Packaging	0	1	2	3	4
Web design	0	1	2	3	4

Other areas – Please name it:

..... 0 1 2 3 4

..... 0 1 2 3 4

5. ASSESSMENT

5.1. REGARDING THE **ASSESSMENT** OF THE PROGRAMME:

Does the programme have an **assessment** system? YES NO

(If YES) Is the assessment system **Internal** or **External** ?

(If YES) What does it measure?

.....

(If YES) How does it measure?

.....

(If YES) How frequently does it measure?

.....

Are the participating **SMEs monitored** for the results? YES NO

(If YES) What data does the SME have to provide?

.....

Are all **cases** thoroughly **registered** for later assessment? YES NO

Are the **data** about the programme outcomes **publicly available**? YES NO

Does the programme keeps **records** of **failures**? YES NO

5.2. How do you rate the importance of the following factors to the success of the programme?

*Circling 0 means you believe it is **not important***

*Circling 1 means you believe it has **little importance***

*Circling 2 means you believe it has **some importance***

*Circling 3 means you believe it is **important***

*Circling 4 means you believe it is **very important***

Selection process of **SMEs**. 0 1 2 3 4

Selection process of **designers** involved. 0 1 2 3 4

Commitment of the SME **senior staff**. 0 1 2 3 4

Availability of **specific funding** system to the SMEs. 0 1 2 3 4

..... 0 1 2 3 4

5.3. Based on the original goals of the programme, how would you **rate its level of success?**

- The programme achieved a **very high level** of success.
- The programme achieved a **good level** of success.
- The programme achieved a **satisfactory level** of success.
- The programme achievements stayed **below the expected level** of success.

5.4. What are/were the three most significant challenges to the programme?

- 1
- 2
- 3

5.5. What are/were the three most significant threats to the programme?

- 1
- 2
- 3

5.6. How would you rate the success of the programme?

- Circling 1 means you **totally disagree** with such statement*
- Circling 2 means you are **not sure if you agree** with such statement*
- Circling 3 means you **partially agree** with such statement*
- Circling 4 means you **totally agree** with such statement*

The programme is considered to be **very successful** by its **supporting bodies**. 1 2 3 4

The programme is considered to be **very successful** by the **SMEs segment**. 1 2 3 4

The programme is much likely to be **carried on** (or repeated) shortly. 1 2 3 4

The programme is frequently used as an **example of good practices** and inspiration for other programmes. 1 2 3 4

The programme model was **replicated or adapted** to other **design support programmes**. 1 2 3 4

The programme model was **replicated or adapted** to other (**non-design-related**) **programmes**. 1 2 3 4

APPENDIX 4:

**FIELD STUDY / PHASE 2 / TABULATED REPLIES AND
NOTES TO QUESTIONNAIRE 2**

Date	29/08/2016
Programme Name	Criacao Parana
Implementing Agency	Centro de Design Parana
Governmental Agency	NO
Supporting body	State Government; SEBRAE; FIEP
Respondent position	Consultant and member of the board (current); Project Manager (past)
Respondent role	Planning Execution Assessment

Q 1.1. drivers for programme creation / rate the impact	
A. National Industrial Policy	0
A2. National Industrial Policy (name)	
B. National Innovation Policy	0
B2. National Innovation Policy (name)	
C. National SciTech Policy	0
C2. National SciTech Policy (name)	
D. National Development Policy	0
D2. National Development Policy (name)	
E. National Design Policy	0
E2. National Design Policy (name)	
F. Regional Industrial Policy	3
F2. Regional Industrial Policy (name)	SEBRAE-PR
G. Regional Innovation Policy	0
G2. Regional Innovation Policy (name)	
H. Regional SciTech Policy	4
H2. Regional SciTech Policy (name)	Secretary of S&T through its fostering agency - Fundacao Araucaria
I. Regional Development Policy	0
I2. Regional Development Policy (name)	
J. Regional Design Policy	4
J2. Regional Design Policy (name)	Centro de Design Parana (as a regional policy itself, but only on 1st phase)
K. Demand from SMEs Segment	1
K2. Demand from Industries Org	3
L. Demand from Design Segment	3
L2. Demand from other1 (name)	State Government for a high visibility (in PR terms) programme to support SMEs
M. Demand from other1	4
M2. Demand from other2 (name)	
N. Demand from other2	
N2. Demand from other3 (name)	
O. Demand from other3	

Q 1.2. Programme originate or responded to a policy?	
A. Originate Respond to Policy 1	Respond
A2. Originate Respond to what Policy 1	current phase is aligned and responding to regional policies for SMEs

30/08/2016	18/01/2013
Criacao Parana	Criacao Parana
Centro de Design Parana	Centro de Design Parana
NO	NO
project funding: State Gov (1st); Finep & Sebrae (2nd); State Gov (3rd)	State Government; SEBRAE; FIEP
Project Manager (1st); Programme Manager (2nd/3rd)	project manager (v1 & v2) / consultant (v3)
Planning Execution Assessment	Planning Execution Assessment

