POLITECNICO
DI MILANO

PROCESS DESIGN

FROM PRACTICE TO METHODS AND TOOLS

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DI MILANO

Facoltà di Disegno Industriale
Corso di Laurea in Disegno Industriale

PROCESS DESIGN

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Abstract EN

Design field is in the middle of some fundamental changes. Globalization, internationalization, financial crisis represent only some factors that influence the nowadays production system, which, consequently, is characterized by a growing complexity, immaterialization processes, rapid technological breakthroughs and constantly shrinking product life cycles. In this context an ability to provide appropriate responses and to generate innovative products continuously is not just a smart business practice, but an imperative. Design discipline, thanks to its methodological aspects and its ability to deal with abstract and multidimensional issues, provokes growing interest in the world of business.

A series of case studies analyzed have shown a rising branch of design, very interesting for its multidisciplinary and systemic meta-approach: the process design. The thesis objective is to study and explore this phenomenon, aiming to figure out its main characteristics, tools and defining elements. The research process included a theoretical background review , an extensive case study analysis to map and compare American and European perspectives, followed by an in-depth examination of Design Innovation as a pilot case. The direct involvement in the studio design activities, the interviews to Carmelo Di Bartolo, founder of Milan based process-oriented consultancy, made possible to analyze the design approach and to comprehend the main characteristics of the discussed method.

Thesis summary IT

Il design è al centro di una seria dei cambiamenti fondamentali. La globalizzazione, l'internazionalizzazione e la crisi finanziaria rappresentano solo alcuni elementi che influiscono sul sistema produttivo attuale, che pertanto è caratterizzato da una elevata complessità,da processi di smaterializzazione, da rapidi progressi tecnologici e da prodotti con brevi cicli di vita. In questo contesto la capacità di fornire risposte adeguate , generare rapidamente nuovi prodotti e predisporsi all'innovazione continua non rappresentano solo pratiche commerciali intelligenti, ma un imperativo. La disciplina del design, grazie ai suoi aspetti metodologici e alla sua capacità di affrontare le questioni astratte e multidimensionali, muove un crescente interesse da parte del mondo delle imprese.

Una serie di casi studio evidenzia una branca nascente del design di notevole interesse per il suo meta-approccio multidisciplinare e sistemico: il design dei processi. L'obiettivo della tesi è quello di studiare ed esplorare questo fenomeno, con lo scopo di comprendere le caratteristiche principali, gli strumenti e gli elementi che lo caratterizzano. Il percorso di ricerca ha incluso uno studio teorico di base, un'ampia analisi di casi studio per mappare e confrontare prospettive americane ed europee, e un approfondimento metodologico attraverso il caso pilota di Design Innovation. Il coinvolgimento diretto nelle attività di progettazione di questo studio, le interviste a Carmelo Di Bartolo, fondatore dello studio di consulenza milanese orientato al processo, hanno reso possibile l'analisi dell'approccio progettuale e la comprensione delle caratteristiche principali del metodo discusso.

Struttura

L'iter analitico è costituito dal background teorico e dalla revisione della letteratura tematica sulla cultura del design contemporaneo e dei suoi approcci In seguito lo stage presso Design Innovation, lo studio metodologico dei loro progetti storici e di quelli in atto ha fornito un contributo pratico ed ha consentito di verificare le caratteristiche e gli elementi definitori del design dei processi.

Il primo capitolo fornisce una panoramica della storia dei metodi di design, dividendola in quattro periodi principali dal 1960 fino ad oggi. Per questa breve panoramica è stata adottata la struttura cronologica fatta da Nigel Cross, uno dei ricercatori più importanti nel campo del design. Lo scopo del capitolo è delineare il background dello sviluppo metodologico del design, che darà una migliore

comprensione degli approcci contemporanei al processo di progettazione e le direzioni future possibili della ricerca progettuale.

Il secondo capitolo analizza i cambiamenti in corso nella cultura del progetto,indagando le ragioni dei cambiamenti globali che hanno influenzato il sistema produttivo contemporaneo e con esso le pratiche del design e il ruolo dei progettisti.

Il terzo capitolo è il cuore teorico della tesi e analizza la cultura contemporanea del design come una parte essenziale del sistema produttivo di oggi, restituendo una panoramica generale su attori, ruoli e relazioni. Appare evidente che il design ha una crescente importanza sia come mediatore nel sistema di produzione contemporaneo sia nei processi di innovazione. La cultura del progetto – intesa come meta-disciplina grazie alla sua capacità di dialogare con i quattro sistemi di conoscenza (discipline umanistiche, arte, tecnologia ed economia) – può svolgere un ruolo primario nell'affrontare la complessità degli attuali problemi sociali, culturali, economici, fornendo una metodologia olistica e trans-disciplinare.

Nel capitolo successivo si illustra il cambiamento del ruolo di progettista attraverso una panoramica delle società di consulenza di design internazionali e dei loro strumenti e approcci. Proprio la mappatura e l'attenta analisi dei casi di studio consentirà di defnire le caratteristiche principali del design dei processi.

Nel quinto capitolo si illustra il caso pilota di Design Innovation, studio fondato da Carmelo Di Bartolo, significativo per il design dei processi. Per studiare e analizzare i metodi, gli approcci e gli strumenti dello studio, grazie allo stage di tre mesi, è stata svolta una attività di action research che ha portato alla definizione degli aspetti della unicità dello studio, a partire dalla sua storia dalla struttura, il suo team attuale e i clienti principali.

Nel sesto capitolo si descrivono nel dettaglio i metodi, le linee guida e gli strumenti individuati con l'action research presso Design Innovation. Poiché lo scopo principale della tesi è quello di studiare il design dei processi, sono risultati di grande rilievo l'analisi dei metodi, degli strumenti e degli approcci di design per l'innovazione

Il settimo capitolo presenta un'applicazione degli strumenti e metodi utilizzati da Innovation Design per il progetto vero e proprio: un packaging innovativo per il formaggio Parmigiano-Reggiano.

Infine, l'ottavo capitolo chiude la tesi, presentando i risultati, le visioni e le aperture della ricerca. Come è stato descritto in precedenza, la ricerca condotta ha incluso la revisione del background teorico; l'analisi dei casi di studio nelle prospettive americane ed europee; interviste a Carmelo Di Bartolo, il fondatore di società di consulenza milanese orientata al processo e gli stage completati presso Design Innovation incentrati sull'analisi dell'approccio dello studio. Di conseguenza, il design dei processi può essere definito dalle caratteristiche seguenti:

1. Co-creazione e coinvolgimento degli utenti nel processo di progettazione.
2. Il dialogo continuo e la collaborazione con il cliente durante l'intero processo di progettazione.
3. La complessità e l'ampiezza dei progetti che forniscono gli scenari e le indicazioni numerosi per lo sviluppo futuro.
4. L'approccio olistico, sistemico, basato sui scenari.
5. L'uso degli strumenti personalizzati e su misura per ogni situazione particolare.
6. Coinvolgimento del team multidisciplinare.
7. La dimensione temporale come un fattore centrale del metodo.

Questo approccio olistico potrebbe avere un ampio spettro di applicazioni in una realtà contemporanea. Io ho basato le aperture e le applicazioni possibili del design dei processoi sulla ricerca effettuata dalla Commissione delle Comunità europee riguardo il contributo del design per l'innovazione e la competitività che ha dimostrato le sue grandi potenzialità in questo campo. Quindi, ecco alcuni risultati e le visioni del design dei processi, le sue possibili applicazioni e le potenzialità:

1. In generale, il ruolo del designer sta cambiando. Designer , avendo la capacità di affrontare problematiche complesse multidimensionale lo, si mette in un ruolo strategico più vasto nel sistema di produzione contemporanea. Di conseguenza, richiede un nuovo insieme di competenze adeguate in design, tra cui una migliore comprensione delle pratiche delle imprese e le dinamiche organizzative. Dopo aver analizzato società di consulenza di design internazionali, ho notato alcuni passaggi evolutivi in questa direzione. Dall'analisi della formazione dei fondatori ho scoperto una tendenza (soprattutto nei casi europei) per le discipline strategiche, aziendali e sociali come le direzioni di apprendimento.
2. Il design dei processi, essendo un meta-approccio olistico e sistemico, può essere utilizzato come

uno strumento strategico e driver per l'innovazione. Nel clima economico attuale, influenzata dalla crisi globale e, di conseguenza, caratterizzato dalle risorse scarse per l'innovazione, questo metodo può avere un ampio utilizzo. In realtà, la ricerca condotta ha dimostrato un numero crescente di consulenti di design che offre servizi nel campo dell'innovazione azienda, innovazione dei processi organizzativi, innovazione identità e branding. Avendo una capacità di generare spazi trans-disciplinari e tenere conto di molte variabili, il design dei processi ha un grande potenziale come driver di innovazione non tecnologica.

3. La maggior parte dei progetti osservati del design dei processi hanno mostrato un'importanza emergente di questo approccio come un pedaggio per l'innovazione sostenibile. Una crescente consapevolezza degli attuali problemi ecologici e ambientali mette la sostenibilità al centro del contesto di oggi. Il design dei processi, come un metodo olistico e multidisciplinare, è in grado di rispondere a questa domanda emergente offrire delle visioni e scenari sostenibili globali.

4. Il design dei processi, essendo orientato su co-creazione e coinvolgimento degli utenti nel processo di progettazione, può aiutare a capire e interpretare meglio le esigenze e i desideri non soddisfatti degli utenti. Questo aspetto è molto importante nel contesto di oggi, caratterizzato dal mercato altamente saturo e la produzione di massa dei prodotti standardizzati. Per le aziende che vogliono essere redditive, è inevitabile personalizzare i propri prodotti, tenendo conto della diversità dei consumatori. Il design dei processi, come un metodo altamente orientato alla partecipazione degli utenti nella fase di ricerca e processo decisionale, può aiutare alle aziende a produrre prodotti e servizi più user-friendly e sicuri.

5. Il design dei processi ha il potenziale per essere usato più ampiamente di R & S, "che tende ad essere fortemente concentrata nelle imprese grandi in alcuni settori ad alta tecnologia (come i prodotti farmaceutici e di elettronica)" (Commissione delle Comunità europee 2009). Così, il metodo è particolarmente adatto per le PMI e le industrie a bassa tecnologia, in quanto è meno costoso e ha un tempo di pay-back più breve. Il metodo può avere un utilizzo molto diffusa all'interno europeo, in particolare italiano, dove il contesto in gran parte presentato da PMI.

In generale, c'è un chiaro potenziale per il design da utilizzare come lo strumento per l'innovazione e il miglioramento della competitività aziendale. Questo potenziale è diventato sempre più evidente negli ultimi anni, dato che il contesto mondiale è cambiato seguito dal cambiamento del sistema produttivo, i suoi attori e le relazioni. Il processo di ricerca sviluppato durante la tesi mi ha aiutato a capire

l'evoluzione del ruolo del progettista e reso evidente la sua importanza crescente come un attore più influente strategico all'interno del sistema.

00

The thesis structure

This chapter helps you to understand my personal perspective and opinion on the thesis topic. In addition, it will explain the scope and limitations of the work, and its structure.

00|1 Introduction

Design, as a human activity, goes back to an ancient time, to the first stone tools made by our predecessors. This fact could probably give us a hope to an appropriate and serious perception of design by non designers, but, unfortunately, we are still far away from design as a "respectful" discipline. Undoubtedly, we have made some passes forward since the first significant attempts of the 1960s to "scientise" design and to find appropriate methodology and tools to deal with the growing complexity of design tasks. We are constantly working on finding new approaches and methods in design; the research activity in the field of design is growing every year and our understanding of design processes is getting better. But it is still not enough, design still can't reach the level of such a science as medicine, or even art.
Maybe nowadays the image of designer as someone "who just makes beautiful things" could be changed. It can happen since we are faced with global transformations that influenced world production system, and, as a consequence, there is a need to rethink and "reorganize" design and the role of designer inside the system. The current reality offers us more complex and abstract problems, and, taking into account that they have already demonstrated a great ability "to bring about effective transformation in abstract multidimensional issues", designers could have a central role in working on their solution.
Design field is in the middle of fundamental changes, and I hope in this work to define today's design culture, to discover the main actors and characteristics of modern design process, to outline the new role of designer, and to find out a tool-set that helps to meet the new challenges design is faced with.

00|2 A personal perspective

About an year ago, before I started to work on this thesis, I had a conversation with my friends that can explain my interest in the future design developments and the role of designer in contemporary context. Luckily or not, but all my friends are engineers, and most of them work in the field of computers and IT. So they asked me what I think about my future profession, and if designers have any additional tasks and abilities except of "making beautiful things"? It was difficult for me to answer in that moment. I was trying to "protect" design and designers, thinking about various tasks we have to deal with, but all my attempts were inconvenient.
Frankly speaking, in that time I could hardly find words such as *meta-design, advanced design, design management, strategic design, process design* and so on in my lexicon. Thus, when the professors M. Celi e F. Celaschi suggested me to take part on their research on advanced design, I was happy because I could see my chance to prove that designers, as H. Simon said, "are actors who will determine the future's shape" (Banerjee 2008).
I had another good surprise when I was asked to make an internship in one of the most significant international design consultancies – Design Innovation. This experience allowed me to see the whole complexity of design practice and gave me an opportunity to study their special approach to design and to find out some tools that can serve to meet the current lager and more complex issues.
I enjoyed all the activities done during the research process, and their detailed explanation, from the historical background till the identification of tools and methods, will be clarified in the following chapters.

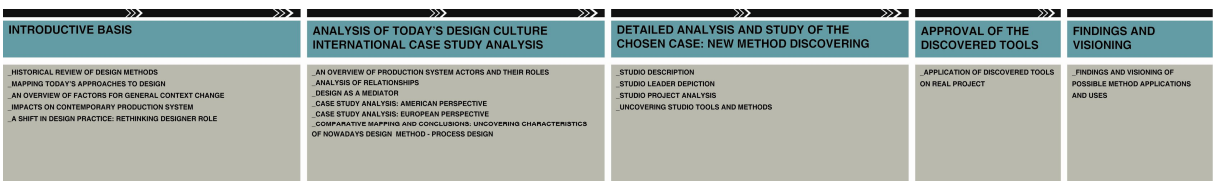
00|3 Scope and limitations of the thesis

The scope of the thesis is to observe and analyze current changes in design, making a focus on design as a process culture. The basic idea is to create more knowledge in this field, to examine possible emerging roles of designer in the actual context characterized by the growth of international design consulting firms having a holistic approach to design.
One of the significant examples in the changing context, in Italian and international level, is Design Innovation, chaired by Carmelo Di Bartolo. The aim of my internship in the studio was to study their approach to design and to learn tools and methods used in the firm. This part of the research process also allowed me to understand in a better way the actual relationships in the production system and changing characteristics of design culture.
The main limitation of the thesis was a relative newness of the subject characterized b y a lack of background information on the topic.

00|4 Structure of the thesis

In this section I will explain the thesis organization, which is additionally illustrated by the map 001.
The current chapter presents my personal perspective about the thesis topic and explains its scope, limitations and structure.
The first chapter of the thesis gives a general background, explaining design methodology development from the beginning till nowadays and mapping design evolution throughout last decades.
The second chapter explains current changes in design culture, providing the reasons for global changes that influenced contemporary production systems, and, as a result, are forcing us to rethink existing design practice and the role of designer in this context.
The third chapter is the focus of the thesis that analyzes contemporary design culture as an essential part of today's production system, giving an overview of its actors, roles and relationships.
The forth chapter illustrates the change of designer's role discussed in the previous part by giving an overview of international design consultancies and uncovering their tools and approaches.
The fifth chapter demonstrates one of the important case studies in the field of process design – Design Innovation studio, leading by Carmelo Di Bartolo.
In the sixth chapter I will describe methods, guidelines and tools discovered during my internship at Design Innovation.
The seventh chapter presents an application of the tools and methods used by Design Innovation on the real design project. Finally, the eighth chapter terminates the thesis, presenting findings, visions and apertures of the research.

Map 001
Summarizing map of the thesis structure
Resource: personal



01

Design methodology development: from scientific approaches to meta-design

The first chapter gives an overview of design methods history, dividing it into four main periods from the early 1960s up to nowadays. In this brief overview I adopted the chronological structure done by Nigel Cross (2006), one of the leading researches in the field of design. The purpose of the chapter is to outline the background of design methodology development, which will give a better understanding of contemporary approaches to design process and possible future directions of design research.

01|1 1960s: transferring well-defined problems into solutions

The first steps toward contemporary image of design research and design methodology were done, according to many writers in the field, in the early 1920s with the desire of The Stijl to "scientise" design and Bauhaus establishment as a methodological foundation for design education (Cross 2001; Bayazit 2004). But the emergence of design methods lays further back in the application of the new techniques that had been used in the development of arms and wartime equipment during the World War II. Nigan Bayazit in her paper "Investigating design: a review of forty years of design research" (2004) noted down the following phrase of Horst Rittel:

> The reason for the emergence of design methods in the late '50s and early '60s was the idea that the ways in which the large-scale NASA and military-type technological problems had been approached might profitably be transferred into civilian or other design areas.

The idea to apply in design innovative methods and approaches used in developing new military inventions attracted many designers. But it became clear that "designers no longer could rely solely on their ability to focus upon the product as the center of a design task. Due to technological developments and the implications of mass production, interest had to be shifted from hardware and form to the consideration of human needs. This required a new look at the subject of design methods" (Bayazit 2004).

The event that launched an idea of design methodology as a subject of enquiry or research was the Conference on Design Methods, held in London in September 1962. The Design Methods Movement also emerged from this conference (Cross 2001). The methodologies proposed at that conference were personal, partial and one-dimensional. Everyone was trying to systemize his personal view on design and design process, suggesting it as design method. There was a desire to understand design as a systematic process, based on objectivity and rationality.

The first methodology books appeared. Most of them proposed systematic approaches to problem solving, "borrowed from computer techniques and management theory" (Cross 2006, 1:1). One of the notable works of the period was the first Ph.D. thesis in design methods by Christopher Alexander (1964), entitled "Notes on the Synthesis of Form". Alexander tried to split the design problems into solvable small patterns. In his opinion, the growing complexity of design issues and their fast change caused to need of corresponding way of simplifying design problems:

> His [designer's] chances of success are small because the number of factors which must fall simultaneously into place is so enormous.

In order to help designer to overcome this difficulty Alexander developed a systematical approach to design process, where the problem is defined as a set of subsystems, "all interlinked, yet sufficiently free of one another to adjust independently in a feasible amount of time." Dividing the multipart system to the series of subsets of fits and misfits, and satisfying them, designer can solve the whole problem.

Another design methodology book, that, actually, marked the end of the early research period, was "The science of the artificial" written by Herbert Simon in 1968. In his conclusion, Simon suggested to apply rational scientific approach to the sciences of the artificial in many disciplines (economics, engineering and others), pointing out that the design, "courses of action aimed at changing existing situations into preferred ones" (Simon 1982), is the matter of its own discipline.

Concluding the written above, I want to underline that the main problem of the early design methods was the researchers' attempt to incorporate scientific techniques and knowledge into the design process for making rational decisions (Bayazit 2004), something that in most of the cases was difficult to achieve. Nigel Cross (2006) describes the typical design research of the 1960s as following:

> Typical design research included: prescriptive models of the design process, what it should be like, how you should design, management-like models that consider information gathering and specification. Systematic methods to rationalize decision-making were developed.

Consequently, such a rational and one-dimensional approach to the design process caused a negative reaction inside design community.

01|2 1970s: reaction against scientific approaches of the 1960s

As it was mentioned above, in 1970s there was a reaction against the early "scientific" methods because of their problematic application to design. Even the pioneers of design methodology - Christopher Alexander and Christopher Jones – rejected the values of design methods of the 1960s and spoke out against it (Cross 2001, Bayazit 2004). According to Nigel Cross (2001) in his article, Christopher Alexander, who had invented a rational approach to architectural design, said at that time:

> I've disassociated myself from the field…There is so little in what is called "design methods" that has anything useful to say about how to design buildings that I never even read the literature anymore… I would say forget it, forget the whole thing.

Horst Rittel was the one to save the future of design methodology, naming the shifts in design approaches "generations" (Bayazit 2001). He suggested to call the simplistic approaches of the 1960s "first generation methods", which were necessary in the beginning, and pointed out that a new second generation had to be developed. This proposal was clever, "because it opened a vista of an endless future of generation upon generation of new methods". Nigan Bayazit (2004) illustrated Horst Rittel's view on the first generation one-dimensional methods as following:

> First-generation design methods were simplistic, not matured enough, and not capable of meeting the requirements of complex, real-world problems. The design methodologists were trying to apply OR models and systems theory to design problems in a very abstract way for every problem.
> The first-generation design methods were formulated and applied by scientists and designers. The objectives of the design problem also were identified by them during the design process, which caused rigidity in design decisions and unexpected failures. These simplistic methods were necessary at the beginning.

Horst Rittel proposed "second-generation design methods" – new argumentative problem identification methods, which were compensative for the for the inadequacy of the first-generation. The second generation was based on searching for satisfactory or appropriate solutions and user involvement in the process "in which designers are partners with the problem "owners" (clients, customers, users, the community)" (Cross 2006, 1:2). User participation was an innovative approach to design process of the era.

Among the events that confirmed the shift of generations were: the Design Participation conference organized by Nigel Cross in 1971, the Design Activity conference in 1973, the Changing Design conference in 1976 and Design, Science, Method conference organized by the Design Research Society in 1980 (Cross 2006, 1:1).
The typical design research of the 1970s included, according to Nigel Cross (2006, 1:1), participatory methods, theoretical analysis and descriptive studies of design.

01|3 1980s: "designerly" methods for complex problems

Actually, after the doubts of the 1970s, the 1980s are considered a consolidation era of design methodology development. In this period were launched first journals on the theme: Design Studies in 1979, Design Issues in 1983, Research in Engineering Design appeared in 1988 (Cross 2006, 1:1).
In the 1980s the design research was focused on "the establishment of design as a coherent discipline of study" (Cross 2001). Nigel Cross in his article "Designerly ways of knowing" (1982) proposed that design has its own "things to know, ways of knowing them, and ways of finding out about them". He suggested to contrast the sciences, the humanities and design in order to clarify what is particular to design. He defined and compared the phenomenon of study, the appropriate methods and values in each of these fields. Calling design "the third culture", Cross proposed to make design a part of everyone's education, "in the same ways that the sciences and the humanities are parts of everyone's education". The author also pointed out that the observational studies made of how designers work supported the view "that there is a distinct "designerly" form of activity that separates it from typical scientific and scholarly activities".
One of the most significant books of the period that promoted this innovative view of design discipline was Donald Schön's "The Reflective Practitioner" (1983). In his book Schön pointed out the crisis for professions such as architecture and design, which are strongly influenced by rational approach to the problem. For author, in the real-world practice professionals "deal usually with a complex and ill-defined situation in which geographic, topological, financial, economic and political issues are all mixed up together". Considering this complex situation, designer shouldn't be involved just in problem solving process, but also has to be able to set problem:

> In real-world practice, problems do not present themselves to the practitioner as givens. They must be constructed from the materials of problematic situations which are puzzling, troubling, and uncertain.

In other words, Schön suggested to "liberate" design from the technical rationality influence and locate it within the dimension of "reflective practice", which is based on "knowing-in-action" and "conversation with the situation".