1	4
	MDIC
4	4
Plano Brasil Maior (broader policy that encompasses Ind/Innov/S&T)	MDIC
1	4
0	4
	MDIC
0	1
there is no design policy	PBD didn't have any political force
0	4
3	3
4	3
not formalized - State Secretary de S, T & Ensino Superior	application of budget law (2% of budget to S&T)
0	4
	importance of the Gov. J. Lerner
0	1
there is no design policy	there wasn't a specific policy
2	4
2	4
4	2
	national economic policies (neoliberal)
	4
	Gov. J. Lerner own perception of design as development tool
	4
	demand from sistem "S" (SEBRAE and others)
	4

Respond	Respond
State Policy of Development And Innovation (not formalized)	privatization of government services

B. Originate Respond to Policy 2	
B2. Originate Respond to what Policy 2	

Q 1.3. Programme built upon previous experience / external model?	
A. Built upon previous	YES
A2. Built upon previous (name)	Glasgow Collection (the state gov. asked to do a similar programme there)

Q 1.4. Rate the contribution to formulation of the programme:	
A. National development plan	1
B. Regional development plan	3
C. Economic crisis	0
D. Support to clusters	4
E. Increase product quality	2
F. Increase competitiveness	3
G. Other (name)	need to connect design and industry
G2. Other (rate)	4

Q 1.5. About development process of programme:	
A. Developed after preceding (yes/no)	0
A2. Developed after preceding (name)	Glasgow Collection (then self-referenced in the next phases)
B. Developed by co-creation (yes/no)	
B2. Developed by co-creation (name)	
C. Developed by expert team (yes/no)	0
C2. Developed by expert team (name)	(1st phase) by a small team with design background only
D. Developed by consultant (yes/no)	
D2. Developed by consultant (name)	

Q 1.6. Programme timeframe	
A. Continuous or PreDefined	Pre-defined Timeframe
B. Date Begin	
C. Date End	
D. Phases	3 phases (2002/2005/2012); current phase (3) to be launched this october

Q 1.7. Rate factors determining length of programme	
A. Budget	4
B. Externally defined	2
C. Unpredictability of outcomes	0
D. Control variables	1

Q 1.8. Other parties involved in the programme	
A. ORG 1 (type)	NGO
A2. ORG 1 (name)	Centro de Design Parana

	Respond
	respond to a demand for innovation

YES	YES
Glasgow Collection	Glasgow Collection; there were later influences from the Millenium Products and Pi-one-year, through Bruce Wood, and staff exchange

2	3
3	4
3	1
3	3
4	3
4	4
design	
4	

0	0
Glasgow Collection	
0	0
0	0
1st/2nd phases had the help from the director of GC to develop a new model; designers (and architect) with expertises in management, marketing. 2nd external advisors Gui Bonsiepe, Virginia Kistmann (assessment)	internally created by designers, architect (G.Pougy, former Sec. of Culture from Curitiba); also advised by Bruce Wood, from Glasgow (through Design to Business programme)
0	0

Pre-defined Timeframe	Pre-defined Timeframe
02/06/2005	
yes, all with 24-month periods	yes - had a phase 2 and currently a phase 3, with new name

4	3
3	3
3	0
3	4

NGO	Gov
Centro de Design Paraná	TECPAR/SETI

A3. ORG 1 (role)	planning, delivery, assessment
B. ORG 2 (type)	
B2. ORG 2 (name)	
B3. ORG 2 (role)	

Q 1.9. Programme is design-oriented or part of a broader programme?	
A. Design oriented	Design-oriented only

Q 2.1. Definition of SME adopted	
A. Definition from EC	
B. Definition from other	
B2. Definition from other (name)	
C. Programme's own	1
C2. Annual turnover	
C3. Number of employees	
C4. Other criteria	companies of any size can participate as a strategy to attract participation of SMEs

Q 2.2. Programme staff	
A. Designers (full degree)	4
B. Designers (non-degree)	1
C. Management (full degree)	0
D. Management (non-degree)	0
E. Support staff	
F. Other qualifications	(check numbers)

Q 2.3. Selection of design experts to the programme	
A. Appointed by design association	
B. Appointed by university	
C. Appointed by other	
C2. Appointed by other (name)	
D. Staff members	1
E. Selection process	

Q 2.4. Selection criteria	
A. Knowledge, experience, skills	4
B. Previous experience advising SME	2
C. Applied to programme	1
D. No need to prove	4
E. Portfolio / interview	1

Q 2.5. Support designers selection by SME	
A. Support (yes/no)	YES

Q 2.6. What kind of support to designers selection by SME	
A. Directory	1
B. Briefing	1
C. Procurement	1
D. Other	1
D2. Other (name)	project management

general planning, management & assessment	provide infrastructure (and also political endorsement)
NGO	
Centro Regional de Inovacao e Design - Maringa (3rd)	
localization / interior small towns	

Design-oriented only	Design-oriented only

1	1
Sebrae	SEBRAE (MSE/SME)
1	
not restrictive - open to all sizes of companies	

7	7
3	3
3rd edition; 1 with publicity degree (regional manager); 1 executive secretary	

	1
	networking of staff
1	
	1

4	3
4	2
3	1
1	2
4	4

YES	YES

1	1
1	1
	1
	1
	standardized portfolio (one-page A3 handout)

Q 2.7. Criteria for insertion in designers directory offered to SME	
A. Only design companies	1
B. Freelance designers also	1
C. Appointed by professional org.	
D. Selected by portfolio	1
E. Selected by portfolio/interview	
F. Other	
F2. Other (name)	

Q 2.8. Type of design support offered	
A. Strategic Design Advice	1
B. Strategic Design Diagnosis	
C. Design financing advice	
D. Design financing services	
E. Design procurement advice	1
F. Design briefing advice	1
G. Design management advice	1
H. Design management services	
I. Design research advice	
J. Design research services	
K. Design product advice	1
L. Design product services	
M. Design visual advice	1
N. Design visual services	
O. Design communication advice	
P. Design communication services	

Q 2.9. Design promotion activities provided by programme	
A. Design lectures to SME	
B. Design lectures general public	1
C. Design workshops SME	1
D. Exhibitions	
E. Events SME	1
F. Events public	
G. Design exhibitions	1
H. Case studies exhibitions	1
I. Case studies publications	1
J. Other	
J2. Other (name)	

Q 3.1. How SME enroll to participate	
A. Application form	1
B. Online application form	
C. Scanned & invited by programme	1
D. Selection process	
E. Any applicant (conforming the rules)	1

Q 3.2. Three main selection criteria of SME	
321 Selection criteria 1	willingness

	1
	1
1	
1	1
not selected - just appointed	be active in the market

1	1
1	1
	1
1	1
1	1
	1
	1
1	1
1	1
1	1

1	1
	1
1	1
	1
1	1
1	1
1	1
	1
	activities focused on young designers

	1
1	1
	1
	1

maturity in relation to design after a diagnosis based on the design ladder (must be after 2nd step of ladder)	interesse da empresa/empresario em usar design

322 Selection criteria 2	commitment
323 Selection criteria 3	inovativeness

Q 3.3. Programme budget	
A. Budget total	
B. Budget annual	
C. % to target activities	
D. % to support activities	
E. % to background activities	

Q 3.4. How programme is funded	
A. Gov agencies/programmes	1
A2. Gov agencies/programmes (name)	Sebrae project funding to SMEs; FIEP
B. Tax waives to SME	
B2. Tax waives to SME (name)	
C. Private Bank	
D. Participating SME	1
D. Participating SME (percentage)	partially if company qualifies to get support from Sebrae; totally if not
E. International funding	
E2. International funding (name)	
F. Other	
F2. Other (name)	

Q 3.5. Costs of consultancy and design services	
A. Provides preliminary diagnosis?	NO
B. Paid by SME Yes/No	
B2. Paid by SME 100%	
B3. Paid by SME percentile Yes/No	
B4. Paid by SME percentile	
C. Paid by programme Yes/No	
C2. Paid by programme 100%	
C3. Paid by programme percentile Y/N	
C4. Paid by programme percentile	

Q 4.1. Level of involvement of business and government segments	
A. SME / business associations	2
B. Gov Innovation-related	1
C. Gov Regional-development-related	1

Q 4.2. Level of involvement of design community	
A. Professional design associations	1
B. Universities	0
C. Universities - Design departments	0

Q 4.3. Media coverage impact	
A. Design media	2
B. Business media	1
C. General media	2

signature of contract that establishes responsibilities	oportunidade identificada (de uso do design)
willingness to participate (demand)	ter condições para que o projeto fosse adiante

R\$ 2,220,160.	
6283	
3029	
688	

1	
State Government - Fundo Parana (managed by Sec S&T)	
1	
if company does not qualify to receive available funding (not SMEs)	
1	
Patme Sebrae (currently Sebraetec - funding to pay design services)	

YES	YES
1	1
1	1

1	1
1	1
1	1

2	1
0	0
1	1

2	2
1	1
1	1

Q 4.4. SME assisted in the programme / period of time	
A. less10	
B. 11to20	
C. 21to30	
D. 31to50	
E. 51to100	
F. more100	
G. exact number	
H. time period	

Q 4.5. Importance of involvement of SME senior staff	
A. CEO	4
B. Marketing Director	3
C. Manufacturing Director	4
D. Product Development Director	4
E. In-house Designer	4
F. Other team members (name)	
H. Other team members	

Q 4.6. Effective involvement of SME senior staff	
A. CEO	3
B. Marketing Director	2
C. Manufacturing Director	4
D. Product Development Director	4
E. In-house Designer	4
F. Other team members (name)	
H. Other team members	