01|4 1990s: from well-defined problems to ill-defined issues

"It might be said that design research 'came of age' in the 1980s", as it was correctly noted by Nigel Cross (2006, 1:2), "since when we have seen a period of expansion through the 1990s right up to today". In this period more new design journals have been published, such as The Design Journal (1997), The Journal of Design Research and Co-Design. In addition, more conferences occurred:

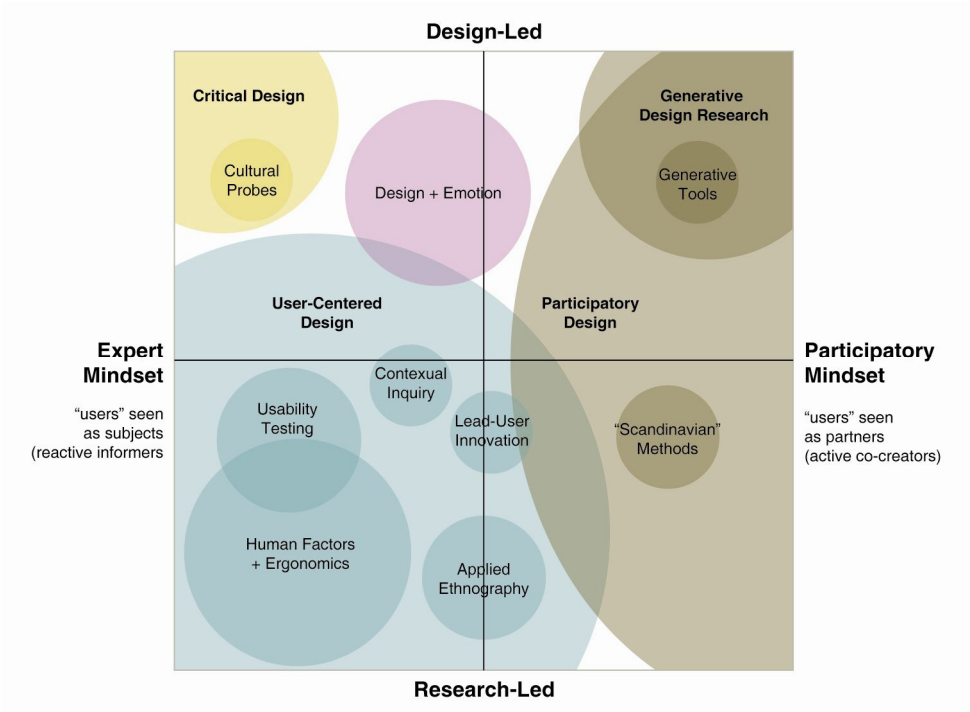
Design Thinking Research Symposia, AI in design, European Academy of Design, ICED, and so on. As Nigan Bayazit (2004) affirmed, design started to operate in an international scale, "acknowledged in the cooperation of DRS with the Asian design research societies in the founding in 2005 of the International Association of Societies of Design Research".
One of the emerged themes in the 1990's was the research in design cognition and the nature of design activity. Nigel Cross wrote a significant amount of works on the subject: "Creativity in design: analyzing and modeling the creative leap" (1997), "Natural Intelligence in Design" (1999), "The Expertise of Exceptional Designers" (2003), "Expertise in Design: an overview" (2004), and many others. Cross has analyzed the cognitive activities and abilities of designers through various methods, such as interviews with designers, observations and case studies, protocol studies, and simulation trials. In this continuous research the author developed insights into "the natural intelligence of design – or "designerly" ways of thinking". As an example, the paper "The Expertise of Exceptional Designers" (2003) presents a report of three studies of creative and exceptional designers: the engineering designer Victor Scheinman, the product designer Kenneth Grange, and the racing car designer Gordon Murray. The study was focused on the designers' strategies and creative approaches to the problem they deal with. It has been found that the strategies of the three designers were quite similar, which allowed the author to propose that "a common understanding, and indeed a general model might be constructed of high-level, creative expertise in design".

01|5 2000s: mapping evolution – meta-design as an emerging culture

Concluding the short overview of design methodology evolution, it is logical to describe the state of design research nowadays. Since 1960s our perception of design culture has considerably changed. Through comparisons it became evident, that design is not science, and it is not art, but a discipline that deals with ill-defined complex problems and provides appropriate and satisfying solutions using its own methods, tools and procedures. In the 2000s the complexity of design tasks is constantly increasing, so the individual attempts to solve them are not enough. There is a growing need for co-creation and collaboration, and, consequently, redefinition of design methods and the role of designer in the contemporary context is required. To prove this tendency, as it was mentioned in the work of E. Sanders (2008), there is "an increase in the number and quality of global design research events and a growing emphasis on collaborative projects between industry and the universities, particularly in Europe".

The same author made an attempt to position all the contemporary approaches "into one unifying, visual framework" (Sanders 2006) in order to stop arguing about the best design method and begin to have a dialogue "where to play during all points along the design development process." This map is especially useful, considering the fact that the focus of design activity is changing from product to process design, because it provides the whole panorama of tools and methods and their relationships available in the current design research landscape. In addition, it could be used as a base for mapping of the future developments in the field.

Map 002
An evolving map of design practice and design research
Resource: Sanders 2006



The map is defined by two intersecting dimensions: one is defined by approaches to design research (research-led/design-led) and the other is defined by mindset (expert/participatory). According to these axes, Sanders positioned the main design methods (zones) developed up to today: user-centered design, participatory design, design and emotion, critical design and generative design research. In each zone there were placed tools (areas of activity) used in the application of these methods.
Definitely, the map is not complete and it is constantly changing, but it provides a good platform to position changes taking place in the field and as a framework for future scenario development.
The latest developments in the field show the worldwide tendency to focus on design as meta-discipline or trans-disciplinary system, so the new meta-disciplinary methodologies can be placed near the middle of the map "in order to draw upon tools and methods from all the zones, clusters and bubbles".
In the following chapters I will explain the reasons that caused to the change in design culture and I will try to find out new methods and approaches emerged from the current context, so this map could help me to place within my own findings of rising trends in design methodology.

02

A need for change: the reasons for a shift in design field

The second chapter explains current changes in design culture, presenting the main global changes that influenced contemporary production system, and, as a result, are forcing us to rethink existing design practice and the role of designer in this context.

02|1 Factors of general context change

The general context of the contemporary production system has changed considerably over the past few decades, that forces system actors to change old market approaches and to think about new appropriate solutions to survive in changing, hyper-competitive, global environment (Bettis, Hitt 1995). Design, being one of the central components of production system (Celaschi, Deserti 2007; Jonas 1996; Owen 1998), should be reviewed and redefined taking into account the new context. In order to classify the future direction of design development and understand a shift occurred in design culture, it is necessary to comprehend the nature of the global changes. The following factors could be identified as the main causes to the general contextual change:

02|1|1 Globalization of markets

Undoubtedly, the dominant and the most significant change that influenced the general context we live in is the globalization of markets. This phenomenon is a result of several technological changes, such as advances in telecommunications, transport and production processes that enabled faster and more efficient communication within and between firms, transcontinental movement of goods and people and cost-effective product adaptation (Bettis, Hitt 1995).
The market globalization resulted in increase of global mergers and acquisitions, investment activity growth, and increasing trade between trading regions. Due to this change we are faced with continuously growing informational, technological and financial availability, and expanding worldwide competition (Porter, Schwab 2008).
The global economy is a fact that should be taken into account by all the actors of production system. In addition to developing perspectives on local and regional systems, there is a growing requirement to build up possible scenarios of an integrated global market and global strategies.

02|1|2 Internationalization of cultures

Another aspect of globalization that has an impact on today's contextual change is the internationalization of the cultures and worldwide identity development. Globalization provides a good platform for "culture sharing" where all developed and developing countries can share their culture and way of life with each other. It's a time of world culture where people are able to share their beliefs, rituals, values, languages, goals and so on (Tomlinson 2006). Globalization offered us multiculturalism that promotes social linking and collaboration. We are able to share and adopt culture of other countries, we can learn foreign languages, we can communicate and collaborate with each other in a world-wide level. The world cultures "are interconnected to each other via movie, television, business, tourism and Internet today" (www.buzzle.com/articles/culture-and-globalization.html). The phenomenon of cultural internationalization has considerably changed the context of modern production system, forcing it to develop new views and approaches to consumers and ways of consumption.

02|1|3 Global financial crisis

The following factor that has an impact on general contextual change is the financial market crisis that started out in 2007 as "a subprime housing crisis" in the United States and has turned into a global problem that is driving economies around the world into recession, losses in market and significant retardation of "the rapid growth rates seen over the last years in emerging markets" (Dutta, Mia 2009).

The current crisis, combined with growing inflation worldwide and the following slowdown in demand in the large number of advanced economies, has caused a great uncertainty about the short-term view of the world economy and world production system (Porter, Schwab 2008). It is still difficult to forecast the consequences of the present crisis, but today's situation shows that the global growth is slowing, food and energy prices are rising, and the poverty level in emerging and developing economies is increasing.
Government leaders worldwide are rethinking their theories and approaches to the regulation of financial markets, focusing on stabilization of the global economy and the economic growth. In the present conditions of growing instability the great importance should be given to competitiveness supporting economic environment that can help national economies to survive in these kinds of shocks (Porter, Schwab 2008).

02|1|4 Hyper-connectivity and ICT development

One of the most important factors that influences today's contextual change – hyper-connectivity – could be illustrated in Mark Pesce's online essay on the subject:

> The world is changing. We have wired ourselves up – and now unwired ourselves, stewing in a perpetual bath of radio waves – so that we are always connected. A billion of us keep our mobile phones constantly at hand, while 700 million of us use the Internet. This isn't just a game of numbers, of huge populations growing ever larger; it isn't that more is better, but rather, more is *different*. A billion people using mobile phones means that those phones will have an impact beyond anything that could be predicted. What we see – what we're learning, right now – is that this age of "hyper-connectivity" has produced *emergent* effects. We did not know of this world until it grew up around us.
> (blog.futurestreetconsulting.com/?p=16)

A new hyper-connected world has emerged due to revolutionary power of information and communication technologies (ICT). ICTs have created a new form of culture: we can share information and knowledge, we can have an access to education and markets, we can share what we create, we can do business and interact with each other and so on. In his new hyper-connected reality we no longer think individually, but "we have come to share with one another matters of importance, both trivial and vital" (Pesce 2006). A new form of communication has been created.
Expanding access to the network has caused the break of all barriers. New messages and new services can reach more people through the network. Information today has new value and generates new power. Information is changing the rules and the very basis of contemporary production system and global economics (Dutta, Mia 2009). In this context the role of investors, producers and consumers should be redefined and the new scenarios of economic development should be provided.

02|1|5 Awareness of Earth's ecological situation

> As we enter the 21st Century, wide recognition exists that humans have altered virtually all of Earth's ecological systems. Few places remain that rightly could be called pristine. People and their institutions need wood, so even the most remote rain forests have been logged to the point of exhaustion. The need for energy and transportation has led to increases in atmospheric carbon dioxide, methane, and nitrous oxides. Earth's supply of water has remained finite, but the usable amount has declined; almost all freshwater bodies are degraded or water is being siphoned off at rates

> that are leading to total depletion in some regions, threatening fierce cross-border disputes. We are profoundly degrading the health of Earth's ecosystems.
> (www.esa.org/ecovisions/)

The growing awareness of existing ecological and environmental problems is one of the main factors that changes our life context as well. "Environmental catastrophes, global warming, increasing desertification and deforestation, depletion of non-renewable resources, pollution and the ozone hole" (Palmer, Bernhardt 2004) are widely discussed topics that have recently become an important issue of many government policies. The subject is widely observed and talked about in mass media, so we can see the growing awareness and sensitivity of the world community towards the present environmental risk.
The impacts that humans make on the environment are fatal, and we are reaching the point of no return. As it fairly mentioned E. Manzini (2008), there is an emerging demand for visions of sustainability and scenarios that review over-exploitation of natural resources. It is time to create an ecology of the future. It is new and critically important phase, "that requires crucial changes in thoughts and actions" (Manzini 2008) and provides scenarios that can change the whole production system and consumption process.

02|1|6 Change from fast living to slow lifestyle

Another factor that has an impact on today's global context is the change of our perception of time. On the one hand, our fast-changing and unpredictable world forced us to be in constant fast-forward motion, we are overscheduled, stressed and rushing towards the next task. This rushing doesn't leave us anywhere. We rush our work, but also our food, our family time, our private life, our friends time and even our recreation. We have lost connection to most aspects of our life and to the natural world and rhythms around us, we have a constant lack of time (www.slowmovement.com).
On the other hand, we are experiencing a growing cultural shift towards slowing down and the Slow Movement is gaining popularity worldwide. The new philosophy could be summarized by professor Guttorm Fløistad:

> The only thing for certain is that everything changes. The rate of change increases. If you want to hang on you better speed up. That is the message of today. It could however be useful to remind everyone that our basic needs never change. The need to be seen and appreciated! It is the need to belong. The need for nearness and care, and for a little love! This is given only through slowness in human relations. In order to master changes, we have to recover slowness, reflection and togetherness. There we will find real renewal.
> (http://en.wikipedia.org/wiki/Slow_Movement)

Buddhism is the fastest growing religion in the world today. People are turning to organic food. Home schooling is becoming commonplace. People are downshifting. The Slow Food movement is gaining popularity worldwide (www.slowmovement.com). These and many other trends show us the growing people's desire to change and to reorganize their lifestyles. Thus, we need new visions and new scenarios of the context we live in, including redefinition of production system.
To conclude, the overviewed factors has a great influence on global context change, which, consequently, stimulates impacts on production system. These impacts will be discussed in the following part.

02|2 Impacts on contemporary production system

The previous part has illustrated general change of the context we live in. Obviously, these global shifts couldn't pass "unnoticed" and had to make an impact on all the fields of contemporary reality, from education to economics. One of the significant changes has been done in production system, and since design plays not the last role in it, the focus of the following part is to observe and analyze the impacts of the changed context on this field. Globalization of markets, cultural internationalization, financial crisis, information technology development, increasing awareness of ecological issues, changes in lifestyles – all these factors, together or separately, have a great influence on production and consumption processes. The following changes illustrate the most important impacts of the contextual shift on contemporary production system:

02|2|1 Complexity

Globalization, digital technology invasion, the internet, and many other contextual changes have an impact on modern production system and its processes. The world suddenly became smaller, the boundaries between countries disappeared, everyone could be connected to anywhere using online access. Production system context is turning to be the whole planet (Moggridge 2008). Design, being a part of the system, has to deal with wicked and complex problems, design tasks are getting more complicated and messy. Examples of today's multidimensional problematic issues include: terrorism, global climate change, nuclear energy, healthcare, poverty, crime, ecological health, pandemics, genetically-modified food, water resource management, trade liberalization, the use of stem-cells, bio-fuel production, nanotechnology, gun control, air quality, sustainable development, biodiversity, environmental restoration, forest fire management, animal welfare (http://en.wikipedia.org/wiki/Wicked_problem), and so on. Contemporary problems are complex and ill-defined. They are difficult to understand and elusive because they are influenced by many dynamic social and political factors as well as biophysical complexities. In addition, most of these complex problems are interconnected with each other, so it is difficult to define what exactly the problem is. In other words, the current context of production system, and, consequently, of design culture, is very complicated and messy.

02|2|2 Front end fuzziness

The global contextual change has an impact also on product system development practice. Today there is a growing emphasis on the front end phase, the "getting started" (http://en.wikipedia.org/wiki/New_product_development) period of new product system development processes, which is considered the most critical step in the future product system success (Verworn, Herstatt 2001). The front end is usually described as "fuzzy" because of its chaotic, ambiguity and messy nature, but the contemporary contextual changes make its fuzziness almost limitless, while the myriad of factors and parameters should be considered. Among the influencing factors that affect the front end as well as the new product system development are the corporation's organizational capabilities, customer and competitor influences, the outside world's influences (including government policy, environmental regulations, laws concerning patents, and socioeconomic trends), and the depth and strength of enabling sciences and technology (Koen, Ajamian 2002). In these conditions the management of the front end phase and the whole development process is getting extremely complicated.

02|2|3 Immaterialization of consumption

> Our family no longer uses an answering machine at home, as we each have our own personalized service provided through our mobile phones. In the future, we will no longer buy CDs or rent videos, we will be able to purchase the rights to various entertainments through electronic means. A visit to a bank will be replaced by on-line financial services, a simple postcard will be substituted by real-time multimedia messaging, and more and more hardware will become software. Essentially, we will be paying for the experience in future, not the product.
> (www.unep.org/ourplanet/imgversn/121/ollila.html)

Development of information and telecommunication technologies created possibilities for immaterial ways of doing things and provoked immaterialization of consumption. This phenomenon refers to replacement of products by services or, in other words, the use of some products is replaced by information and telecommunication services. Typical examples of immaterialization include the substitution of technical devices or even paper by virtual information devices, "e.g. downloading the times of trains from a web-site instead of buying a heavyweight timetable that consumed a small forest" (Britton 2001). Immaterialization creates transformations in typical ways of doing business, working, traveling, communicating, and, of course, producing and consuming. This shift shows us an inadequacy of existing approaches to product design and production system, which were always referred to concrete, "tangible" materials and processes (Celaschi, Deserti 2007).

02|2|4 Growing tension for rapid and continuous innovation

> Get innovative or get dead! (T. Peters, California Management Review, 1985)

Time factor has an essential role in contemporary production system. Today's extremely competitive and increasingly saturated global markets are characterized by rapid technological breakthroughs, fast sociopolitical changes, speedy shifts in consumer taste and needs, and continuously shrinking product life cycles (Mehta, Mokashi-Punekar 2008; Celaschi, Deserti 2007). Consequently, rapid response to changing market conditions and rapid creation of innovative product concepts is no longer just smart business practice — it is imperative. Innovation nowadays is the key to long-term survival of companies. As a result, there is a great need for critical intervention in innovation processes, where design could have a central role of bringing in its "empathetic understanding and holistic vision to connect and integrate all the various efforts towards a positive outcome" (Mehta, Mokashi-Punekar 2008). Designer in this case could act as a "catalyst" that brings new visions and changes to innovation processes.

02|2|5 Proliferation of products

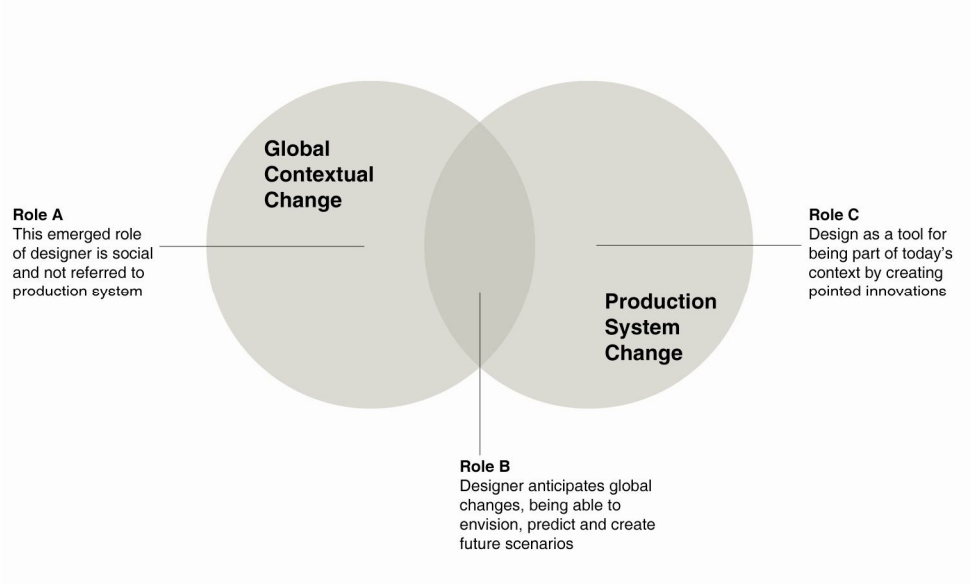
In the current situation of global economy, mass customization and cultural internationalization, the conventional value chain is getting complex and multidimensional, involving a great number of actors, which leads to increasing distance between producers and consumers (Krucken 2008). It is becoming difficult to communicate product values and local qualities to global consumers. The proliferation of numerous, indistinguishable products on the market is making expression of product qualities, especially its traceability and authenticity, particularly important (Krucken 2008). In order to be competitive on the global market, the product should communicate its cultural and social

aspects. In addition, taking into account the increasing awareness of environmental change, it is important to express ethical and moral values of producing, distributing and consuming processes.

02|3 A shift in design practice: rethinking designer role

The global contextual changes and the following shifts in contemporary production system gave a basis for redefinition of design practice and emergence of new design responsibilities (Banerjee 2008).

Map 003
Global contextual changes and emergence of new design roles
Resource: personal



On the one hand, one of the emergent designer's roles in today's context is social and not referred to production system (Role A). In this case, design, having a "possibility to visualize and share what is immaterial and upcoming" (Celaschi, De Marco 2008) deals with social, ecological, political and cultural issues that have an impact on global civilization. On the other hand, there is still a part of design field that has remained outside of the global transformations (Role C). In this situation production system makes use of design as a tool for entering and being part of today's context by creating pointed innovations.
The third emerged role of design (Role B) can be called "synchronized with contemporary context", while designer anticipates global changes, being able to envision, predict and create future scenarios. This role of designer as a creator of continuous innovation and scenario builder has a great influence on contemporary production system, since "innovation is today the key to any business success" (Mehta, Mokashi-Punekar 2008).
This last designer role has a growing importance in the changed context. It is becoming a frequent practice that companies, having decided to develop a research process to innovate one o more of their products, discover all the broadness of design approaches (Celaschi, Deserti 2007). Due to problematic productive organization of the companies (Celaschi, Deserti 2007) and the lack of appropriate methodologies to operate the current large-scale context (Banerjee 2008), there is a growing interest in

methodological aspects of design by production system (Celaschi, De Marco 2008; Banerjee 2008; Celaschi, Deserti 2007).
This trend of increasing importance of design as a mediator between production and consumption will be clarified and discussed in the following chapter.

03

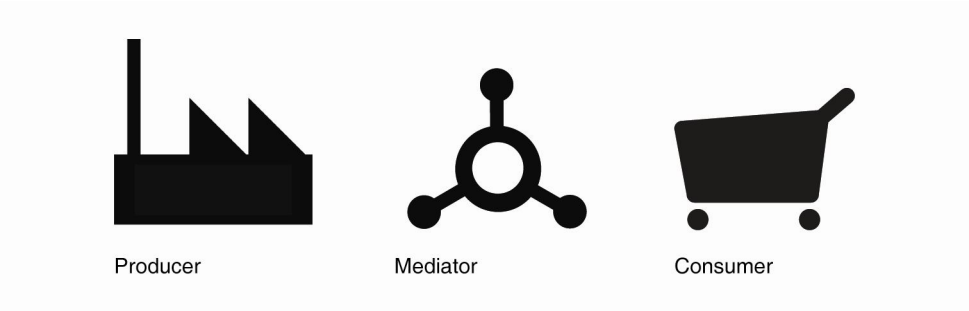
Analysis of contemporary production system: actors, roles, relationships

The third chapter is the focus of the thesis that analyzes contemporary design culture as an essential part of today's production system, giving an overview of its actors, roles and relationships.

03|1 Overview of system actors and their roles

As it was mentioned in the previous chapter, one of the essential requirements of the contemporary production system is to innovate continuously, developing effective approaches and methods for innovation process. In this crucial for companies practice three categories of today's production system are involved: producers, consumers and mediators (Celaschi, Deserti 2007).