Q 4.7. Frequency of demand for design services	
A. Product Development	3
B. R&D	1
C. Design Research	1
D. Visual ID	4
E. Branding	2
F. Packaging	3
G. Web design	2
H. Other (name)	
H2. Other	

Q 5.1. Programme assessment	
A. Assessment Yes/No	YES
B. Assessment Internal/External	External
C. Assessment measuring what	The effectiveness of the programme based on its successful impact within companies
D. Assessment measuring how	still under development (for 3rd edition)
E. Assessment measuring frequency	1st/2nd didn't have an impact assessment; the current (3rd) will measure companies at entrance and end.
F. SME monitored Yes/No	YES

83	
42 (1st); 41 (2nd); 70 (aimed at the 3rd)	

4	4
4	4
4	2
4	2
4	4
	sales manager
	3

2	4
3	2
3	2
3	2
4	4
	sales manager
	3

2	4
0	1
1	1
4	1
2	0
3	4
4	2
	design management
	2

YES	YES
Internal	Internal External
is a process, not a system; data such as: impact of design experience of the designers attending the companies before the programme	SMEs visited; SMEs joined; SMEs with identified opportunity; designer assigned to project; project beginning / in process / ended
	visits and interviews
at the end of the phases / editions	monthly meetings during the programme (continuous)
YES	YES

G. Data provided by monitored SME	Questionnaire
H. Cases registered for assessment?	YES
I. Records are public?	NO
J. Register failures for assessment?	NO

Q 5.2. Factors impacting the success of programme	
A. Selection of SME	3
B. Selection of designer	4
C. SME senior staff commitment	2
D. Availability of specific funding	4
E. Other (name)	Budget available for project implementation
E2. Other (rate)	3

Q 5.3. Programme success level	
A. Programme success level	Very high level of success

Q 5.4. Most significant challenges to programme (3)	
A. Challenges1	Finding / selecting participating companies
B. Challenges2	Connecting companies with designers
C. Challenges3	Maintaining motivation and quality of projects

Q 5.5. Most significant threats to programme (3)	
A. Threats1	Number of participants
B. Threats2	Quality of projects / final products
C. Threats3	Budget

Q 5.6. Programme success rating	
A. According to supporting bodies	4
B. According to SME segment	4
C. Programme will be carried on	2
D. Considered example of good practices	4
E. Replicated by other design progs.	3
F. Replicated by non-design progs.	1

APPENDIX 4 (B) – NOTES FROM INTERVIEWS

These notes were taken during the interviews from observations regarding some of the questions or more general remarks made by the interviewees and were relevant to the understanding of the factors involving the development, operation, and assessment of the programme.

The notes are direct quotations, translated from Portuguese (language used in the interviews).

1ST RESPONDENT:

"CDP is in Brazil a special kind of NGO, known as an OSCIP (Civil Society Organization of Public Interest), subject to very strict legislation and transparent administration.

The programme had 2 phases, and a 3rd phase will be launched soon, so the questionnaire might have answers that apply to one or more phases, and the chosen answer were considered by the respondent as "the average" of the 3 phases.

The supporting bodies have varied across the 3 phases (or versions), but are usually the same, or a composition of the same three.

Although the implementing agency (Centro de Design Parana) might be considered the consequence of a design policy in itself (regional, as a local government demand, but also national, as it was originally funded by Via Brasil programme from Sebrae), the responded considered that there are no design policies, either national or regional. Even so an original drive from a localized design policy (on the 1st version of the programme) was admitted to have had impact.

1.3. The Glasgow Collection programme was presented to local Government (by prof. Bruce Wood, in the end of the 1990's), that then asked CDP to do the same in Parana. CDP did not copied, but developed its own model based on the interaction with Glasgow, also counting with prof. Wood as a consultant.

1.5. The respondent observed that in Parana, the programme was developed by an all-designer team, different from Europe, where such teams are usually multidisciplinary.

1.7. According to the respondent, in Brazil such programmes are usually budget-oriented, or developed after an available funding programme, and only if/when it is available.

2.1. Although the programme was created with funding to support SMEs, it broadened its boundaries to work with any size of company, as a strategy to attract SMEs to participate. The company could then qualify or not to be supported by Sebrae, but if it did not, it could pay for the services integrally and participate on the programme.

2.8. These were the offer of direct advising/services by the programme. The design services, directly hired by the companies, could have any nature.

3.3. Has to be checked with the programme's administration.

5.1. the assessment is commissioned with external consultants."

2nd RESPONDENT:

"In Brazil, innovation policies are either associated to industrial or science & technology policies

It took 18 months to mature current programme (3rd version), which will be a reformulated version of the previous, with even another name (Parana Design) and fully funded by State Government.

1.4.4. Support to clusters (APLs) did not contribute at all (rate:0) in the previous editions (1st/2nd), but is the main goal of the current (3rd) edition (rate:4)

1.7.2. Government/political terms are very important in defining timeframes

2.7. There is a preference for design companies (the programme advises the companies so), but freelance designers are admitted sometimes."

3rd RESPONDENT:

"1.1. Neoliberal economic policies promoted a 'privatisation' of the government, that outsourced activities/programmes to NGOs. It also brought attention to competitiveness and focus to innovation.

The growth of design schools in the 1990s increased the number of new professionals acting on the market, leading to a sensible raise in design awareness.

Regional industrial policy allowed Parana to go from an agriculture-based state to host the 2nd largest automotive industry in Brazil.

The demand could not be precisely established if from SME segment or industries organisation.

1.4. The world economic crisis had a positive impact, since Brazil became a commodities exporter boosting its economy; the quality discourse from the 1990's turned into innovation discourse - and policies.

1.6. Establishing a timeframe was important to measure outcomes and to plan to be successful.

1.7. Political cycles (terms) are important factors in determining the extension of the programme.

2.4. Ability to communicate to businessmen, and credibility.

2.6. Also helped the SME to pre-brief the profile of the designer needed.

2.9. Strategies used to bring businessmen: if a designer wants to participate on a workshop, he must bring a client; unique lectures were offered to businessmen in exclusive venues (for paying guests), being later also also offered (free) to students at an university auditorium.

3.1. After first diagnosis, if the SME wasn't considered apt, it could not remain in the programme.

3.3 / 3.4 / 3.5 / 4.4 - see Leticia's answers (general management questions)

4.2. Professional associations are 'cyclical', but the design community took part; currently formal professional associations are weakened, while more 'organic' (informal) associations or personal networking are an observed trend.

4.6. Involvement of the CEO was compulsory in the programme (as well as in-house designer, when there was one); companies were small so usually there wasn't marketing / manufacturing / product development directors, but always have a sales department that was involved.

4.7. The programme was focused on (industrial) product development, and doesn't offered graphic, visual or web design; packaging was considered to be part of the product.

5.1. External consultants were listened in the process of assessment (through the programme's external advisory council); whenever a problem was identified an extraordinary meeting was summoned.

Trying to collect 'sensitive data' (financial/legal/fiscal) turns the company less cooperative and suspicious/cautious.

5.4. Lessons learnt: (in some cases) the programme initially focused too much on formal aspects, neglecting effective results; in these cases, focus was rather on the programme (looking for better quality, better appearance) than on the business (focus on the market)."

APPENDIX 5:

**COMPARATIVE STUDIES ON EMERGING ISSUES OF
NATIONAL DESIGN POLICIES (PAPER)**



COMPARATIVE STUDIES ON EMERGING ISSUES OF NATIONAL DESIGN POLICIES

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Keywords: Design Policies, Design Promotion, Competitiveness, Design and development

National Design Policies is a field of emerging importance for design research. To demonstrate this, a review of available literature has been done, bringing evidence of emerging themes, authors and institutions, and providing an overview of some current trends in the field. This is achieved with the help of summarised visual representations and analyses of the information collected. This knowledge, visually depicted and examined, offers then further space for future research in the field.

Introduction

Governments are confronted today with increasingly complex demands from sectors as distinctive as urban development, energy, environmental impacts, food supply, and social care, among others. These problems need to be addressed with a new set of tools that help to break down this complexity into simple and achievable goals.

Design strategies are being considered as an alternative approach to unravel this problem. Consequently, a theme of increasing significance is that of Public Design Policies – how government sets principles to employ design to leverage social, economical, industrial, and regional development. Two aspects contribute to this interest: the exponential growth rate of Creative Industries within the past decades (UNCTAD, 2008; Velloso, 2008); and the ability of Design to be a link between technology, creativity and the user, being a potential unique tool to help innovate and foster economies (Heskett, 2009; Lee et al., 2007; Vinodrai et al., 2007).

Recognising the role that Design could play in this scenario, the European Union issued a report that emphasises the need for adequate National and Regional Design Policies to help

leverage the otherwise vulnerable markets (Cunningham, 2008). Several government bodies and international organisations have as well published reports, working papers and other documents on the same issue (Rat für Formgebung et al., 2010; Commission of the European Communities, 2009; Design Council, 2008). Nonetheless, very little academic recognition has been given to the subject. Recent doctoral theses indicated the critical importance of producing new research-based knowledge, the generation of theories and their subsequent evidence (Choi, 2009; Raulik-Murphy, 2009). Other documents had also unfolded the quest for proper planning and assessment tools to support government management decisions (Bernatene et al., 2009; Moultrie & Livesey, 2009; Cunningham, 2008).

Within the above framework, this paper focuses on mapping how national design policies are evolving, specifically mapping the key authors (individuals and organizations) and emergent policy issues and trends within the field. This will enable future researchers and policy makers to more effectively establish benchmarks for policy development.

Methodology

This paper derives from the analysis of an original dataset of 970 documents, including papers, books, white papers and reports, collected during an empirical review of literature for an ongoing doctoral research on the subject of public design policies. Most of these documents were collected on digital format, and have been published by governments and international organizations.