Image 001
Actors of contemporary production system
Resource: personal



03|1|1 Producer

> One that produces, especially a person or organization that produces goods or services for sale. (http://www.thefreedictionary.com/Producers)

Producer's sector in Italy is notably different from American and European approaches. In USA production system is considered with big multinational enterprises, while in Europe this sector is mainly presented by medium-sized companies that are crucial to its competitive development (ECMI). Italian production system "is almost entirely made up of small and medium sized companies, and very often of micro-companies and artisans organized in systems that cover the entire production cycle from initial processing of materials and components to the production of goods for the market and accessory services to launch the product on the market" (Design Directory 2006).
The prevalent organization model of small and medium sized enterprises (SME) allows the entrepreneur to have a determining and dominant role in all the planning and decisive processes, and, consequently, in design and innovation processes (Design Directory 2003). In other words, Italian SMEs and their leaders use design and product innovation as a competitiveness advantage without taking into account in a serious and mature way the fundamental contributions of design as a strategic process that generates innovative ideas and produces values for end-users (Celaschi, Deserti 2007; Design Directory 2003).
The roots of this phenomenon lie in small dimensions of the Italian enterprises, which are insufficient to develop inside their organizations figures that can operate these critical initial phases of mediation processes. Another reason is that the companies are still closely connected to technical and logistic processes of production that in the past were essential factors of business success (Celaschi, Deserti 2007). Today, due to the transformed global context, the producers should develop new effective approaches to production processes (while innovation is a key concept) and reconsider the role of mediators (especially designers) in strategic success of the companies.

03|1|2 Consumer

> Consumer is a broad label for any individuals or households that use goods and services generated within the economy. (http://en.wikipedia.org/wiki/Consumer)

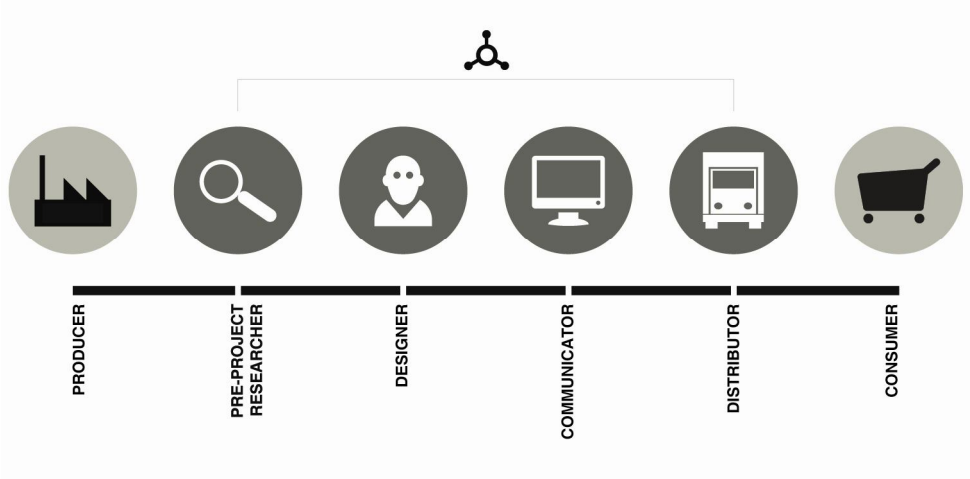
In today's world, which is a global marketplace, we consume a variety of resources and products "having moved beyond basic needs to include luxury items and technological innovations to try to improve efficiency. Such consumption beyond minimal and basic needs is not necessarily a bad thing in and of itself, as throughout history we have always sought to find ways to make our lives a bit easier to live" (Shah 2008). This small citation demonstrates the importance of consumer in contemporary production system, being its "point of reference" and "attractive target" of the marketplace (Celaschi, Deserti 2007). Our constant desire to "buy" a better lifestyle and "improve" our social status by purchasing an expensive and innovative item encourages businesses to produce more and stimulates them to generate innovation.
Definitely, the consumer's role is passive comparing to other actors of the system. In order not to be lost in a great amount of indistinguishable and useless products on the market, consumers should use their power and be more active, they should express their views on global and ethical consumer issues and "participate as soon as possible in the process of innovation" (Celaschi, Deserti 2007).

03|1|3 Mediator

> One that mediates, especially one that reconciles differences between disputants. (http://www.thefreedictionary.com/mediator)

The process of innovation, which is essential concept for every business today, is generated by the third actor of the system – mediator (Celaschi, Deserti 2007). Actually, a great amount of professionals is involved in the mediation process, dealing with all the spectrum of its aspects from market analysis and concept ideation to communication process and product distribution. Thus, the mediation sector could be divided into four main actors: pre-project phase operators, designers, communicators and distributors (Celaschi, Deserti 2007).

Map 004
Mediators as a part of contemporary production system
Resource: personal



The complexity of contemporary market conditions and continuous tension for rapid innovation reviewed in the previous chapter confirm a great importance and centrality of mediation processes, especially the phase of concept ideation and creation of values for consumers, in every business success (Celaschi, Deserti 2007; Mehta, Mokashi-Punekar 2008). Designer, having abilities and potential, can play an important role particularly in that stage of the process. Thus, in my work designer is considered to be the main actor of mediation processes.
In the following part I will explain in a more extensive way relationships between the actors, focusing on contributions of design as a mediator in production-consumption system.

03|2 Analysis of relationships

03|2|1 Producer | Consumer

In contemporary manufacturing system the distance between producers and consumers is growing, having an influence on the relationship between the two actors (Celasci, Deserti 2007; Krucken 2008). Globalization, disintegration of production processes and general complexity of the context make quite impossible for consumer to trace and identify the real producer of goods and raw materials. Another aspect that has a great impact on producer-consumer dialogue and broadens their relationship is the process of mass customization, which was started by producers in order to continue growing profit in the context of "highly saturated marketplace as mass production of standardized products" (http://en.wikipedia.org/wiki/Prosumer). Thus, to achieve a high level of customization, consumers should actively participate in production process, particularly giving a contribution in identifying and developing design requirements. In other words, as it was recently noted by *The Cluetrain Manifesto (*http://en.wikipedia.org/wiki/The_Cluetrain_Manifesto), "the new economy [is] moving from passive consumers ... to active prosumers". This new term can be defined as following:

> Prosumer is a portmanteau formed by contracting either the word professional or producer with the word consumer. The term has taken on multiple conflicting meanings: the business sector sees the prosumer (professional–consumer) as a market segment, whereas economists see the prosumer (producer–consumer) as having greater independence from the mainstream economy. It can also be thought of as converse to the consumer with a passive role, denoting an active role as the individual gets more involved in the process.
> (http://en.wikipedia.org/wiki/Prosumer)

In addition, modern consumer's approaches to the conventional methods and habits of purchasing products has changed. In this case the word prosumer can be used as "progressive consumer" to identify these transformations:

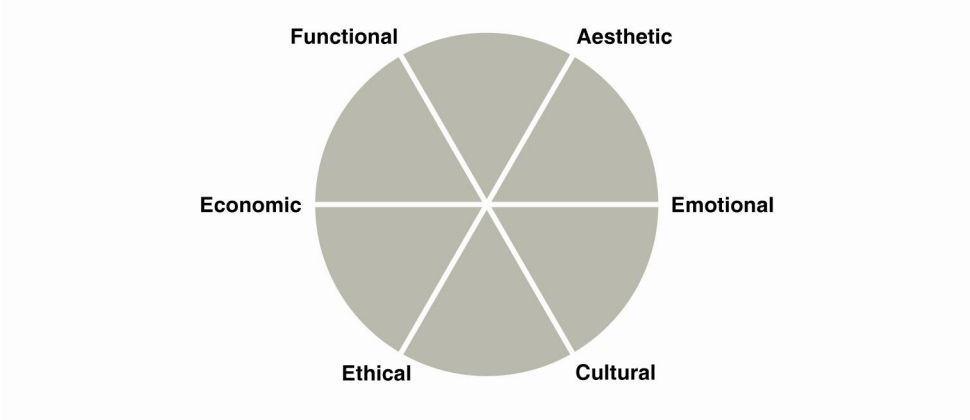
> A prosumer is researching a products value, performance, and price through social networks (Twitter, Tumblr, Facebook, etc), consumer product reviews (such as Amazon.com), and price comparison shopping engines such as Nextag.com and Thefind.com, before making a final decision or purchase. Within these web sites a prosumer researches all aspects of a products performance, price, and social acceptance in relative comparison to similar products within the same category. The prosumer is searching for the highest quality product that best meets their personal needs for the maximum amount of money they are willing to spend. Based on that search criteria, the prosumer is also willing to venture into new shopping distribution channels in order to purchase that product.
> (http://en.wikipedia.org/wiki/Prosumer)

These changes in producer-consumer relationship lead to consequent transformations of the whole system, increasing the value and importance of design as a mediator that can get closer to both sides of the production cycle (Krucken 2008).

03|2|2 Consumer | Designer

In this relationship the figure of designer usually refers to processes of providing meanings and values to objects be consumed by end-users (Celaschi, Deserti 2007; Krucken 2008) that can be summarized in the following aspects: functional or utilitarian value, emotional value, aesthetic value, ethical value, cultural and symbolical value, and, finally, economic value.

Map 005
Value star: features of product or service
Resource: personal (adopted from Krucken 2008)



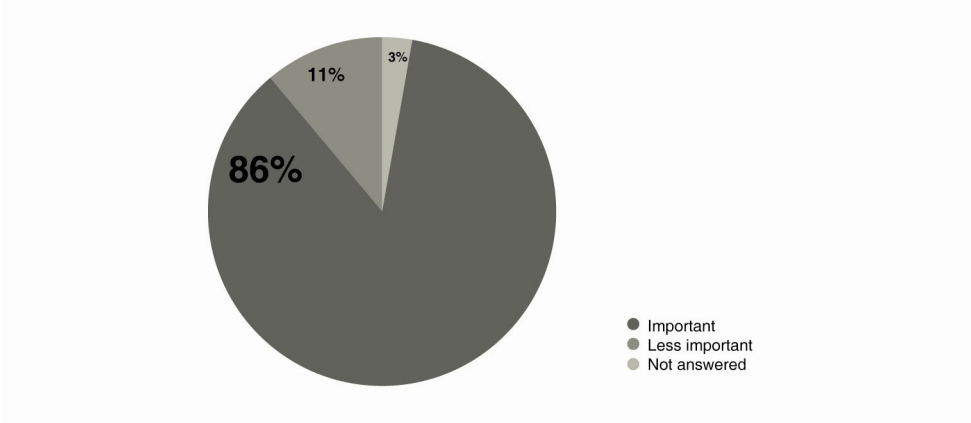
But in the current conditions of changing context and shifts in production system "designers have been moving increasingly closer to the future users of what they design" (Sanders, Stappers 2008). The relationship between consumer and designer is changing, moving from user-centered approach where consumer is taken as subject to co-designing where consumer plays the role of partner. This happens because "the user-centered design approach cannot address the scale or the complexity of the challenges we face today. We are no longer simply designing products for users. We are designing for the future experiences of people, communities and cultures who now are connected and informed in ways that were unimaginable even 10 years ago" (Sanders, Stappers 2008). In this new designer-consumer dialogue the importance of design skills to challenge global and systematic issues is growing. While consumers become part of the design team, designers can provide appropriate tools and methods for their creative expression.

03|2|3 Producer | Designer

The main interest of this work is focused on producer-designer relationship. Unfortunately, Italian production system doesn't completely understand the importance and significance of design as an innovation process that can strategically involve all the elements of product system (Celaschi, Deserti 2007; Design Directory 2003). Companies "use design as an element to generate the identity of the company and its products, by combining design with research on materials and technologies, by using design to build the corporate brand and by launching the products in areas dedicated to design

(exhibition, showrooms, magazines, events, competitions, etc)" (Design Directory 2006), but this vision of design mainly refers to product aspects, while the potential of design as a process culture still remains undiscovered and undervalued (Design Directory 2003).
Entrepreneur always has a main role in product development process, while designer, usually being an external professional, participates mostly in concept ideation and visioning phase, so his contribution in the following phases becomes minor and irrelevant. In other words, organization of firms and production processes still moves around the entrepreneur, as well as the success of producer's offer on the market depends on entrepreneur's abilities to form project relationships with an external designer (Design directory 2003). In spite of this tendency, the earlier discussed global contextual change and consequent transformations in production system lead design to find new roles and new spaces and its value as a strategic actor increases, being supported by general recognition of design importance for Italian company's competitiveness (Design Directory 2003).

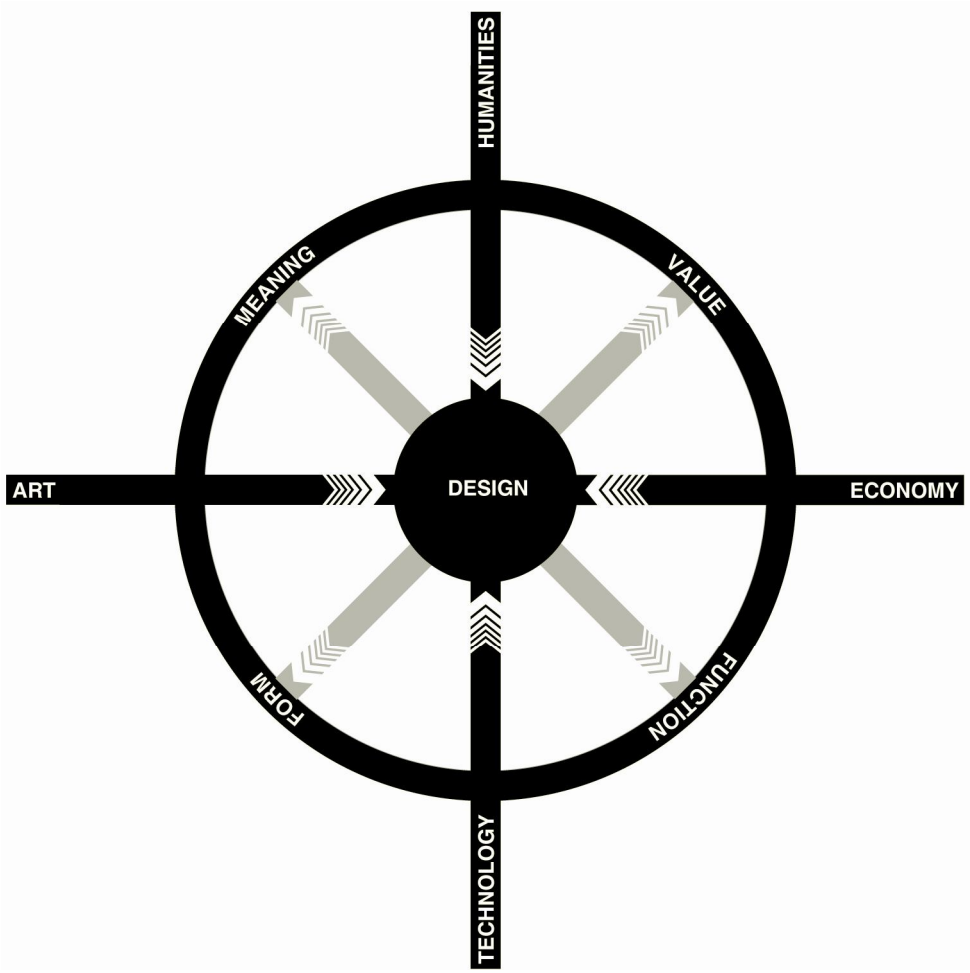
Map 006
Design importance for company's competitiveness
Resource: personal (adopted from Design Directory 2003)



03|3 Design as a mediator: process-oriented international design consultancies

To summarize the discussed in previous parts, it became evident that design has a growing importance as a mediator in contemporary production system and innovation processes. Design culture, being a meta-discipline in its nature since it is settled between four knowledge systems, such as humanities, art, technology and economy (Celaschi, De Marco 2008), can play a primary role in reconsidering the manner that we approach today's complex reality and providing new systematic, holistic and trans-disciplinary methodology (Collina 2008).
Design's ability to deal with abstract multidimensional issues, "synthesizing their effects in terms of form, function, value and meaning for a final user" (Celaschi, De Marco 2008), demonstrates its suitability to generate trans-disciplinary spaces and create multidimensional approaches. Thus design, considered as a process culture, can bring clear advantages and new forms of intermediation between production and consumption systems (Celaschi, De Marco 2008; Krucken 2008).

Map 007
Design as a mediator between knowledge systems
Resource: personal (adopted from Celaschi, De Marco 2008; Jonas 2008)



The multidisciplinary approach of design can be illustrated today by process-oriented international design consultancies. The firms such as IDEO, Frog Design, Design Innovation and many others represent designer's ability to take the role of "link between the business dynamics, the socio-cultural processes and the client's desires" (Celaschi, De Marco 2008).

The following chapter will give an analytical overview of the American and European design consultancies. The study focus is to find out firms providing holistic, advanced and process-oriented approach to design and to uncover their methods and tools.

04

Case study analysis: an overview of international design consultancies

The forth chapter illustrates the change of designer's role discussed in the previous part by giving an overview of international design consultancies and uncovering their tools and approaches.

04|1 Methodology and tools for case study analysis

The following chapter dives an introduction to case study analysis and describes tools and methods used for that purpose. I will start from determining the type of case study, go on with geographical position, structure and contents of the cases reviewed, and conclude the chapter by description of the maps used for comparison between the chosen companies. After the presentation of all the cases I will synthesize the data gathered by summarizing maps and outlining conclusions.

04|1|1 Determining case study type

The main goal of case study analysis in my work is to explore the process design and to discover its characteristics, tools and methods used within the field. According to R. Yin (Baxter, Jack 2008) case studies could be divided into tree specific types: *Exploratory*, *Explanatory*, and *Descriptive*. In this case the research has mainly explorative character since the field of process design "has no clear, single set of outcomes" (Baxter, Jack 2008) and the main objectives are to uncover the specific characteristics of the approach and individuate some tools, techniques and key words of process design. Furthermore the case study examination in my work is partly descriptive since it illustrates the investigated phenomenon by data gathered and analyzed.

04|1|2 Case study structure and geographical distribution

The following step after determining the case study type was to systematize a content of the file cards and consider the information to be analyzed. The data presented in every file included:

1. Quick facts table with the information about company type, foundation year, company headquarters, its leadership, number of employees, and the current website.
2. Introductive information about the company giving a general overview and explaining its focus areas.
3. Examples of some recent works done by the company including main clients and featured projects.
4. Information about company team and main profiles working there.
5. Services offered including their explanation and mapping.
6. Methods and tools used by the companies in their design process including their mapping within the diagram made by E. Sanders (Map 002).

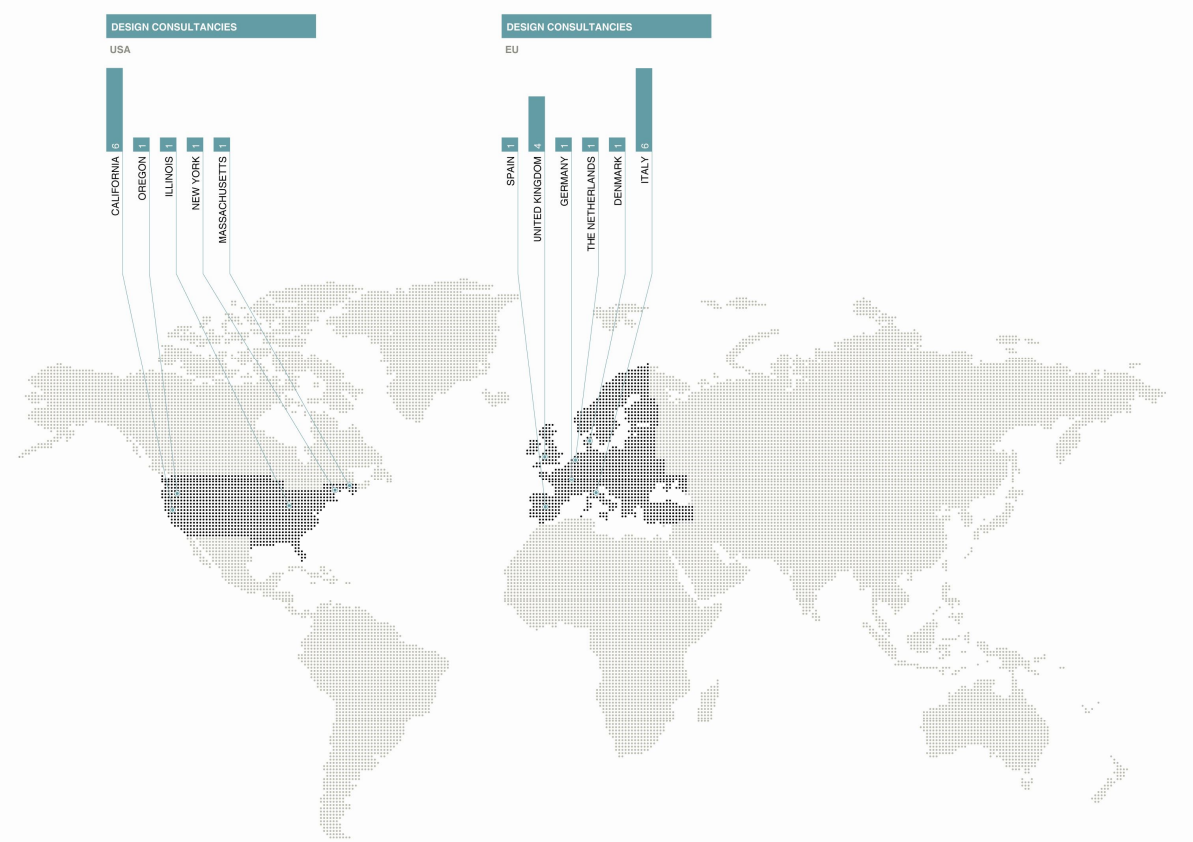
The next chapter presents the file cards divided into two clusters – USA and EU case studies, while additional subdivision was made in each group. The clusters were concluded by summarizing maps and their comparison, followed by discovering findings and conclusions.

The sample of companies using multidimensional and trans-disciplinary approaches in their practice was chosen from leading American and European firms. In addition to design consultancies there were examined advertising groups that also provide design services. But as it was discovered, advertising corporations seemed to be outside contemporary advanced design discourse. I have made this supposition based on insufficient information about their practice. For example, American giant advertising and marketing companies demonstrated just final printed o video outputs without indicating any process steps and methods used. In some cases, such as McCann Erickson, there was presented a linear, rigid and very structured approach, applicable for every situation. Another perspective appeared to be very similar, since almost all American advertising mega-corporations had

offices in Europe. Additionally, some independent European agencies showed the same position as American giants. The only exception provided European design agencies specialized on branding and strategic corporate identity building. Such companies, as Robilant Associati, Carmi e Ubertis and MetaDesign, were included in the following case study analysis together with other design consultancies.

A geographical distribution of the case studies can be seen on the Map 008. As I have mentioned before, the map indicates division of the reviewed cases to USA and EU groups. Generally, in America were observed 10 design consultancies, while in Europe the number corresponds to 14.

Map 008
Geographical distribution of reviewed case studies
Resource: personal



04|1|3 Tools for case study analysis

For case study analysis and comparison between various approaches there were developed the following tools:

1. **Map of leadership competencies**
   One of the study subject was to uncover an educational background of company founders. For that purpose I made a table (an example is presented on the Map 009), where all the data about consultancies' key persons was entered.