From these documents, the most significant authors were chosen – either from the number of citations or from the relevance of the document. Several names appeared as authors and co-authors in many documents – in which case the most frequent name was highlighted (and usually appears followed by “& others”). One example of a document considered to be ‘*relevant*’ despite being not very often mentioned are the proceedings of the World Design Forum “Design Policy and Global Network”, promoted by ICSID and KIDP (Lee, 2002). Institutions also appear as authors, when names of authors or editors are not stated in the documents. Such is the case of the UK Design Council, with an extensive production of reports and white papers signed only by the institution.

From the selected authors (and institutions) resulted a subset of 231 documents, from which 22 themes emerged as significant – directly about or related to the field of design policies. Some themes (as well as authors) helped to establish a framework for the field, as a number of documents about “Design Definitions”, or “Design History”, “Economy” or “Innovation”, and authors such as Michael Porter, whose models of competitiveness were adopted and cited frequently. International organizations such as the World Economic Forum, the Organisation for Economic Cooperation and Development (OECD) and the Commission for European Communities, published very significant and frequently cited documents about innovation, competitiveness and development which usually mention the role of design and design policies.

The themes were also set against a timeline of the dates of publication, allowing to visualise some clustering of themes and other behaviours along the four decades covered by the documents collected.

Visualising the data

Looking at the visual representation of publications and citations (Figure 1), some names stand out for different reasons: Michael Porter and his modelling of countries competitiveness is frequently cited and used as a reference by many authors (Porter, 1990); and authors such as Bonsiepe, Heskett, Papanek and Thackara helped to establish a basic framework for the field. Gui Bonsiepe authored several documents and working papers commissioned by United Nations in the years 1970s, grounding a discourse of design as a tool for development which he later applied during his experience in different countries in Latin America. Papanek, considered a pioneer for his writings on sustainability in the early years 1970s, took part of an ICSID working group that discussed design for development. Margolin (2007) states that Papanek's ideas, focused on indigenous skills, were opposed to Bonsiepe, who embraced science and technology as drivers of development. Sir George Cox, with his Review of Creativity in Business, commissioned by the British Chancellor in 2005, is undoubtedly the most cited author, and his ideas were used as a reference to several other recent documents. Finland was prodigal of writers on design policy – Korvenmaa, Valtonen, Hytonen, Nieminen, Saarela. Framing its own national design policy proposition from 2005, much research has been done concentrating around the Helsinki University of Art and Design (now the Aalto University) and its Centre for Innovation in Design, Designium. Some of the authors listed (Tether, Swann, Cunningham, Cawood, Raulik-Murphy, Moultrie and others) developed research commissioned by institutions such as the UK Design Council, NESTA (National Endowment for Science, Technology and the Arts – the British innovation agency), SEE Project (Sharing Experience Europe - Policy, Innovation & Design – a network of European institutions related to design policies and promotion, based on Design Wales, Cardiff), and the Commission for the European Communities. Finally, a few academic theses have been written in the last years in UK universities: H. Alpay Er defended “The Emergence and Development Patterns of Industrial Design in Newly Industrialised Countries with particular reference to Turkey” at The Manchester Metropolitan University in 1994; Youngok Choi's “A Comparative Study of National Design Policy in the UK and South Korea” was presented at the Lancaster University in 2009; and Gisele Raulik-Murphy, a frequent author of papers and later manager of SEE Project, defended in 2010 “A Comparative Analysis of Strategies for Design Promotion in Different National Contexts” at the University of Wales. Curiously, they are all non-Europeans: Alpay Er is Turkish, Choi is Korean and Raulik-Murphy, Brazilian. It might help to understand the persistent focus of interest on design for development.

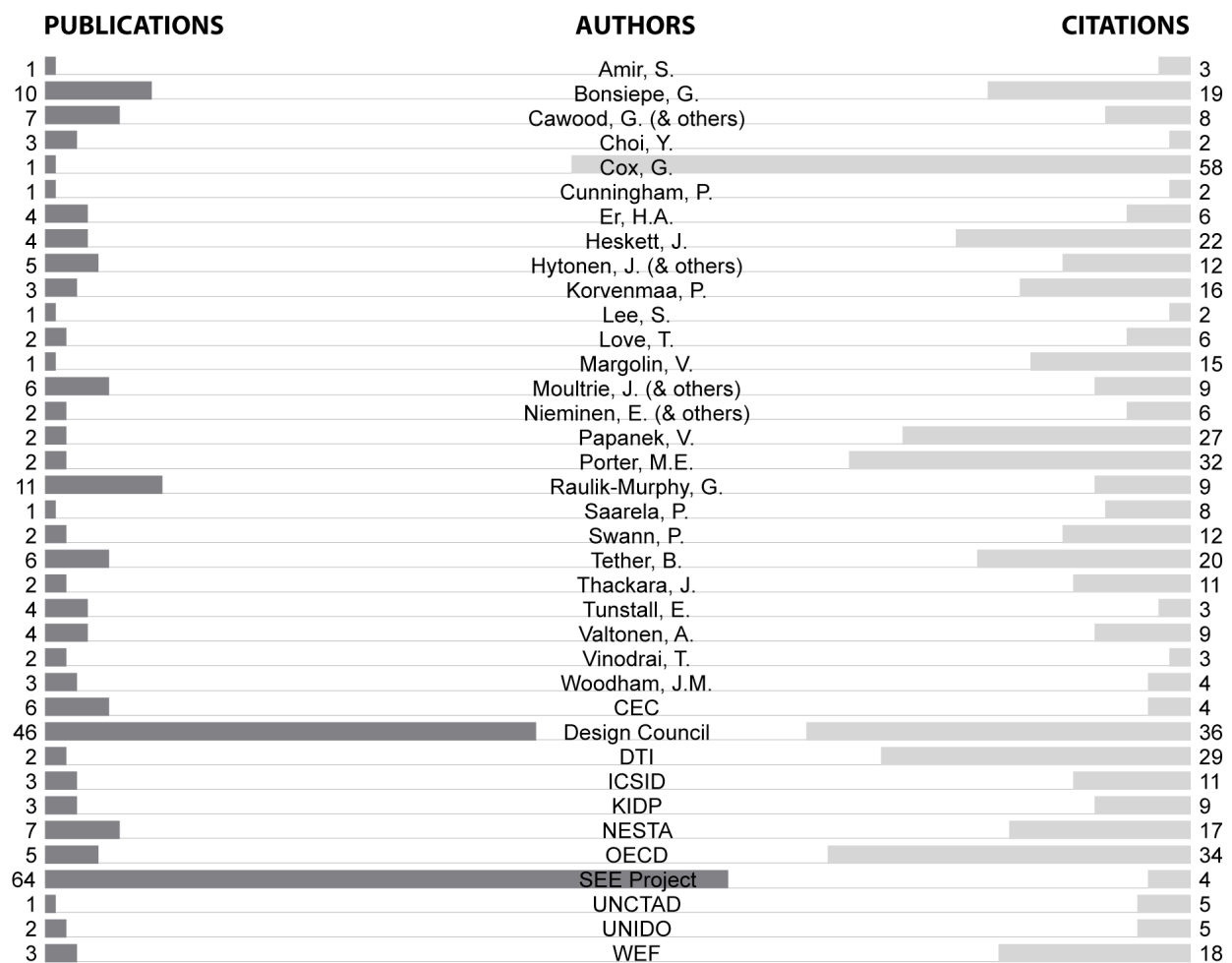


Figure 1: Design Policy - Key authors

A few conclusions could be drawn from the observation of the lower part of the authors/publications/citations graph (Figure 1): the first and obvious is the availability of publications from the UK Design Council. It still sets the ground for discussion in the field, either for being already almost seventy years old (founded in 1944) or precisely by the number of publications it produces. Important to note that several other publications of the Design Council were listed under other authors' names, since the ones listed there have only the institution as author. SEE Project is another prolific publisher, with a large number of talks, case studies and "policy booklets" available online, in addition to its bulletin. It certainly extended the centre of discussion and knowledge generation on the field of design policies to Wales – even though the search returned a low number of citations. The Department of Trade and Industry (DTI), specially with it's "Economics Paper No.15 - Creativity, Design and Business Performance" is frequently cited by other authors. The same occurs with the OECD documents "Open Innovation in Global Networks" (2008), "Science, Technology and Innovation Indicators in a Changing World" (2007), and "National Innovation Systems" (1997), frequently referred, especially when positioning design within

the innovation system framework. The World Economic Forum (WEF), besides the publication of its Global Competitiveness Reports, has also included design in the “Global Agenda Council Reports 2010”. NESTA situated design within its reports on innovation and creative industries, offering support to some authors as well.