The only problem has occurred with advertising agencies, because it was almost impossible to find all the necessary information about the founders' background. As a result , in the synthesis part I summarized and analyzed only the backgrounds of design consultancy leaders, but that was sufficient to understand the whole picture.

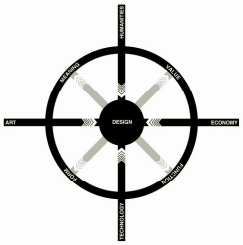
Map 009
Table example of leadership competencies
Resource: personal

Company	Person Occupation	Another education	High education Bachelor	Masters	Doctorate	Academic Experience
IDEO	David Kelley Co-founder, Chairman		Electrical Engineering Carnegie-Mellon University	IndustrialDesign Stanford Graduate School of Product Design		Stanford University Royal College of Art London Business School Copenhagen Institute of Interaction Design Interaction Design Institute in Ivrea California College of the Arts University of Northumbria,England
	Bill Moggridge Co-founder		Industrial design London Central School of Design			
	Mike Nuttall Co-founder		Industrial Design Leicester College of Art & Design	Industrial Design Royal College of Art		
	Tim Brown CEO		Design for Industry University of Northumbria	Industrial Design Royal College of Art	Design Art Center College of Design, Pasadena	

2. Map of services offered

The services offered were examined using a map based on the diagram (Map 007) that illustrated design as a process culture. Such a mapping could demonstrate "the trans-disciplinary grade" of every observed case and show the level of intermediation between various issues that influence design process. The basis map was developed by primarily writing down all the services presented in the observed companies and organizing them in the following categories: design and interactivity, art, communications, humanities, organizational behavior, economy, manufacturing, technology and engineering. After that I reorganized the formed groups by finding out similar services that could refer to the same subdivision (Map 010). The final alternative was structured in a round diagram (Map 011) for better visualization and explanation of service distribution and ampleness.

Map 010
Map of services offered - development
Resource: personal



DESIGN & INTERACTIVITY

Communication Design
Brand Communication
Brand Identity Design
Communication Design
Graphic Design
Print
Publishing/ Editorial Design
Digital Communications
Packaging Design
Design for Sustainability
Non-profit/Civic Works
Public Service Design
Philanthropy By Design
Social Innovation
Environments Design
Architecture
Exhibition Design
Interior Design
Retail Experience
Experience Design
Co-design (Instructional Design)
Customer Experience
Digital (Website Design)
Game Development
Instructional Design
Interaction Design & Web
Internet Development
Media & Entertainment
User Interface Design
Product Design
Creative Design / Services Design
Healthcare Design
Industrial Design
Innovation Projects
Product Innovation
Service Design
Service Experience
Service Innovation
Service Vision
Visioning/Scenarios
Design Futures/Visioning

ART

Film
Literature
Music
Painting
Sculpture

COMMUNICATIONS

Advertising
Campaign Planning
Content Planning & Creation
Healthcare Advertising
Specialized Communications
Strategic Communication Plan
Collateral Media
Product Placement
Promotions
Tele Promotions
Copywriting & Screenwriting
Public Relations
Corporate Responsibility
Customer Relationship
Employer / Employee Comm.
Internal/External Comm.
Work With Media
Media Planning/ Buying
Media Relations
Media Strategy
Search Engine Marketing
Social Marketing

HUMANITIES

Cultural Studies
Lifestyle Research
Life Science
Customer-focused Research
Customer analytics
Customer Insight
Design Research
Human Insights & Behavior Research
Human Factors & Ergonomics
Trend Spotting

ORGANIZATIONAL BEHAVIOR

Coaching
Training Programs
Education
Study Tours
Thematic Workshops
Human Resources
Organizational Dynamics
Corporate Structure
Organizational Change
Organizational Design
Organizational Innovation
Team Direction & Management
Team Coordination
Team Improvement

ECONOMY

Accounting
Brand Management
Brand Advising
Brand Building
Brand Strategy
Talent Strategy
Economic Analysis & Policy
Metrics & Analytics
Entrepreneurship
Business Design
Business Model Development
Business Strategy
Legal Development
Ventures
Financial Services
Capital Support
Financial Advice
Marketing
Database Marketing
Digital Marketing
Direct Marketing
Experiential Marketing
Market Research
Mobile Marketing
Property Marketing
Shopper Marketing
Sports Marketing & Sponsorship
Street Marketing
Strategic Services
Competitor Benchmarking
Innovation Consulting
Planning
Strategic Communication
Strategic Design
Strategic Planning
Strategy Development

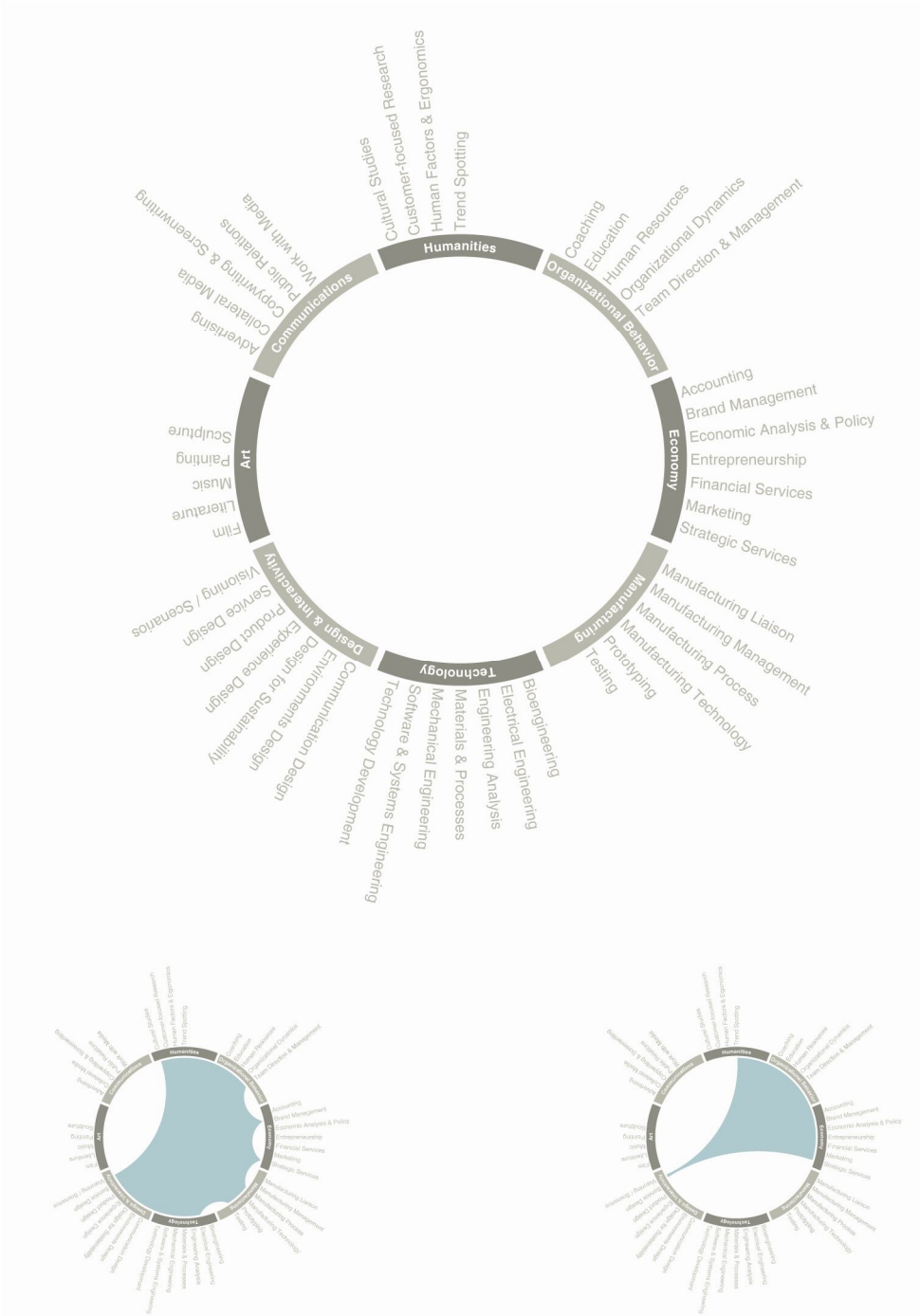
MANUFACTURING

Manufacturing Liaison
Host of Manufacturing Concerns
Manufacturing Management
Inventory Control
Operations Management
Supply Chain Management
Supply Chain Strategies
Manufacturing Process
Process & Product Lifecycle
Sourcing Consultation
Manufacturing Technology
Design for Full Scale Production
Full Production Implement
Tooling & Manufacturing Support
Transfer to Manufacturing
Prototyping
Modeling Services
Rapid Prototyping
Stereo Lithography
Testing
Feasibility Testing

TECHNOLOGY & ENGINEERING

Bioengineering
Food Science
Electrical Engineering
Engineering Analysis
Materials & Processes
Mechanical Engineering
Software & Systems Engineering
Programming Methodology
Technology Development
Technological Innovation

Map 011
Basis and examples of services offered map
Resource: personal

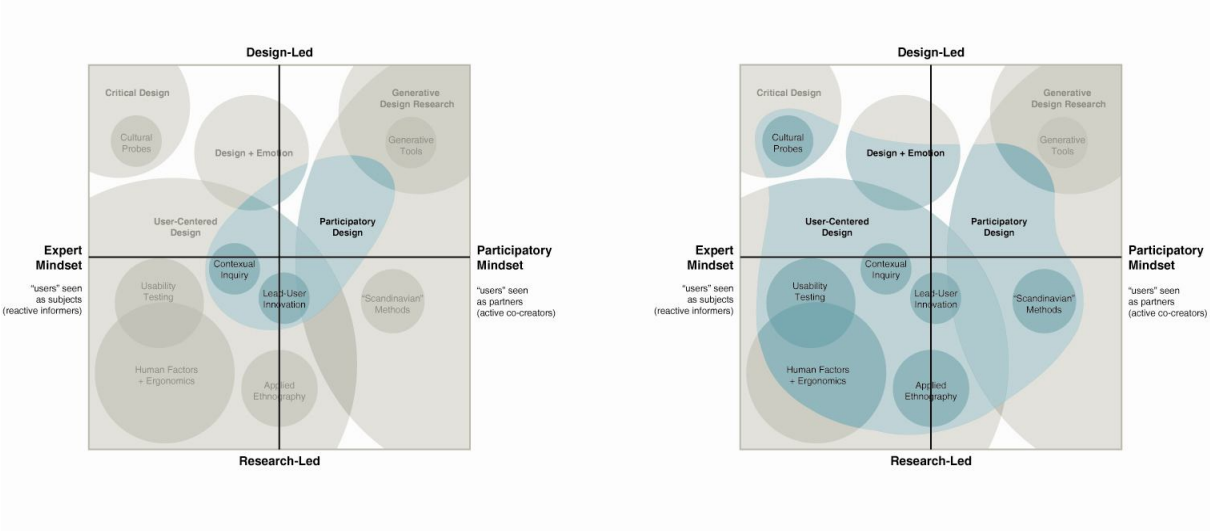


3. Map of tools and methods

Analysis of tools and design methods used by every observed company was based on the evolving map of design practice and design research (Map 002), explained in details in the Chapter 01 . To remind, E. Sanders positioned the main design methods (zones) developed up to today: user-centered design, participatory design, design and emotion, critical design and generative design research. In each zone there were placed tools (areas of activity) used for

application of these methods. Using this diagram as a framework I organized tools and approaches practiced according to specific characteristics of each case. Some examples of the mapping are presented in the following map (Map 012).

Map 012
Map of tools and methods: examples
Resource: personal



The observed maps will be used for comparing case study analysis while organized in summarizing reports.

04|2 Case study analysis: American perspective

04|2|1 Introduction

Among the case studies presented the American perspective of design consultancies that apply a multidimensional and trans-disciplinary approach to design process are the following companies:

1. **IDEO** | www.ideo.com
2. **Design Continuum** | www.dcontinuum.com
3. **Smart Design** | www.smartdesignworldwide.com
4. **Fuseproject** | www.fuseproject.com
5. **ZIBA** | www.ziba.com
6. **Lunar Design** | www.lunar.com
7. **Herbst LaZar Bell (HLB)** | www.hlb.com
8. **Method** | http://method.com
9. **RKS Design** | http://rksdesign.com
10. **Frog Design** | www.frogdesign.com

04|2|2 IDEO

Type	Private
Founded	1991
Headquarters	Palo Alto, California, USA
Founders	David Kelley Bill Moggridge Mike Nuttall
Employees	550 (2008)
Website	www.ideo.com

Who they are

Founded in 1991 by a merger of three established design firms (David Kelley Design, ID Two (founded by Bill Moggridge), and Matrix Product Design (founded by Mike Nuttall)), "IDEO is a design and innovation consultancy based in Palo Alto, California, United States with other offices in San Francisco, Chicago, New York, Boston, London, Munich and Shanghai" (http://en.wikipedia.org). The range of company's focus is extremely wide spanning between product design, services, environments, digital experiences and many others. Lately IDEO became more involved in business, providing management consulting services.

Their work

IDEO has designed thousands of products and won more of the Business Week/IDSA Industrial Design Excellence Awards over the past ten years than other firm. From the beginning of its activity the company "was best known for designing user-friendly computers, PDAs, and other high-tech products" (Apple's first mouse, Microsoft's second mouse, Palm V, Polaroid's I-Zone cameras, Steelcase Leap Chair, Zinio interactive magazine software), but nowadays IDEO "is transferring its ability to create consumer products into designing consumer experiences in services, from shopping and banking to health care and wireless communication" (www.businessweek.com). Among the main clients are Procter & Gamble, Pepsi Co, Microsoft, Eli Lilly, and Steelcase.

Image 002
Project samples, IDEO
Resource: personal

CD Player for Muji
Rethinking the CD player with Japanese minimalist design
2002

Transcutaneous immunization delivery method for Intercell
Designing the needle-free future of vaccine delivery
2008

Human Centered Design Toolkit
A free innovation guide for NGOs and Social Enterprises
2009

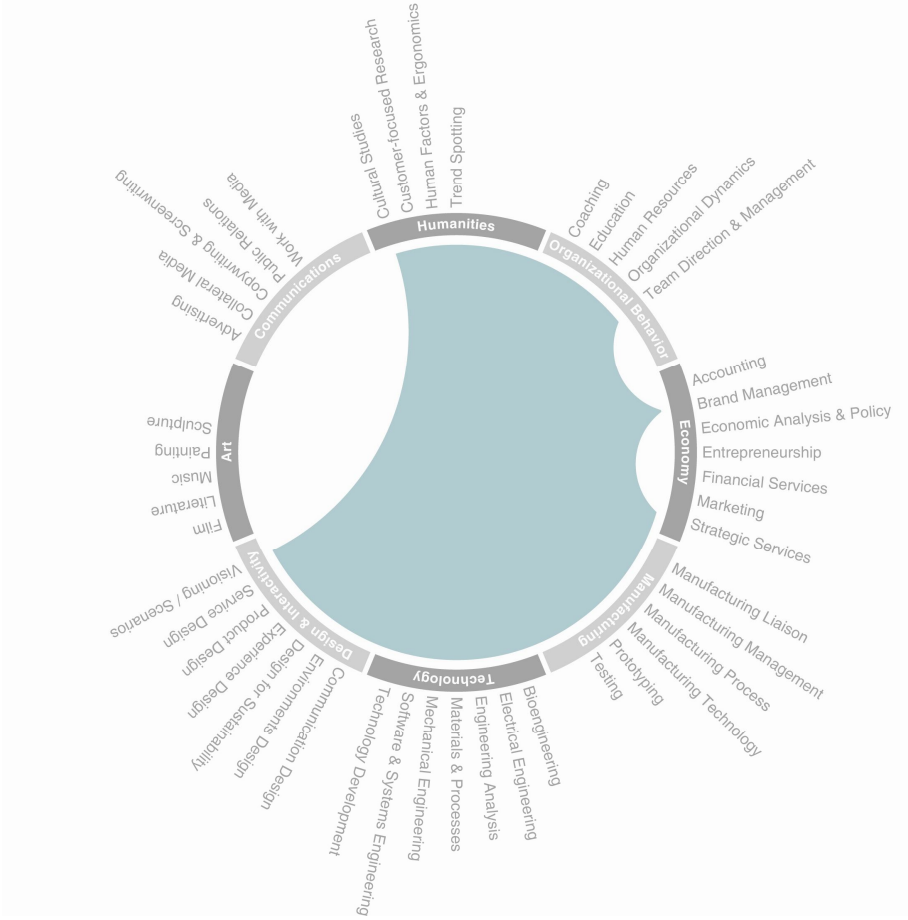
Their team

IDEO employs more than 550 professionals in various disciplines that enable the company to work across a range of industries. The main skills of IDEO team include branding design, business design, communication design, electrical engineering, environments design, food science, healthcare, human factors, industrial design, interaction design, kid-centric design, manufacturing, mechanical engineering, organizational design, and software engineering.

What they offer

As it is written in the company's fact sheet (www.ideo.com), IDEO helps "organizations in the business, government, education, and social sectors innovate and grow". It supplies the noted services by "identifying new ways to serve and support people, by visualizing new directions for companies and brands, by designing the offerings that bring innovation strategy to life, and by enabling organizations to change their cultures and build the capabilities required to sustain innovation". Analysis and mapping of the services offered by IDEO (Map 013) showed that the company acts in almost all the supportive fields of process design, from humanities and organizational behavior to economy, manufacturing and technology. In addition, IDEO provides all the spectrum of design services.

Map 013
Map of services offered, IDEO
Resource: personal



Their methods and tools

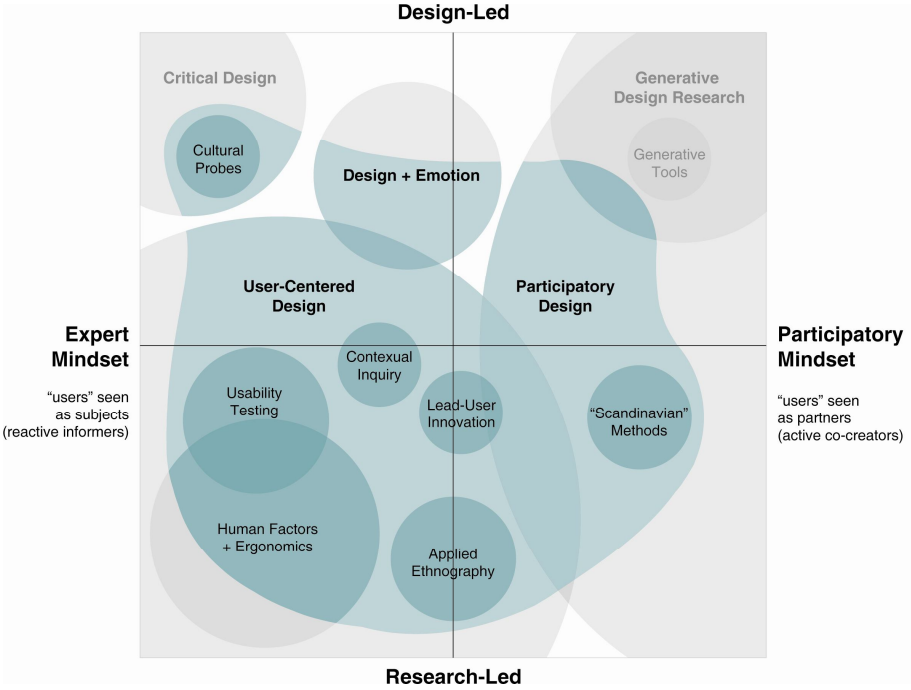
IDEO's method is called by Tim Brown (www.ideo.com) "design thinking", i.e. "a means of problem solving that uses design methodologies to tap into a deep reservoir of opportunity. These methods include observation, prototyping, building, and storytelling, and can be applied by a wide range of people to a breadth of organizational challenges".

According to this philosophy, design tasks are very complex and they need more holistic approach than a step-by-step process. Because design is messy, multipart and non-linear, each project done by IDEO is adapted and customized to its context and challenge.

On the basis of the method is collaboration and sharing: design thinking brings together professionals from different backgrounds to tackle problems and ideas that are more complex and multidimensional "than the lone designer can imagine: inaccessible healthcare, billions of people living on a few dollars a day, energy usage outpacing the planet's ability to support it, education systems that fail students, and beyond" (www.ideo.com). Such challenges can be solved by collaborative, human-centered and practical method, which is design thinking.

The "spot" of tools used by IDEO (Map 014) tries to expand from the center and to cover all the areas. Having examined the projects done by the company, I could assume that IDEO's methods are continuously moving towards participatory design-led mindset, where non-designer users are considered active partners and co-creators.

Map 014
Map of tools and methods, IDEO
Resource: personal (based on Sanders 2006)



04|2|3 Design Continuum

Type	Private
Founded	1983
Headquarters	West Newton, Massachusetts, USA
Founders	Gianfranco Zaccai
	Bruce Fifield
	Youngmihn Kim
Employees	200 (2008)
Website	www.dcontinuum.com

Who they are

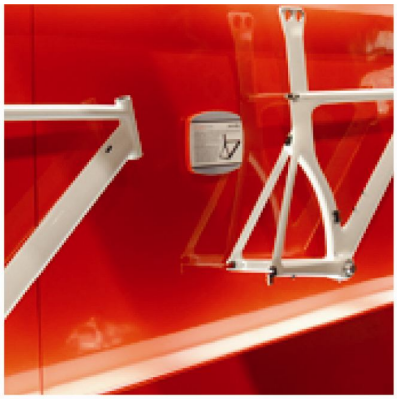
Design Continuum was founded in Boston in 1983 as design and innovation consultancy. Today the company's headquarters are in Newton, Massachusetts, with other offices spread in Los Angeles, Milan, and Seoul. In the beginning the goal of Design Continuum was simple: "to design products for businesses", but since then, "the mission has grown to include strategy and brand services along with experience and product design" (http://en.wikipedia.org).

Their work

Design Continuum has worked with clients in many industries. The notable examples of the company projects include the Swiffer for Procter & Gamble, the Reebok Pump, and the initial design direction for the MIT Media Lab's $100 laptop. Since 2003 Design Continuum has won 14 IDSA/Business Week International Design Excellence Awards (http://en.wikipedia.org).

Image 003
Project samples, Design Continuum
Resource: personal

MoGo Mouse for Newton Peripherals
Emerging technology: road warrior
2007



Brand Strategy for Cervélo
Breakaway
2006

OmniPod for Insulet
Making diabetes a smaller part of life
2006

Their team

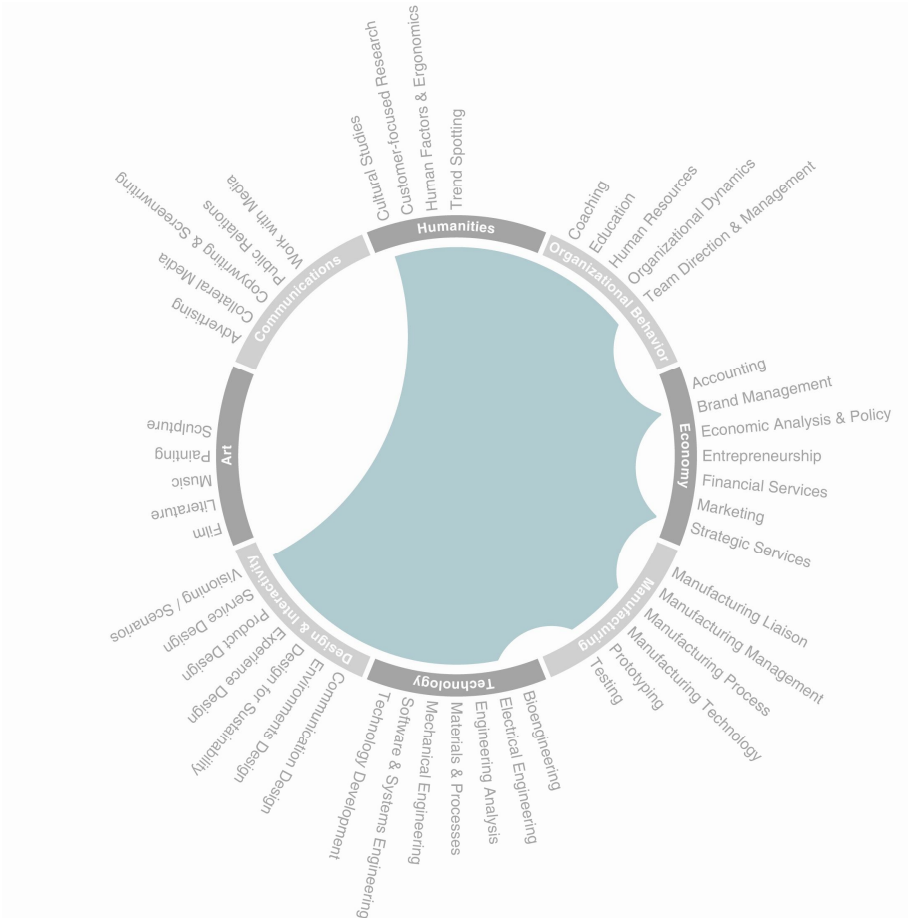
Design Continuum employs people with various backgrounds, interests and skills, including researches, strategists, designers, technical specialists and many others. The main disciplines consist of industrial design, design strategy, service design, human factors, interaction design, sustainable design, mechanical engineering, and electrical engineering. (http://en.wikipedia.org; www.dcontinuum.com).

What they offer

The company focuses on “design, strategy, product and brand development that achieves their clients business objectives”. They offer product innovations and help “develop new ideas and breathe new life into old ones”. Design Continuum provides strategic services to companies by connecting between them and consumers (www.dcontinuum.com).

The range of Design Continuum’s services is considerably broad: from “consumer and market research, envisioning, evaluation, brand identification and communication, packaging, interactive and Web related services” to “design solutions for medical and diagnostic devices; life sciences and laboratory analytical systems; consumer electronics, appliances, and sporting goods; communication devices; and industrial automation equipment” (www.businessweek.com). Actually, the variety of services offered by Design Continuum is very similar to IDEO’s one.

Map 015
Map of services offered, Design Continuum
Resource: personal



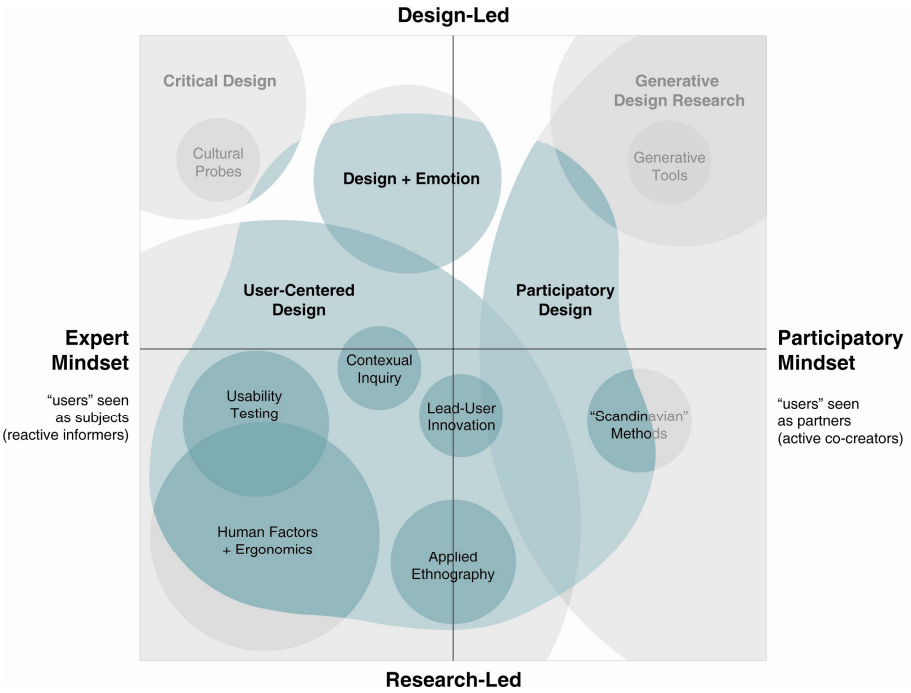
Their methods and tools

The company uses innovation-driven and human-centered design thinking to meet business needs of their clients. “Through research, partnership, strategy, innovation and a commitment” they arrive to the great quality of work, transforming right idea into real results (www.dcontinuum.com). They use design as a tool to increase company profit and improve the life quality in communities. According to company website, the uniqueness of their approach lies in the capability to identify the right idea and make it real.

Among the main characteristics of Continuum’s design approach are:

1. Discovering and bringing emerging technology to life.
2. Conducting customer insights that uncover their underlying values and aspirations and lead to superior products.
3. Fitting the process within a company’s culture and identifying the spaces where innovation can be applied, and the ways to implement it.
4. Helping companies see the unseen and envisioning new opportunities for growth.
5. Creating emotionally-compelling industrial design solutions that consumers want to have.
6. Developing broader experiences that connect with consumers by examining the total user environment and systematically defining the elements, moments, attitudes and behaviors that comprise a brand encounter.
7. Helping companies be innovative and working together with them to integrate design thinking and processes in every particular situation.

Map 016
Map of tools and methods, Design Continuum
Resource: personal (based on Sanders 2006)



04|2|4 Smart Design

Type	Private
Founded	1980
Headquarters	New York, USA
Founders	Davin Stowell Tom Dair Dan Formosa Tam Thompson
Employees	120 (2009)
Website	www.smartdesignworldwide.com

Who they are

Smart Design is a multi-disciplinary design consultancy based in New York, with offices in San Francisco and Barcelona. It was established in 1980 by Davin Stowell, Tom Dair, Tam Thompson, Dan Formosa, and Tucker Viemeister. Their aim is to solve design challenges connected with "product, interaction, brand communication, and strategic services" (http://en.wikipedia.org).

Their work

Smart Design has designed various projects to many clients, including "Acer, Becton Dickinson, Bell Canada, Burton, Cisco Systems, Clorox, Coca-Cola, Corning, ESPN, Ford, General Motors, Groupe SEB, Hewlett-Packard, Intel, Johnson & Johnson, Kellogg's, Lexar Media, LG Electronics, McDonald's, Microsoft, OXO, Samsung, Shell, Simplehuman, Starbucks, Timex, Toshiba, Toyota, Vicks, World Kitchen, XM Satellite Radio and Yahoo!" (http://en.wikipedia.org).

Image 004
Project samples, Smart Design
Resource: personal

NeatDesk for NeatReceipts
The paperless office comes to life
2008

Hear Music Media Bar for Starbucks
Hot coffee and good tunes: a new music retail experience
2004

Denco Easy Grip Brand Identity & Packaging
Easy to open, easy to use.
2005

Their team

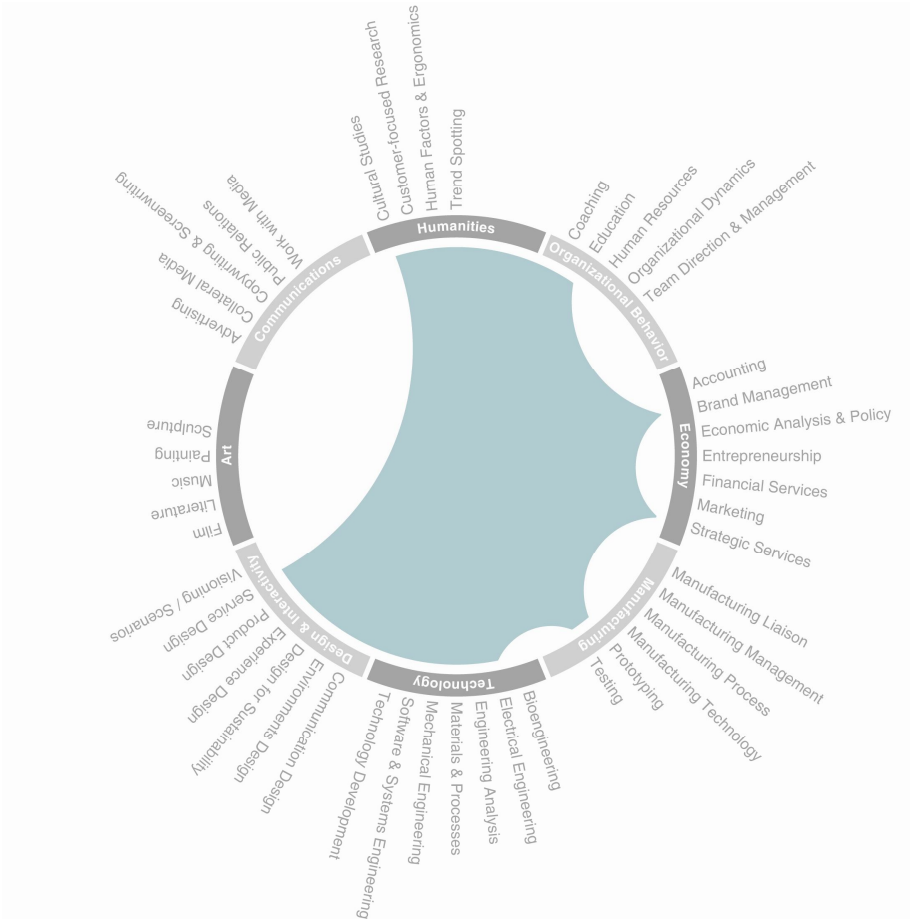
The company's staff is multidisciplinary and international, composed of designers, researchers and engineers in various fields.

What they offer

The company offers services in three main fields: innovative product development, interactive experiences and brand communications, “creating products and services that achieve relevance with consumer needs” (www.smartdesignworldwide.com). Moreover, Smart Design offers today many topics under a wider heading of “Social Sustainability”.

In addition, Smart Design from the date of its foundation continues to practice Universal Design (human-centered design of everything with everyone in mind) and its tools, including ethnographic fieldwork and many quantitative methods.

Map 017
Map of services offered, Smart Design
Resource: personal



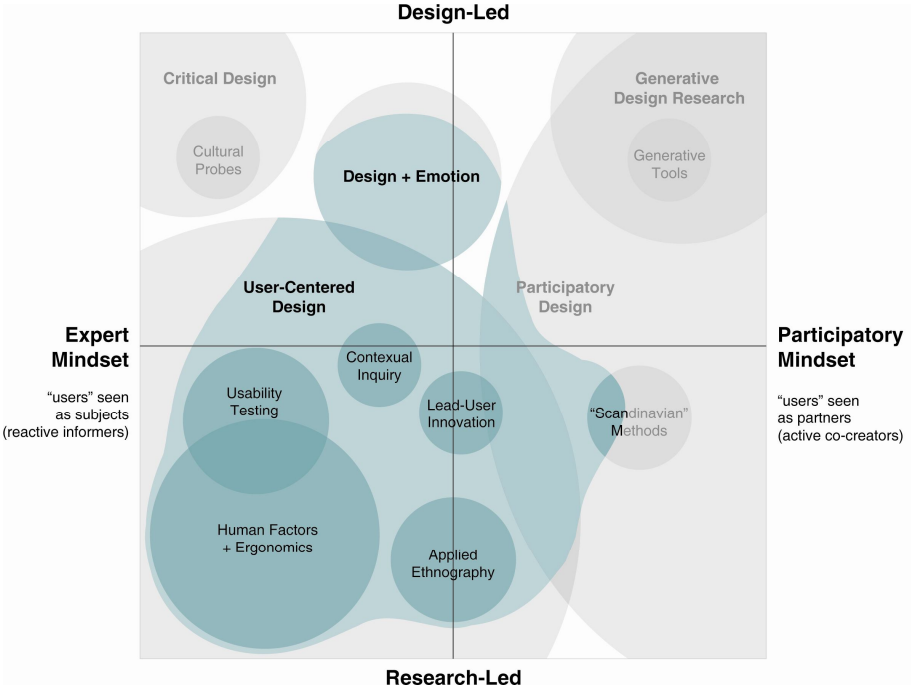
Their methods and tools

Having an emotional approach to design, Smart Design uses principles of cognitive psychology and "techniques for rapidly understanding how people react, what is important to them, and which attributes of a product really communicate, before, during and after use" (www.smartdesignworldwide.com).

Among the guidelines that define the company method are:

1. Addressing gender and sensitivity to gender differences. This approach results in products that are better suited to consumers' physical, cognitive, and emotional needs. Understanding the potential opportunity to design for women, Smart Design organized *The Femme Den* which is dedicated to explore their unmet needs.
2. Realizing responsible design that inspire consumer decisions and behavior to maximize the benefit to society and business. The studio's approach provides unique set of solutions that balance sustainability goals, clients' business needs, and consumers' emotional desires.
3. Understanding the criticalness of deep connection with consumers for product success, the studio appeal to consumers on an "emotional" level. Since its foundation in 1980, Smart Design has been investigating the ever-changing interplay between design and emotion, using this information at various points in the design process to understand how people think.
4. Having a deep insight into what makes technology work for people. The studio philosophy is "to make elegant, appropriate products that deliver meaningful benefit to peoples' lives".
5. Understanding differing needs of the young and the old and using "design for all" principles, Smart Design enables their clients to access a wider audience and expand their brand reach and loyalty.

Map 018
Map of tools and methods, Smart Design
Resource: personal (based on Sanders 2006)



04|2|5 Fuseproject

Type	Private
Founded	1999
Headquarters	San Francisco, California, USA
Founders	Yves Béhar
Employees	-
Website	www.fuseproject.com

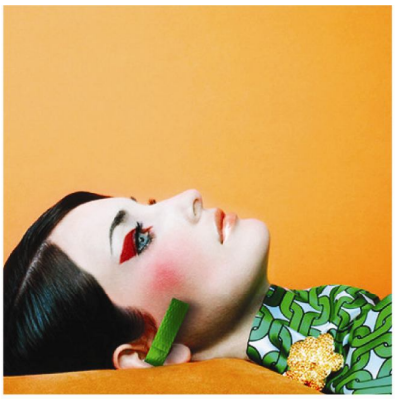
Who they are

Fuseproject is a San Francisco-based industrial design and branding consultancy, founded in 1999 by Yves Béhar. “It works across a wide array of industries as diverse as beauty and fashion to furniture and technology. The studio takes a long-term strategic approach to develop and enhance brands. Its concepts are visual expressions of brand attributes and the entire customer experience. Fuseproject aims to help companies innovate through product design and branding” (http://en.wikipedia.org).

Their work

The work of Fuseproject has been internationally recognized by many museums; the studio received more than 50 awards from IDSA/Business Week, Red Dot, ID Magazine and If Industrie Hanover. The variety of clients and program types of the studio is extremely wide, spanning between multinational corporations, startups, non-profit organizations, museums, municipalities, galleries and universities. Among Fuseproject’s famous clients are “Birkenstock, Johnson & Johnson, MINI and BMW AG, Target, Disney, DirecTV, Palm, Herman Miller, Method, Nike, Hewlett Packard, Toshiba, Alcatel, Adidas, Microsoft, Peoplepc, Swarovski, Samsonite, and Paco Rabanne” (http://en.wikipedia.org).

Image 005
Project samples, Fuseproject
Resource: personal



Jawbone PRIME for Aliph
The best Bluetooth headset in Earcandy colors
2009

XOXO Laptop for One Laptop Per Child
A book, a tablet, a board...and yes, a laptop
2008

Y Water
A new organic beverage with Y-Knot connections
2007

Their team

The company staff includes specialists in various fields, such as trend and merchandising, industrial design, packaging, graphics, naming and branding, UI and environmental design.

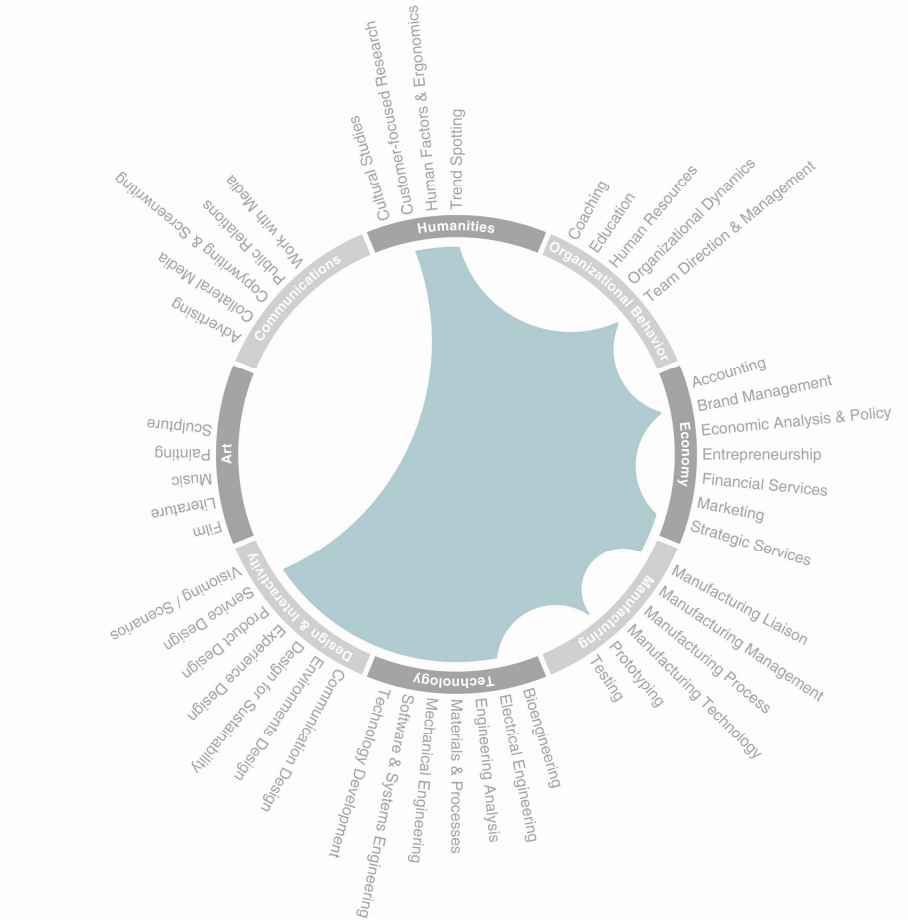
What they offer

Fuseproject offers “brand-building innovations by developing conceptual narratives and messages that are communicated through a product's experience”. Its range of service is both “broad and deep, from an overall branding program, incorporating marketing strategies and communication tactics, to product design” (www.fuseproject.com). They support the evolution of the brands through positioning strategies implemented in various fields, such as industrial design, packaging, graphics, naming, UI and environmental design.

In addition, Fuseproject aims to build up long-term relationships with client, seeing him as a partner and a true participant, developing the following business models:

1. Strategic Engagements: this model is applied on multinational big enterprises, the studio long-term clients. The particular importance in these engagements is “a careful attention to corporate structure and methodology”. As such, Fuseproject collaborates “across client-side strategy, research, marketing, design, engineering, operations, distribution and sales teams to craft innovative solutions that perform well in the marketplace, and inside corporate organizational structure as well”.

Map 019
Map of services offered, Fuseproject
Resource: personal

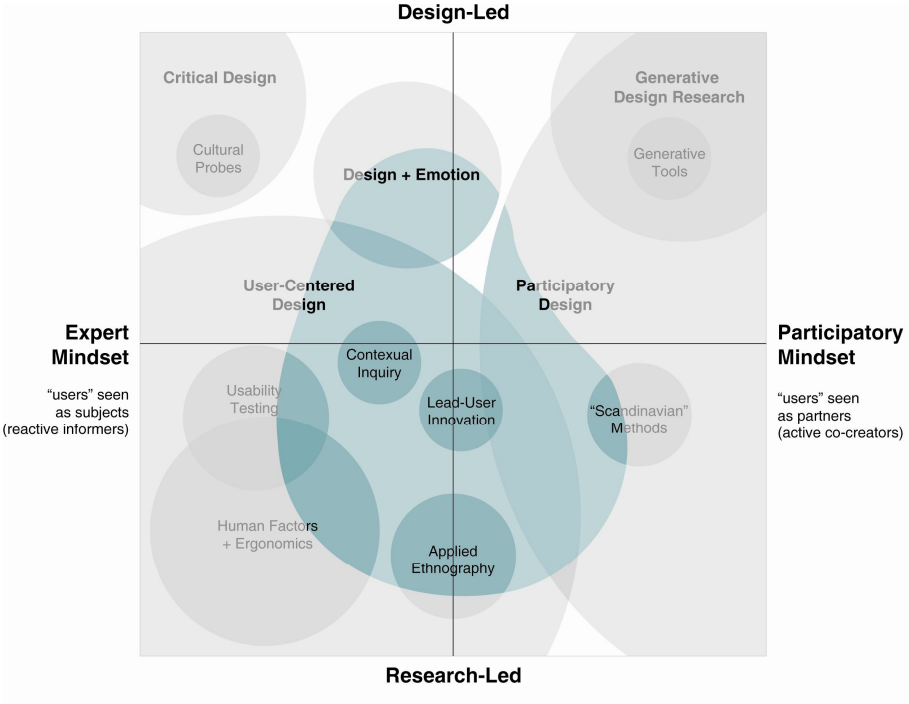


2. Partnerships or relationships with the startups: Fuseproject provides a very effective design-driven strategy for success from the early days of the company's trajectory. "In the Partnership model, Fuseproject can also bring to bear a vast network of engineering, production, manufacturing, public relations, media, press, retail, distribution and funding contacts that prove invaluable to the early stage entrepreneur".
3. Civil works, or the works with non-profit organizations, galleries, municipalities and so on.

Their methods and tools

The company's approach is focused on human-centered design "with the goal of creating projects that are deeply in-tune with the needs of a sustainable future, connected with human emotions and enable self-expression" (www.fuseproject.com).

Map 020
Map of tools and methods, Fuseproject
Resource: personal (based on Sanders 2006)



04|2|6 Ziba

Type	Private
Founded	1984
Headquarters	Portland, Oregon, USA
Founders	Sohrab Vossoughi
Employees	-
Website	www.ziba.com

Who they are

Ziba is a strategic design consultancy founded by Sohrab Vossoughi in 1984 in Portland, Oregon. Today the company has offices in San Diego, Shanghai, Taipei and Tokyo. The mission of the company remains the same as it did in the beginning of Ziba: “solve business problems with great design” (www.ziba.com).

Their work

Ziba’s clients include Nike, Microsoft, Xerox and Hewlett-Packard. The company’s core practices have been focused on creation products “in the electronic, consumable, durable and packaging industries, as well as consumer experiences in retail and has ventured into place-making for clients Fed Ex and Umpqua Bank and real estate developer Gerding Edlen” (http://en.wikipedia.org).