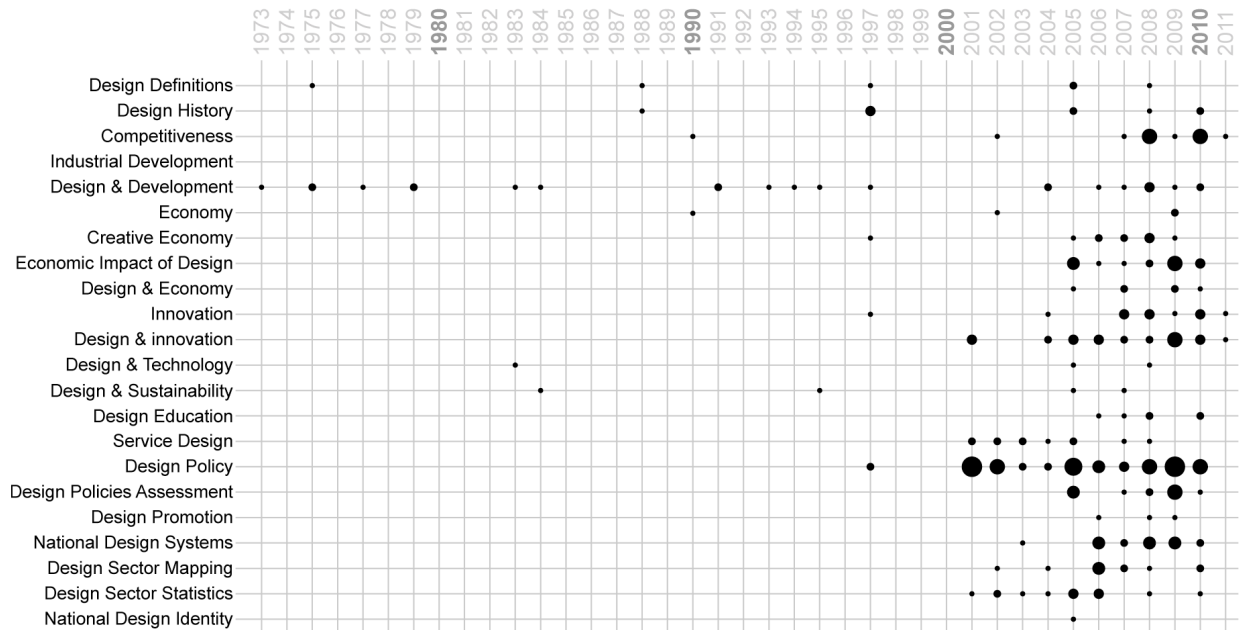


Figure 2: Design Policy - Themes over timeline

From the visual representation of occurrence of themes along the timeline (Figure 2), first it becomes clearly evident how much the discussion in the field was intensified in the years 2000s, and especially in the second half of it. The field slowly incorporated the discourse of Creative Industries / Creative Economy from the middle of the 2000s – as well as the importance of design as a driver of Innovation, and shows interest – or rather the need – for metrics, beginning with Sector Mapping and Statistics and growing towards the Economic Impact of Design and Design Policies Assessment at the end of the decade. A very consistent discourse of Design and Development permeated the four decades of documents – being Bonsiepe the most persevering author on the field.

The *Themes and authors* graph (Figure 3) brings more light to the individual interests and production, complementing the previous information. Authors such as Hytonen, Nieminen, Raulik-Murphy, Saarela, Tunstall, among others, developed an extensive mapping of the design sector and the national design systems not only in their countries (Finland, Brazil, USA), but also from several others, as a comparative or benchmarking tool. Themes as design education or service design, despite their high relevance, had been little explored – with the exception of the Design Council. Design and sustainability, regardless of its importance, seems to be less explored in the realm of design policies as well.

	Amir, S.	Bonsiepe, G.	Cawood, G. (& others)	Choi, Y.	Cox, G.	Cunningham, P.	Er, H. A.	Heskett, J.	Hytonen, J. (& others)	Korvenmaa, P.	Lee, S.	Love, T.	Margolin, V.	Moutrie, J. (& others)	Nieminen, E. (& others)	Paparek, V.	Porter, M. E.	Rauk-Murphy, G.	Saarela, P.	Swann, P.	Tether, B.	Thackara, J.	Tunstall, E.	Valtonen, A.	Vinodrai, T.	Woodham, J. M.	CEC	Design Council	DTI	ICSID	KIDP	NESTA	OECD	UNCTAD	UNIDO	WEF			
Design Definitions	1						2							1								1																	
Design History	1						3															1		1		3				2									
Competitiveness		2														2											4			2		1				3			
Industrial Development																																				2			
Design & Development	1	10	2				3						1		2														1						2	3			
Economy																2																		2					
Creative Economy																								1		1	1	1				4	1	1					
Economic Impact of Design			2				1	1						5		1	2	3										1											
Design & Economy							1	1															2				2												
Innovation																										5		1			4	3							
Design & Innovation		1				1	1	1								4		3					2	2		2	2	1								3			
Design & Technology	1																										3												
Design and sustainability														2								1					1												
Design Education																											7												
Service Design																		1									11												
Design Policy		1	3	1		1	2	2	1					2		6						4	1		3		16		1										
Design Policies Assessment						1	1						5			1		2										1											
Design Promotion																																							
National Design Systems		1					1		2				2		6	1	1										2		2										
Design Sector Mapping							2															1	1				4												
Design Sector Statistics							1																				10		1										
National Design Identity		1																																					

Figure 3: Design Policy - Themes and authors

Conclusion and further studies

From an original dataset of 970 documents to the selection of 231 documents from 37 authors writing on 22 themes, this paper offered strong evidence of the current significance of the subject of National Design Policies. It is present in several contexts, with authors coming from different countries and backgrounds. There is clear corroboration that the value of design is being considered by governments and international bodies as a tool to foster innovation and economic and social development.

This knowledge opens space for further studies and research on the field, such as the importance of design as a tool for growth in developing economies, or the search for effective metrics of design efficiency and of the outcomes of design policies.

This offers a clear opportunity to promote a positive change through design research.

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