Image 006
Project samples, ZIBA
Resource: personal

Design strategy for Coleman
An innovative line of smoke and CO detectors
1996

Innovative mobile phone headsets for Logitech
Technology as fashion
2002

Cintiq 12WX for Wacom
A portable, digital sketchpad for creative professionals
2008

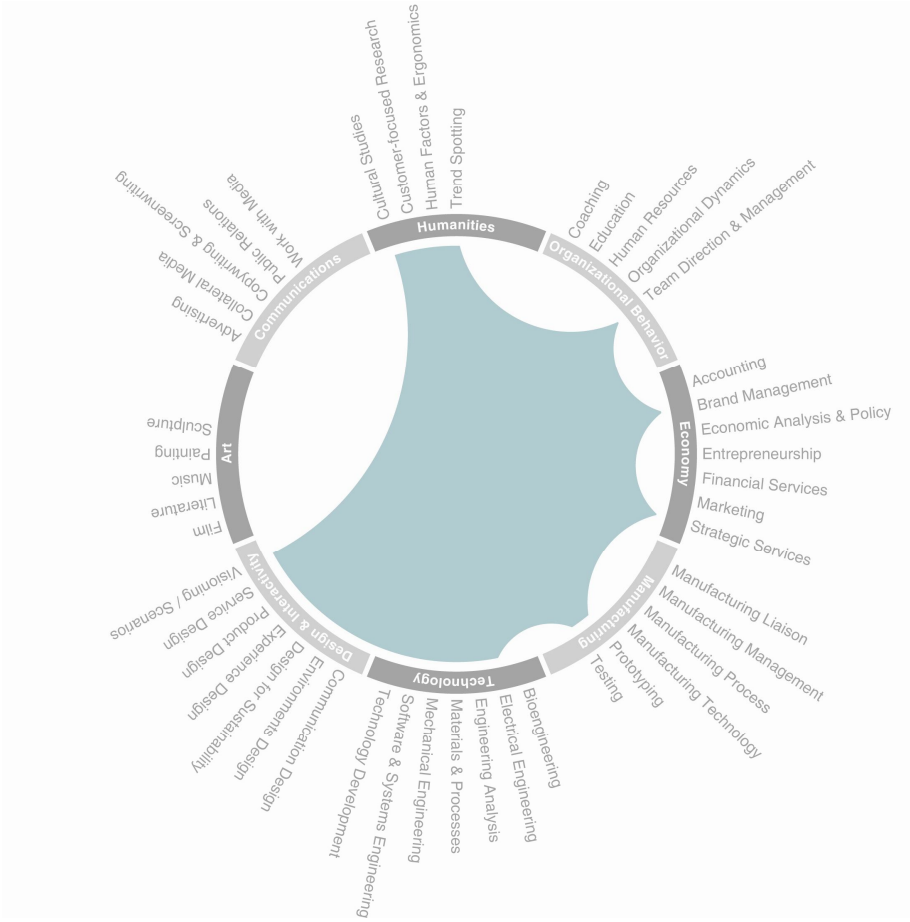
Their team

Ziba 's multinational team includes designers, social scientists and product engineers. “They're drawn together from the world's most esteemed institutions and the most challenging real world experiences for the singular purpose of creating design with soul and meaning” (www.ziba.com).

What they offer

Ziba offers “meaningful ideas, designs and experiences that consumers crave” (www.ziba.com). The company helps its clients “strategically improve consumer experience with their brand through product design, user interface design, interaction design, communication design, and environmental design” (http://en.wikipedia.org).

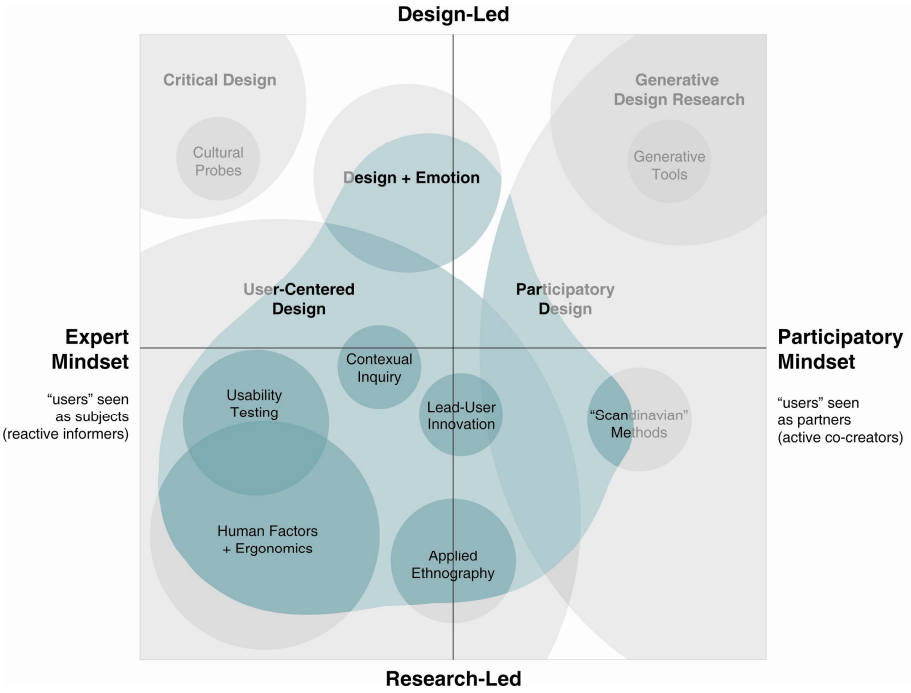
Map 021
Map of services offered, ZIBA
Resource: personal



Their methods and tools

Ziba calls its approach “authentic design” or “design that stands for something” (www.ziba.com). They use a great spectrum of human-centered methods and techniques, such as rapid ethnography, competitive benchmarking, innovation workshops, human factors/ergonomics/usability, contextual studies and scenario planning.

Map 022
Map of tools and methods, ZIBA
Resource: personal (based on Sanders 2006)



04|2|7 Lunar Design

Type	Private
Founded	1984
Headquarters	San Francisco, California, USA
Founders	Jeff Smith Gerard Furbershaw Robert Bruner
Employees	40+
Website	www.lunar.com

Who they are

Lunar Design is a San Francisco-based product design and development consultancy, founded in 1984 by Jeff Smith, Gerard Furbershaw and Robert Bruner. The company's mission is to "design memorable products and experiences that are meaningful to people and create value for business" (www.lunar.com).

Their work

Lunar has been recognized with many awards and "has been consistently among the top five award-winning industrial design firms for over 10 years, according to Business Week magazine" (http://en.wikipedia.org). Among the clients of Lunar Design are Apple Inc., Abbott Labs, Cisco Systems, Hewlett-Packard, Johnson, Microsoft, Motorola, Philips, Oral-B, Palm, Pepsi and Sony.

Image 007
Project samples, Lunar Design
Resource: personal

Modu phone
The world's first modular mobile phone
2008

Novint Falcon
3D-touch PC game controller
2006

SanDisk ImageMate Readers
Better-than-commodity products for SunDisk
2009

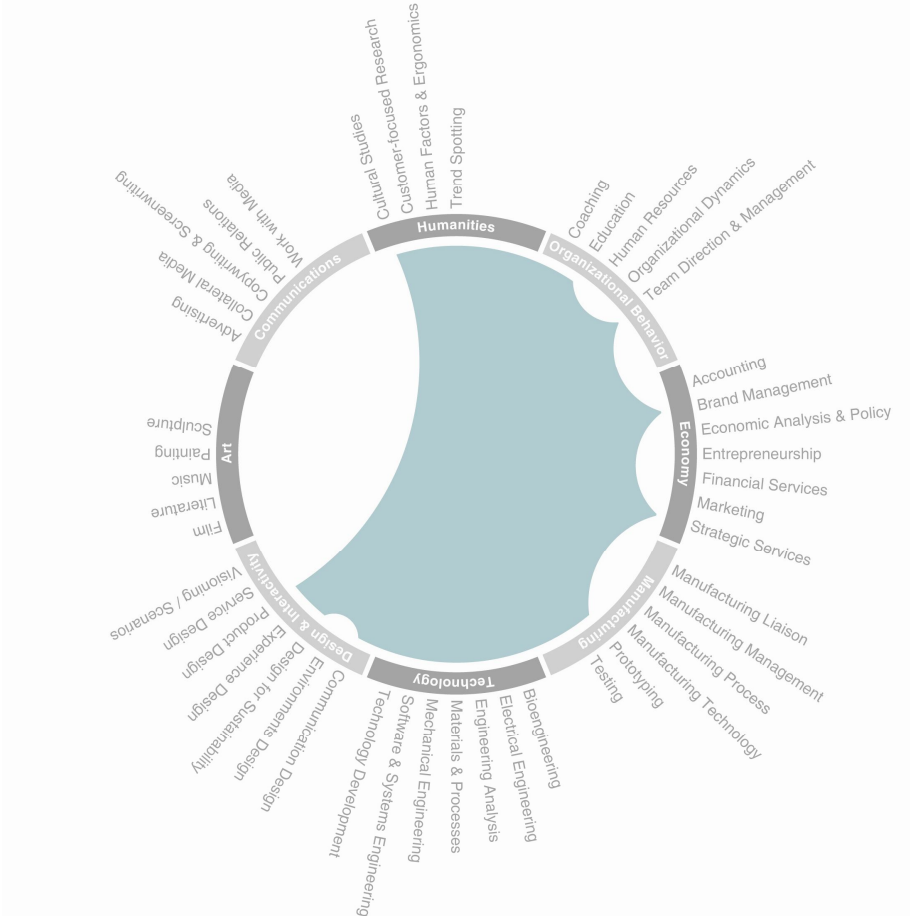
Their team

The company stuff integrates industrial designers, graphic designers, engineers, interaction designers and business people of varying backgrounds.

What they offer

The company's offer, including product and package design, engineering, strategic design, interaction design, and medical engineering and design, makes a difference to stakeholders, brands and markets (http://en.wikipedia.org).

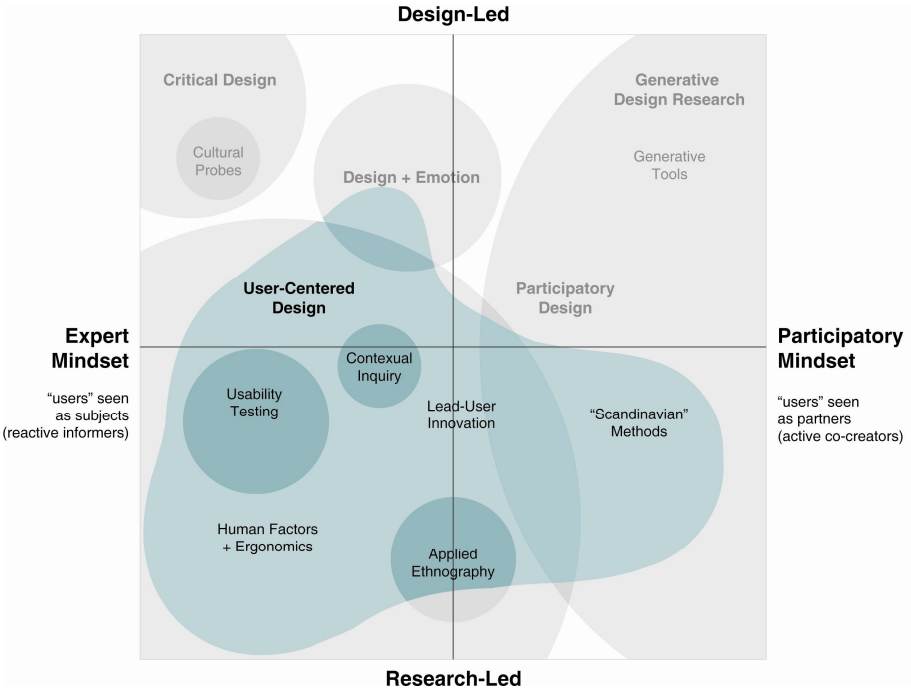
Map 023
Map of services offered, Lunar Design
Resource: personal



Their methods and tools

Lunar Design uses many conventional and authentic human-centered techniques and tools "ranging from "shop-along" to in-home ethnography to understand people's motivations and aspirations" (www.lunar.com).

Map 024
Map of tools and methods, Lunar Design
Resource: personal (based on Sanders 2006)



04|2|8 Herbst LaZar Bell [HLB]

Type	Employee-owned
Founded	1963
Headquarters	Chicago, Illinois, USA
Founders	Walter Herbst Ralph LaZar Randy Bell
Employees	-
Website	www.hlb.com

Who they are

"Herbst LaZar Bell (HLB) is an employee-owned, international product design consulting firm with offices in Chicago, Boston and Los Angeles. HLB was founded in 1963 by renowned industrial designers Walter Herbst, Ralph LaZar and Randy Bell". Their mission "is to drive meaningful business impact by creating new products and technologies that make life more enjoyable, more convenient, and more fulfilling for those who use them" (www.hlb.com).

Their work

Among the works of HLB there are such widely recognized designs as the Motorola NFL Coaches Headset, the first Internet Gas Pump by Gilbarco, the Papermate Liquid Correction Pen, and lifesaving products such as the Ethicon Mammotome Handheld Breast Biopsy System, the ZOLL AED Plus defibrillator, and the CardioVations Heart Stabilizer" (http://en.wikipedia.org/wiki/Herbst_LaZar_Bell,_Inc.). The client list includes such firms as Baxter, Dell, Dove, Hewlett Packard, Holmes, Sunbeam, Stanley Tool, Kodak, Motorola, Johnson & Johnson, Whirlpool, Gillette, Craftsman, Electrolux, EF Johnson, Square D, and Rival.

Image 008
Project samples, HLB
Resource: personal

Journey Bi artifical knee system for Smith & Nephew
Tools to perform knee and hip replacement surgery
2008

Comfort Care line for First Years
Easy, safe and innovative baby care products
2003

Eclipse for Gilbarco
Positive emotional experience: the next-generation gas station fuel pump
2000

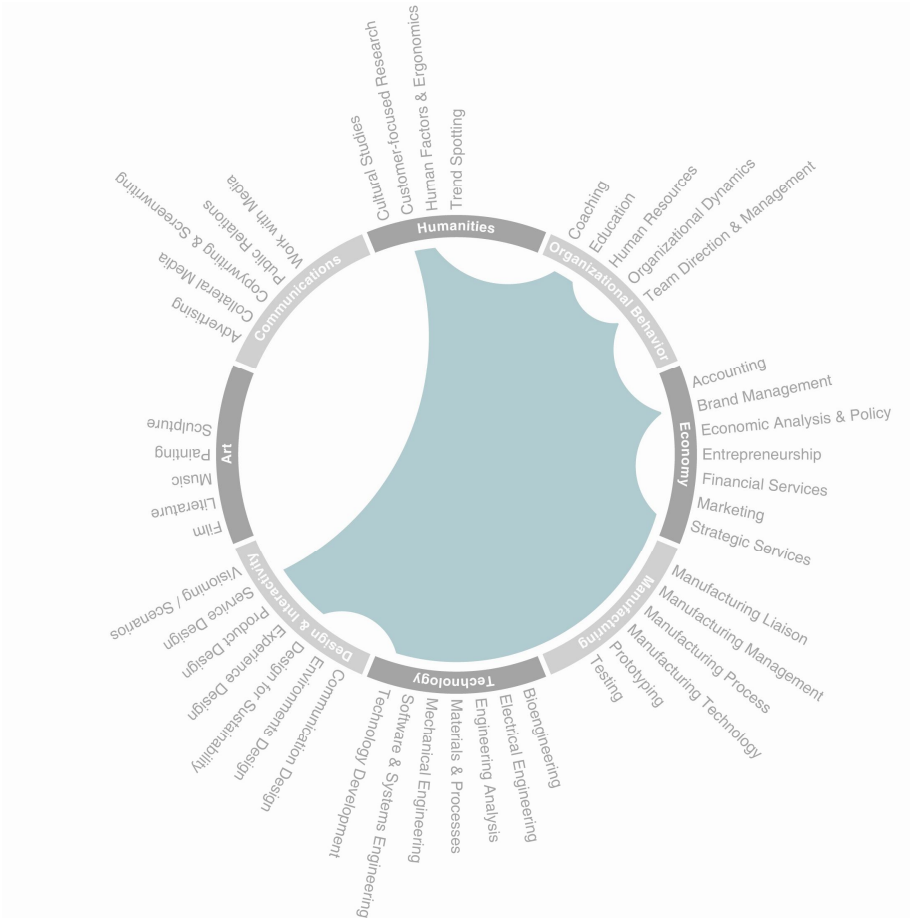
Their team

According to the company website (www.hlb.com), HLB creates multi-disciplinary teams that have an expertise in user behavior and market research, business strategy, brand strategy, industrial design, materials and processes, mechanical and electrical engineering, software and systems development, bio-med technology, manufacturing management, DFM issues and creating products for full scale production, prototyping and modeling services.

What they offer

HLB offers a broad spectrum of consumer and medical products and experiences, helping companies discover “new product and service opportunities with its process of innovation” (http://en.wikipedia.org).

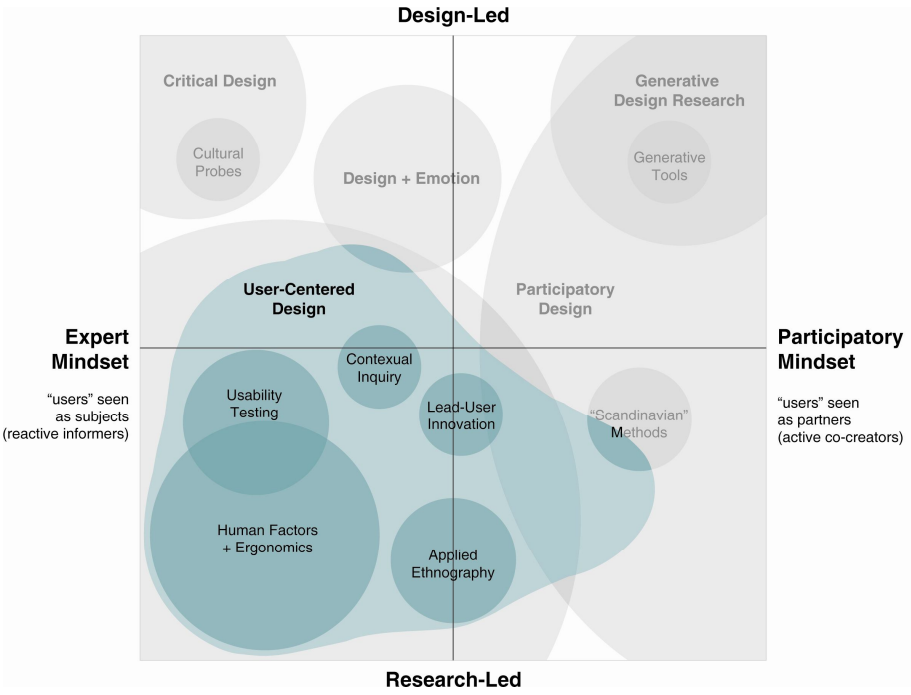
Map 025
Map of services offered, HLB
Resource: personal



Their methods and tools

The company uses its unique approach called Meaningful Design™ to “create products and services that make lives more enjoyable, more convenient and more fulfilling for those who use them” (www.hlb.com). As an approach Meaningful Design™ “begins by identifying not just what customers say they do but discovering what they actually do and how they do it”.

Map 026
Map of tools and methods, HLB
Resource: personal (based on Sanders 2006)



04|2|9 Method

Type	Private
Founded	1999
Headquarters	San Francisco, California, USA
Founders	Kevin Farnham David Lipkin
Employees	-
Website	http://method.com

Method

Who they are

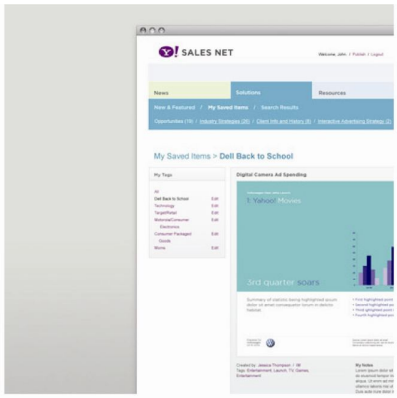
Founded in 1999, Method is a multi-disciplinary design firm with headquarters in San Francisco and offices in Manhattan. Its practice is based on “integrated mix of business and brand strategy, business storytelling, and design expertise” (www.dexigner.com).

Their work

The clients of the firm vary from large corporations, art and cultural institutions, fashion, media, professional services and technology companies. Method has worked with many well-known clients, such as American Apparel, Autodesk, BBC, Gucci, Hewlett-Packard, IDEO, Macromedia, Microsoft, MoMA, Nike, Nokia, Palm, Reuters, SFMOMA, Sun Microsystems, TiVo and Yahoo (www.dexigner.com).

Image 009
Project samples, Method
Resource: personal

Brand Identity for Boxee
A full set of services: from identity design to interface creation
2008



Sales site for Yahoo!
A new, more effective intranet solution
2005

Product UI for FusionOne
From website design to mobile phone faceplates
2000

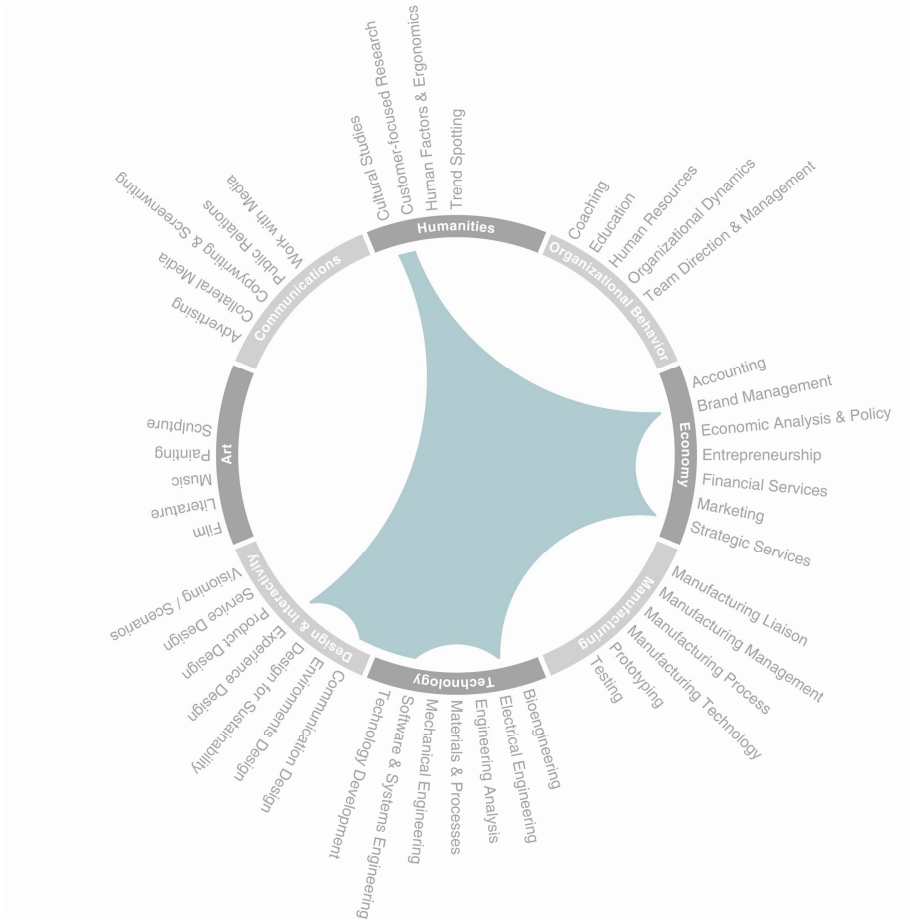
Their team

The team is composed of international professionals in many fields, such as brand design, program management, fine arts, business direction, organizational psychology, human-computer interaction and so on.

What they offer

“The company's suite of services include brand and identity systems, print communications, interactive experiences, user research and strategy, software and product user interface design and information design for both emerging and established businesses” (www.dexigner.com).

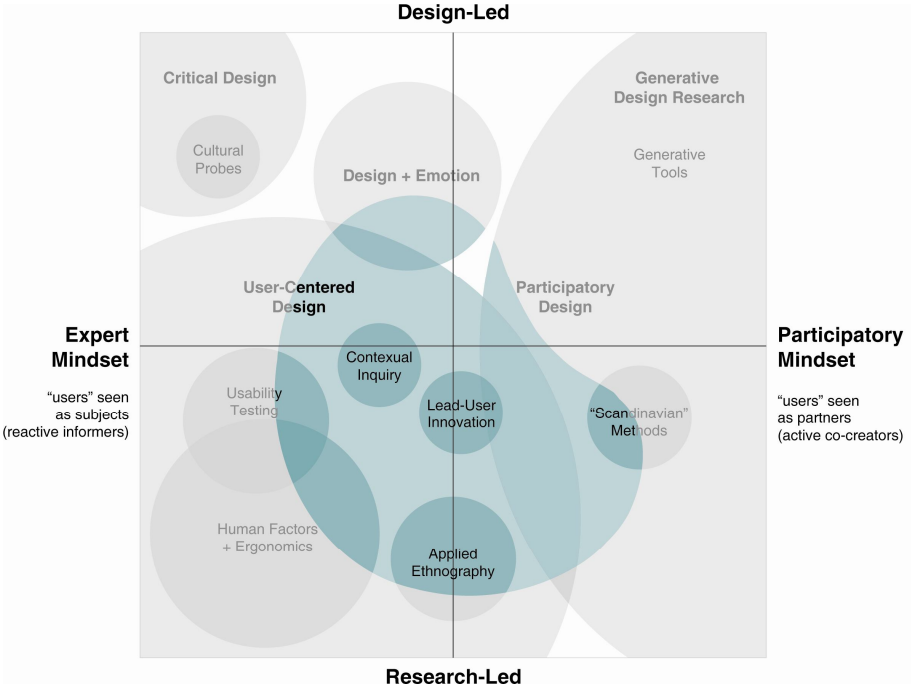
Map 027
Map of services offered, Method
Resource: personal



Their methods and tools

The company follows multidisciplinary human-centered approach, working closely with its clients during the whole design process.

Map 028
Map of tools and methods, Method
Resource: personal (based on Sanders 2006)



04|2|10 RKS Design

Type	Private
Founded	1980
Headquarters	Thousand Oaks, California, USA
Founders	Ravi Sawhney
Employees	-
Website	http://rksdesign.com

Who they are

RKS Design is an industrial design consultancy, founded in 1980 by Ravi Sawhney. The firm's main goal is to transform "client inspirations and aspirations into powerful business results"; and to create designs "that harmonize function, aesthetics, and emotions" (http://en.wikipedia.org).

Their work

"RKS has been consistently ranked among the top firms by Business Week, and is named on nearly 200 patents". Some of RKS notable design works include the original Teddy Ruxpin, the Panaflex Millennium and the RKS Guitar. RKS clients include JBL Professional, LG, HP, Zyliss USA, Sprint, Panavision, Intel, Hamilton Medical, Medtronic, Discus Dental, and many others (http://en.wikipedia.org).

Image 010
Project samples, RKS Design
Resource: personal

Lock-n-Lift can opener for Zyliss
A new brand language: the sensuality of the kitchen artifact
2008

Speakers for JBL Professional
Four lines of high-performance speaker systems
2008

Open Architecture RKS guitar
Iconic reinvention: instruments of change
2005

Their team

"RKS is a team of high-energy, results-oriented creative and business professionals with expertise in business strategy, industrial design, engineering, graphic design, and communications" (www.rksdesign.com).

What they offer

The company specializes in new product development, brand creation and revival, and retail environment design in "market segments that include medical, consumer electronics, sporting goods, house wares, consumer products, and industrial goods" (http://en.wikipedia.org).

Map 029
Map of services offered, RKS Design
Resource: personal

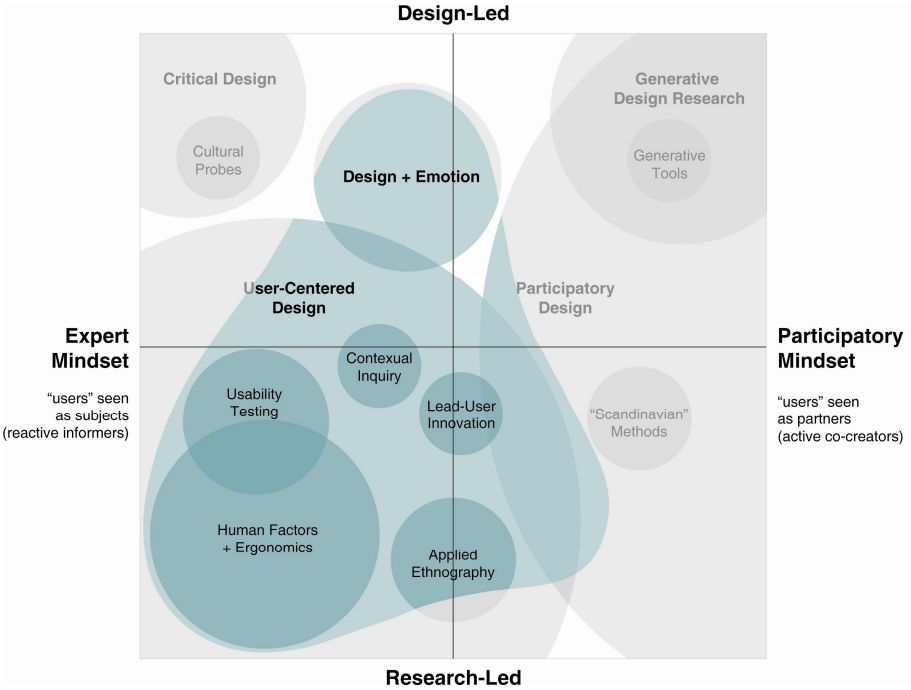
Their methods and tools

The company uses its proprietary globally-recognized methodology, Psycho-Aesthetics℠, a "philosophy and process of emotionally connecting consumers to brands through design". This method was built on insights developed from Abraham Maslow's Hierarchy of Needs and Joseph Campbell's Hero's Journey and it is characterized by deep consumer insight and collaborative tools that keep the process on target. The studio focuses not just only on the product or experience to be designed, but on the emotional needs and desires of the user.

One of the main tools used is the Psycho-Aesthetics℠ Mapping, where persons, products, services, brands, and channels can be placed on two-axial grids representing consumer needs and levels of interactivity. This mapping process uncovers the market gaps and opportunities where consumers' emotional desires aren't being met.

Another tools broadly used by the studio include a classic storytelling narrative, development of detailed personas, day-in-the-life scenarios, emotional/rational trigger analyses, key attractors and more.

Map 030
Map of tools and methods, RKS Design
Resource: personal (based on Sanders 2006)



04|2|11 Frog Design

Type	Private
Founded	1969
Headquarters	San Francisco, California, USA
Founders	Hartmut Esslinger Andreas Haug Georg Spreng
Employees	500 (2008)
Website	www.frogdesign.com

Who they are

Frog Design is a global innovation firm founded in 1969 by industrial designer Hartmut Esslinger and partners Andreas Haug and Georg Spreng in Mutlangen, Germany as "Esslinger Design". In a little while after the foundation the firm moved to Altensteig, Germany, and then to Palo Alto, California, and finally to its current headquarters in San Francisco, California. Company's name was changed to Frogdesign in 1982, and then to Frog Design in 2000. The firm employs more than 500 professionals divided in nine studios worldwide: San Francisco, San Jose, Austin, New York City, Seattle, Herrenberg, Milan, Shanghai, and Amsterdam. In the beginning Frog Design was focused on industrial design, but occasionally the firm "has expanded their capabilities and now call themselves a "global innovation firm" that creates and brings to market products, services and experiences" (http://en.wikipedia.org).

Their work

The firm's work is spanned across a broad range of industries, "including consumer electronics, telecommunications, healthcare, media, education, finance, retail, and fashion" (www.frogdesign.com). Among their clients are Disney, GE, HP, Logitech, Microsoft, MTV, Seagate, Siemens, Yahoo! and others. A lot of their most famous designs are in the area of consumer electronics and computers. Their first designs for computer sector were CTM proprietary systems in 1970 and Diehl Data Systems in 1979.

Image 011
Project samples, Frog Design
Resource: personal

Diabetic foot care scale for Insight
Avoiding amputations
2008

Windows XP and media player for Microsoft
The design of operating system
2001

New York Times Magazine Gelfrog™ concept
Rethinking the future of education
2008

Their team

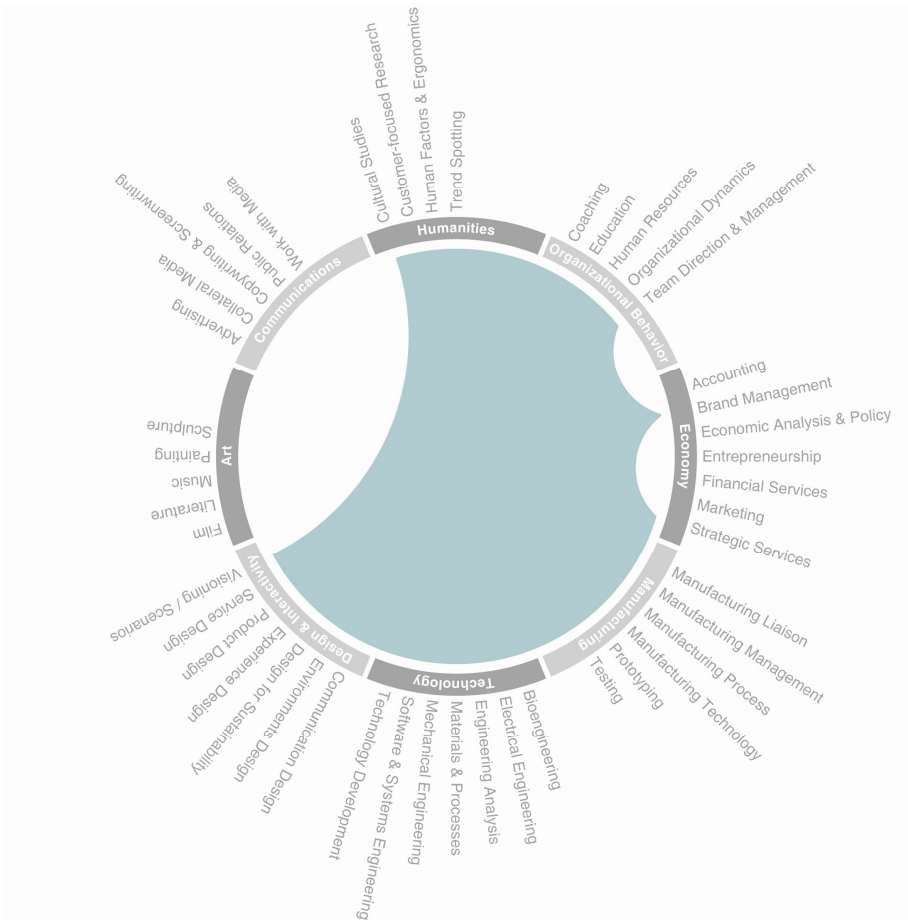
Frog Design's multidisciplinary process reveals valuable consumer and market insights and inspires lasting, humanizing solutions. With a team of more than 450 designers, technologists, strategists, and analysts, the company delivers fully convergent experiences that span multiple technologies, platforms, and media.

What they offer

The company's offer is illustrated in their website as the following:

1. Discovering market opportunities through deep and meaningful insight into consumer culture and intuition. Immersive research done by design practitioners uncovers the unmet desires and needs of the users.
2. Leveraging emerging technologies to define new product concepts and experiences. They "differentiate the user experience by combining cutting-edge hardware capabilities with innovative software and services across a wide range of devices and platforms".
3. Expressing opportunities in rich, visual form to inspire and motivate organizations. By using design research and creativity Frog Design stimulates the clients' innovative culture, builds their business strategy and product platform, and optimizes their development process.
4. Creating lasting brand equity across multiple businesses, systems, and technologies. Frog Design combines all the possible project areas, such as consumer and market research, technology, strategic planning, industrial design, digital media, and project management.

Map 031
Map of services offered, Frog Design
Resource: personal

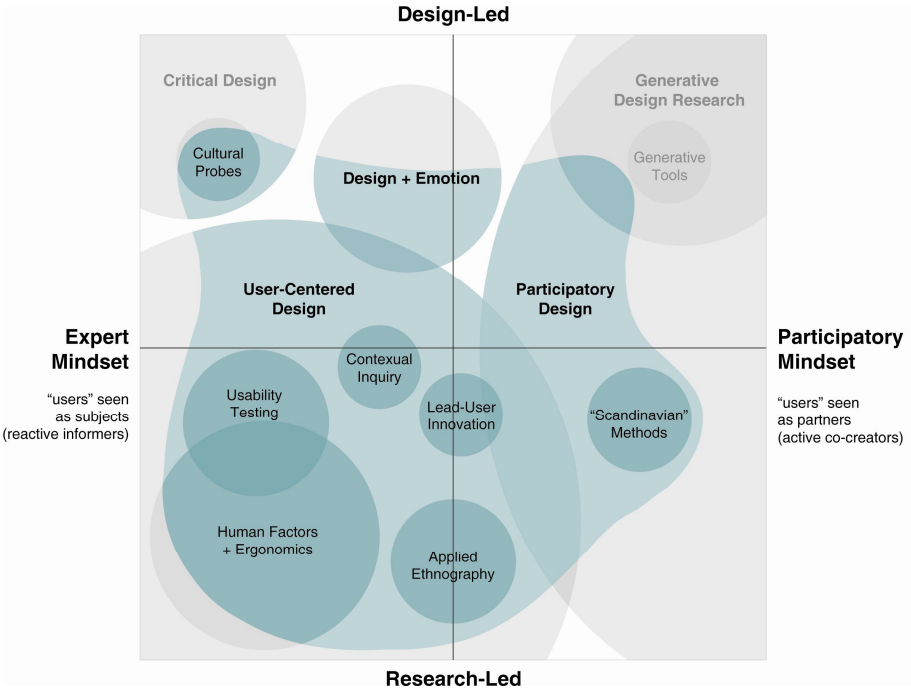


Their methods and tools

The company's design process is usual and includes three main phases: Discover, Design, Deliver. However, it's not the process that makes Frog's approach so effective and innovative, but the tools used in a very creative way. Among the main toolkit of the company are:

1. Business Design solution is an end-to-end process created by Frog Design to evaluate, innovate, and solve new corporate challenges. Their traditional design tools have been supplemented for application at the corporate level in order to address deeper business problems and rethink not just client's products, but its place on the market. Frog's Business Design solution uses various methodologies, such as In-Depth Research and Analysis, Multi-Level Ideation, Business Adoption, Strategic Planning and Successful Execution.
2. Design Centers that unify all the aspects of company's engagement with Frog Design. A Design Center can include various combinations of the following tools for managing design system information: Interaction Guidelines, Template Management, Task Flow Modeling and Validation, Physical and Digital UI Management, and Code Libraries.
3. Frog Insights ™, or the insight and inspiration that derives from actual human beings and not just from masses of statistics and bullet points. To this end, traditional research methods are used in unconventional ways.
4. Frog Think ™ which is a framework for solving both business and design challenges "by replacing traditional brainstorming with collaborative, original and lateral thinking. It rejects the conventional linear thinking that has been espoused by traditional ad agencies for decades, transforming one-dimensional patterns into leaping ones" (www.frogdesign.com).

Map 032
Map of tools and methods, Frog Design
Resource: personal (based on Sanders 2006)



04|3 Case study analysis: EU perspective

04|3|1 Introduction

Among the case studies presented the European perspective of design consultancies that apply a multidimensional and trans-disciplinary approach to design process are the following companies:

1 **Radar Station** | www.radarstation.co.uk (UK)
2 **?What if!** | www.whatifinnovation.com (UK)
3 **Live Work** | www.livework.co.uk (UK)
4 **Engine** | www.enginegroup.co.uk (UK)
5 **Designit** | http://designit.com (Denmark)
6 **Philips Design** | www.design.philips.com (The Netherlands)
7 **A piece of pie** | www.piecepie.com (Spain)
8 **Total Tool** | www.totaltool.it (Italy)
9 **H-Farm** | www.h-farmventures.com (Italy)
10 **RobilantAssociati** | www.robilant.it (Italy)
11 **PROject Science** | www.pro-jectscience.com (Italy)
12 **Design Innovation** | www.designinnovation.net (Italy)
13 **MetaDesign** | www.metadesign.com (Germany)
14 **Carmi e Ubertis** | www.carmieubertis.it (Italy)

04|3|2 Radarstation

Type	Private
Founded	2003
Headquarters	London, UK
Founders	Toke Barter Rè Dubhthaigh
Employees	-
Website	www.radarstation.co.uk

Who they are

Radarstation is a London based design-led management consultancy founded in 2003 by Toke Barter and Rè Dubhthaigh. The company is based on a small core team of designers, human factor specialists and strategists “supplemented with a wide network of expert associates” (www.radarstation.co.uk). Radarstation together with The Enterprise Development Group and STBY is also a member of The Global Innovation Group, a network of expert consultancies in the innovation space. The company is appreciated by the clients for its insight, creativity, drive, and cutting-edge thinking on innovation, design and services. Among their academic partners are Oxford Said Business School, Tanaka Business School, the Royal College of Art, the London School of Economics and Designskolen Kolding.

Their work

As it was mentioned before, Radarstation is a member of The Global Innovation Group, “a partnership of leading consultancies in the innovation space with deep expertise in social research, business and design strategy” (www.radarstation.co.uk). The range of works done by The Global Innovation Group is broad and vary from defining corporate vision and strategy to delivering live services. Radarstation shares thinking, tools, cross-fertilizing experience and competences on client projects with The Global Innovation Group. Together they offer a holistic and expert solution to globally leading clients including BBC, Toyota, Vodafone, Ericsson, Lego, Philips, Apple, Hitaci, Intel.

Image 012
Project samples, Radarstation
Resource: personal

Open innovation for Elsevier
A lead user research and a series of innovation workshops
2008

Innovation bootcamp for Egmont Publishers
A three-day workshop for international Innovation Managers
2008

User-led service opportunities for Sony
Opportunities for new service concepts beyond traditional market
2009

Their team

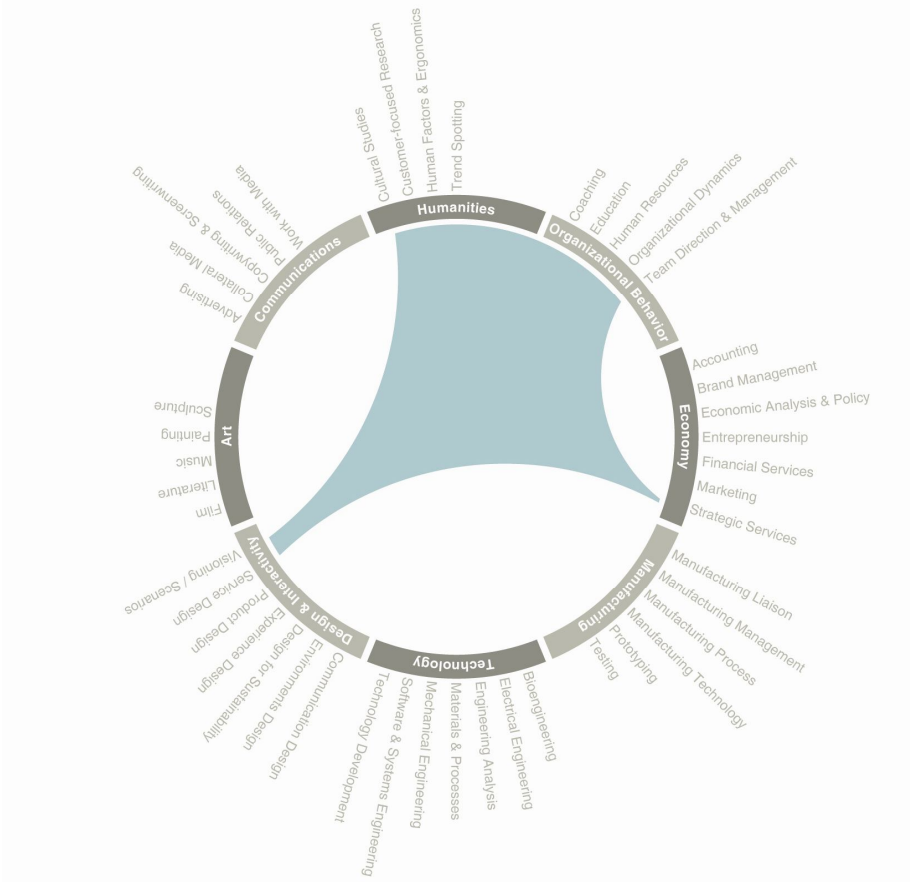
The Global Innovation Group consists of three companies divided by their specialization: Radarstation includes a small core team of designers, human factor specialists and strategists; STBY specializes in consumer research on the early stages of innovative design process and its team consists of ethnographers, sociologists, anthropologists and other experts of consumer behavior; the Enterprise Development Group includes a team of expert thinkers, facilitators and trainers who have been consulting since 1986 across a wide range of industries - from high tech, sustainability, hospitality, healthcare and academia to energy, transportation, telecommunications, manufacturing and media.

What they offer

Operating between strategic decision-making and operational implementation, Radarstation helps executives and operatives in organizations understand the shifting customer needs and use these insights to innovate their organization. The services offered by Radarstation include:

1. Customer Insight, which is based on customer-focused research and aimed to anchor and inform strategic decision-making. Usually this service is developed together with STBY.
2. Organizational Innovation practice that bridges the gap between strategy and operational capabilities and builds innovation culture in organizations by working with management and teams to embed innovation methods and processes. On these projects Radarstation regularly collaborates with The Enterprise Development Group.
3. Service Innovation that helps organizations create product-services aligned with their customers' needs and desires. Radarstation's design-led approach enables to unlock the value of service thinking for the organizations.

Map 033
Map of services offered, Radarstation
Resource: personal

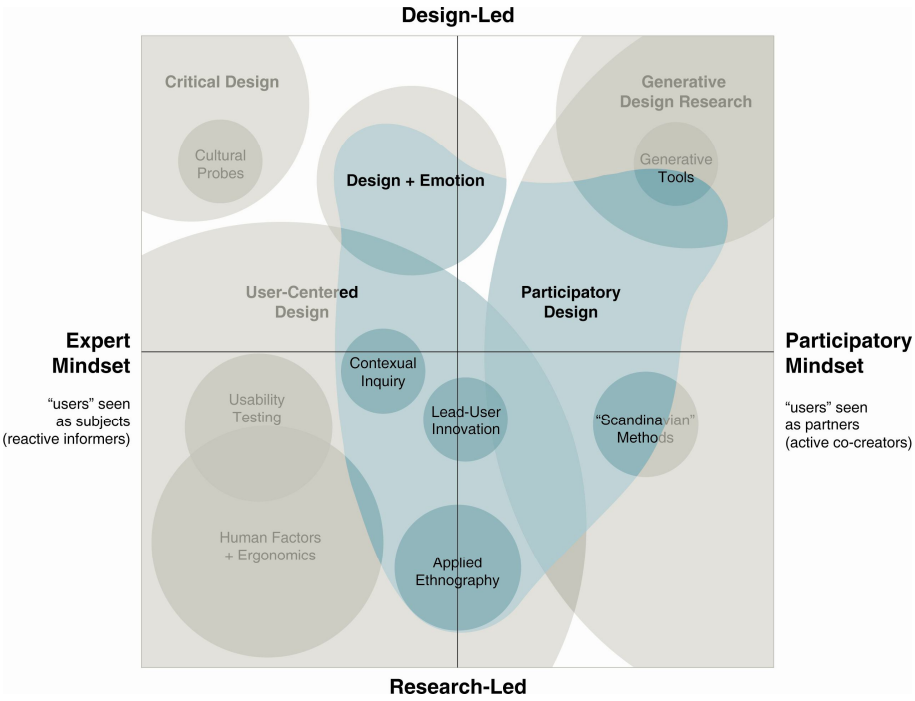


Their methods and tools

In the core of Radarstation's approach is a design-led innovation that is used as a tool to bring the customer into the heart or the business. Placing the customer at the origin of its thinking, design-led innovation enables the organization to make the customer the focal point for strategy development, the anchor of culture and a partner in collaborative service innovation. Thus design-led innovation influences the whole Radarstation's process, starting from discovering needs and desires that influence choice, to defining strategy based on consumer insight, followed by developing innovative solutions and implementing skills that sustain and innovative organization. At Radarstation they believe that the principles defining design, such as user focus, tangibility, iteration, creating a common language and mitigating risk, allow it to be a winning tool for creating strategy and delivering innovation in product-services.

For customer insight Radarstation employs a mix of qualitative methods from design research and social anthropology, to business-driven research and quantitative benchmarking. They work closely with their innovation partner STBY that is focused on researching inputs into service innovation and change. In order to provide organizational innovation Radarstation created various programs, such as modular " Innovation Kitchen" workshop, that result in greater collaboration between teams and connections across departments. In addition, the company works closely with internal communications and human resources to bring vision and strategy into the day-to-day work of employees. The company's approach for service innovation is based on creating a blueprint, identifying the internal capabilities and external partners, creating experience prototypes and usage scenarios, and identifying the key performance indicators. The iteration of value propositions is quickly and effectively created through rapid prototyping and user testing. Another tailor-made tool called Roadmap to Rollout includes holistic and detailed representations of the journeys customers make through services.

Map 034
Map of tools and methods, Radarstation
Resource: personal (based on Sanders 2006)



04|3|3 ?What if!

Type	Private
Founded	1992
Headquarters	London, UK
Founders	Dove Allan Matt Kingdom
Employees	180+
Website	www.whatifinnovation.com

Who they are

?What If! company was established in 1992 in London by Matt Kingdon and Dave Allan who started to feel increasingly frustrated working within the bureaucracy of big corporate structures. In their opinion big corporations had inefficient and damaging approach to creativity and innovation, especially when it concerned with a new product development. Nowadays ?What If! is the world's largest independent innovation company that helps organizations release a creative potential of their people, products and brands by “working for a fee or as joint venture partners on innovation projects” (www.whatifinnovation.com). ?What If! also works with its clients to improve their innovation capability – developing skills, modulating organizational structures and processes, and identifying and developing innovative strategies. The company has offices in London, Manchester, Shanghai and New York.

Their work

?What If! works in over 40 countries worldwide across a wide range of clients and market sector including Unilever, PepsiCo, Cadbury Schweppes, Nestle, Shell, BT, ABN AMRO, Astra Zeneca, British Airways, Coors Brewers, Sainsbury’s, Boots and McDonalds. In addition, ?What If! was voted “Best place to work in the UK” in 2004 and 2005.

Image 013
Project samples, ?What If!
Resource: personal

Updating baijiu's image for Moet Hennessy
Making a modern Chinese luxury spirits brand
2007

A culture of innovation for Coors
Creating a process for the leaders of the innovation group
1997

Belu Spring Water
A non-profit bottled water
2004

Their team

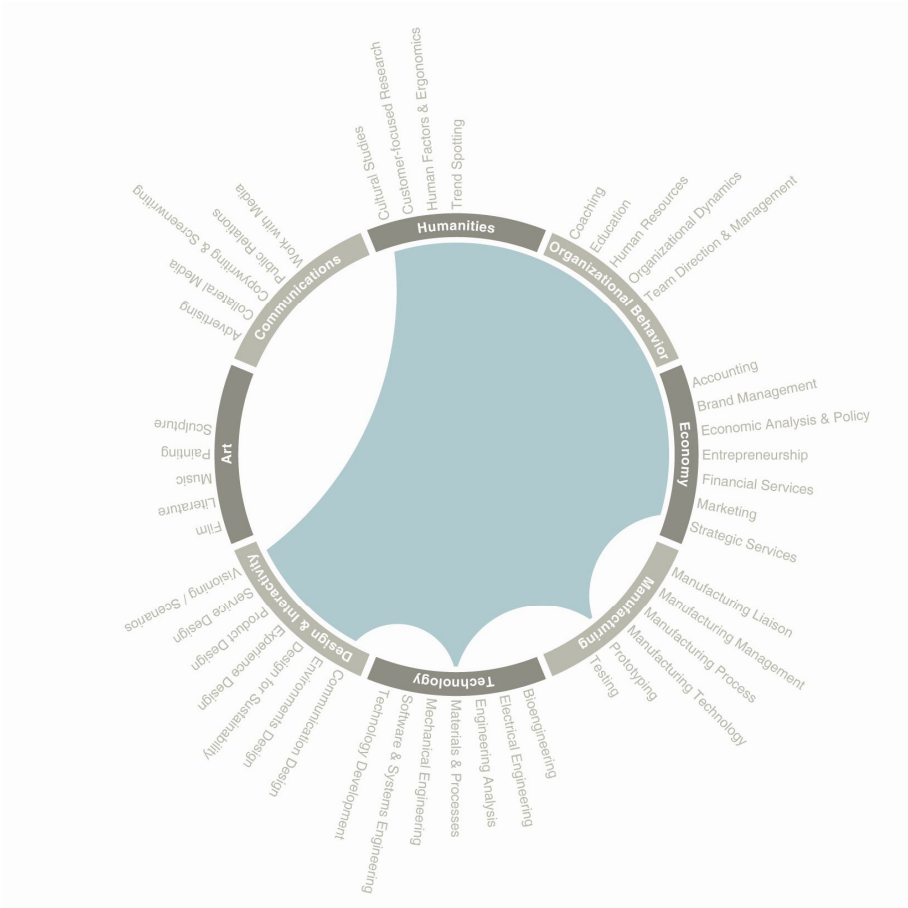
The team is divided into two main parts: inventing team for innovation projects and ?What If! Ventures unit run as a separate team, with management and staff operating and sitting separately.

What they offer

Today ?What If! provides four core services:

1. Innovation Capabilities: here the focus is on people. The company creates structures and mechanisms that support innovation; develops training programs and workshops aimed to increase the innovative skills of talent around creativity and insight; organizes study tours and various events that create an opportunity for people to meet with, communicate and share the secrets of world class innovators.
2. Innovation Projects: the company invents or enhances existing products, services, brands and customer experiences by working in genuine collaboration with clients.
3. Ventures or working in partnership with clients and entrepreneurs to launch and grow new and existing businesses. ?What If! Ventures provides its expertise, network and capital in return for a stake (or equivalent) in the venture. Most of the ventures are financed by ?What If! itself, but sometimes the third party capital is also accepted.
4. Social Innovation that helps making world changing social projects happen. The company's social innovation team operates in the offices around the world, working on projects in a global scale.

Map 035
Map of services offered, ?What If!
Resource: personal

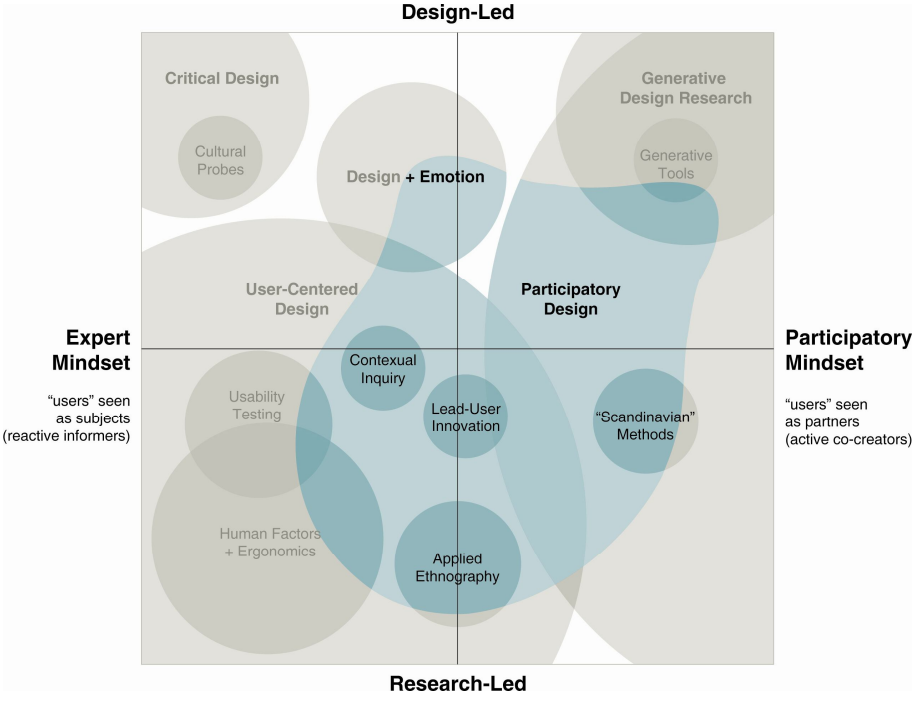


Their methods and tools

Since the service spectrum is extensive, also the tools and methods used by ?What If! is broad. They can be divided into four main categories:

1. For innovation projects ?What If! team of inventors use their innovation know-how to develop brand, product and customer experiences that help their clients' businesses grow. The aim is to make brand and product ideas real in a quick and efficient way. Tools used in this area include insights, prototyping, brand positioning, shopper missions, shop real ideas, defining gestures and many others.
2. The innovation capability sector works with clients on two main outputs: increasing the overall innovation capability (their skills, processes, leadership and working practices) and innovating around the "driving forces" of growth (vision and values embedding, internal communications, employment branding and work environments). For that purpose ?What If! delivers training courses aimed at increasing innovation skills. These courses include speeches, foundation training, advanced training, leadership training and tailor-made programs. In addition, the company created a series of weeklong reality-based programs for CEOs and Board Directors that aimed to learn from the world's most successful organizations.
3. To develop start-ups and early stage businesses, ?What If!'s team works alongside clients on their own projects or sometimes brings new ideas for joint development that include creation of new businesses and income streams, reinvigoration of non-core businesses and brands, brokering partnerships between clients to explore and enter new markets, identification of hot, new, small to medium-sized businesses that could have high growth potential within an existing client's business.
4. Driving social innovation became possible by having unique access to senior business and government circle. ?What If! uses this influence in order to undertake various social initiatives.

Map 036
Map of tools and methods, ?What If!
Resource: personal (based on Sanders 2006)



04|3|4 Live | Work

Type	Private
Founded	1992
Headquarters	London, UK
Founders	Ben Reason Chris Downs Lavrans Lovlie
Employees	-
Website	www.livework.co.uk

Who they are

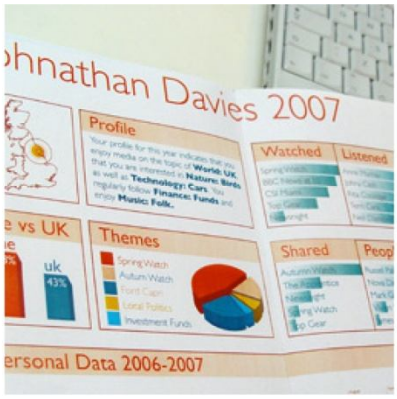
Live | Work is an innovative service design consultancy founded in 1992 by Ben Reason and Chris Downs. Headquartered in London, the company has offices in Oslo and São Paulo. The mission of Live | Work is “to create innovative services and to improve existing ones” (www.livework.co.uk). The company wants “to make services better for consumers, for business, for society and for the environment by using resources in a more effective way”.

Their work

The company operates in many industries including public, financial, transport, telecoms, media and technology, retail, health, environmental, manufacturing, economic, voluntary, research and education sectors. Among Live | Work’s well-known clients are British Standards, BBC, Orange, Vodafone, NHS, WWF, Fiat, Nokia, Sony Ericsson, Design Council, National Maritime Museum, and Said Business School Oxford University.

Image 014
Project samples, Live | Work
Resource: personal

Re-launching all the practices for Boots Opticians
Transforming the website into a service that provides everything a customer could need
2007



CRM strategy development for BBC
Looking into the future for personalized broadcasting
2005

One Planet Mobility for WWF
Addressing the challenge of mobility in the 21st Century
2007

Their team

The company employs a multidisciplinary team of designers, technologists, social anthropologists, marketers, management consultants, operations professionals and entrepreneurs “who bring an experienced, pragmatic, rigorous and passionate approach to the development of new breakthrough service propositions for clients” (www.livework.co.uk). Being one team, the company combines the most efficient mix of skills and disciplines for each client engagement.

What they offer

The services offered by Live | Work fit a range of their clients’ needs and are presented in three main directions:

1. Service Improvement or, in other words, performance transformation of existing services to create experiences that customers love. This service aims to resolve the following issues: proposition, accessibility, usability and service experience.
2. Service Innovation: expanding core propositions and creation new opportunities for business and public sector. Live | Work’s service thinkers provide deep insights into people and how they behave with services, engage creatively with business, society, technology and people, create propositions that customers understand quickly and appreciate over time, prototype the service experience with users, remove potential barriers to growth and enhance the details that makes the proposition unique.
3. Service Strategy: helping clients to define their service vision and develop a strategy that will convert their ambitions into reality. This strategy is based on the following key factors: clarity, creating tangible visions, realism and action.

Map 037
Map of services offered, Live | Work
Resource: personal

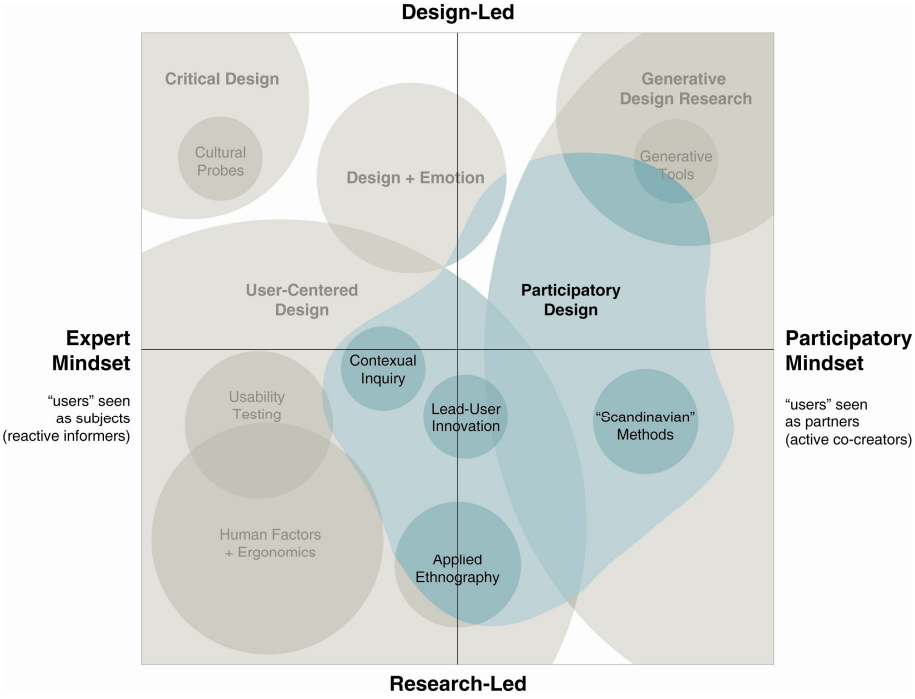
Their methods and tools

Live | Work design approach is based on Service Thinking that "places people, networks and sustainability at the core of service design and innovation" (www.livework.co.uk). The application of Service Thinking can help transform organizations and economies and create shared value for the clients and their customers.

Whether it's strategy, improvement or innovation, there are four methodologies that form the majority of the projects:

1. Insights: Live | Work engages client's users and staff in interviews and co-creation sessions. These insights help uncover barriers that prevent people from using particular service, see new opportunities for growth and deliver a service people need and want.
2. Ideas: the team of Live | Work's service thinkers provides a unique perspective, using creative methods and design to solve problems. The company provides early visualization of possible solutions and gives everyone a shared understanding of a future service.
3. Prototyping is a technique for testing new service concepts. Live | Work defines and develops scenarios, tangible touch-points and processes that are needed to perform the prototype. The tested scenarios are acted out by recruited users and staff.
4. At Live | Work also provides tools and techniques to give staff, departments and decision makers a shared view of the whole service: customer experience, front-stage and back-stage processes in one overview.

Map 038
Map of tools and methods, Live | Work
Resource: personal (based on Sanders 2006)



04|3|5 Engine

Type	Private
Founded	2000
Headquarters	London, UK
Founders	Oliver King Joe Heapy
Employees	-
Website	www.enginegroup.co.uk

Who they are

Founded in 2000 by Oliver King and Joe Heapy, Engine is one of the world's leading service design and innovation consultancies. The studio's office is in London and it includes a diverse team of designers, strategists, researches and visualizers. Engine works on a wide range of service design and innovation projects for many great organizations.

Their work

The company has worked with some great organizations including BAA, Virgin, Orange, Sky, The AA, BUPA, Norwich Union and the UK Government.
"Engine created a service blueprint for the passenger experience at Virgin Atlantic's new check-in zones in Terminal 3 at Heathrow airport. They helped create a public services innovation lab for Kent County Council, cited as one of the most progressive units in the UK. Engine's service design expertise has enabled this local authority apply a user-centered approach to policymaking and new service development" (www.enginegroup.co.uk).

Image 015
Project samples, Engine
Resource: personal

Social Innovation Lab for Kent County Council
Connecting peoples' everyday lives with the process of policy making and service design
2007

Matchbox project for Design Council
Matchmaking designers and SMEs
2005

Insight Out program for NESTA
Creating modular and cost-effective entrepreneur's training program
2007

Their team

The company includes a diverse team of designers, strategists, researches and visualizers. In addition, Engine's employees are members of the Design Business Association, the Market Research Society and the Service Design Network. They are also signed up advocates of the Designer's Accord and they act as advisors to the RSA and the Design Council.

What they offer

The studio's services and typical activities can be summarized in the following directions:

1. Service innovation: Engine helps companies identify new business opportunities for services to extend the offering to existing customers or attract new ones.
2. Customer experience: Engine provides analysis of existing customer experience to determine opportunities for improvement. They also support the client to design and deliver service experiences to customers using various channels.
3. Customer insight: Engine develops customer research for better understanding of the customer's daily challenges, how the customers are changing and the way they experience particular service.
4. Co-design: at Engine they often look to get users and service front-line providers in to design team. As a part of such practice, they develop projects and organize processes and techniques that allow diverse groups to take part in service innovation and design.
5. Innovation processes: Engine helps refine or re-invent organization processes.

Map 039
Map of services offered, Engine
Resource: personal

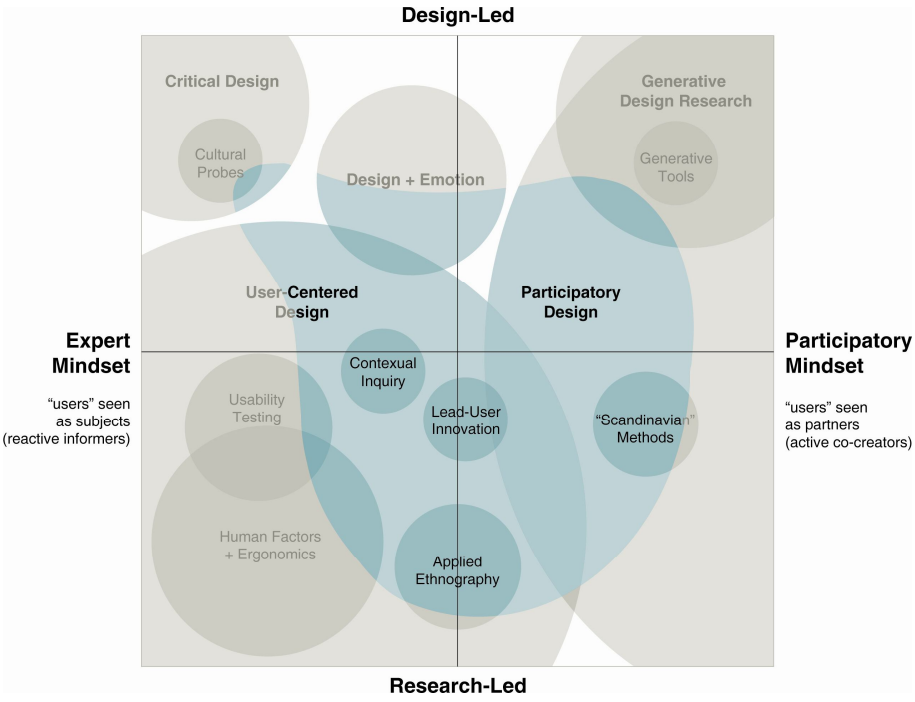
Their methods and tools

Engine design process has three general phases: identify, build and measure. Each phase breaks down a little further to the following steps:

1. Orientate and discover: orientation is about getting to know the organization, understanding their business model and the market nature within they operate. Among the tools used in this phase are questionnaires and workshops aimed to orientate and allow a project team to share views about an identified context. During discover phase Engine uses a number of techniques to understand how things are working from the perspective of service users and providers.
2. Generate: through the design of workshops Engine conceptualizes and explores visually many responses to the challenge.
3. Synthesize and model: in this phase Engine models and tests ideas. This is a very visual and creative phase that can bring new propositions or strategic futures to life. Ideas or propositions are refined and evaluated iteratively, depending on the client and the sector.
4. Specify: in this phase the service is specified in details whether it is physical service environment or financial or on-line service. Engine describes the near-future experiences of a service in a detailed way through scenarios maps, mock-ups, story-boards and so on.
5. Produce: designing and development of the service touch points.
6. Measure: this step connects the start of the process with the end by measuring efficiency, effectiveness, desirability, usefulness and usability of services.
7. Transfer and transformation: often happens that as a result of Engine effort the clients are able to adopt new ways of working.

Among Engine's favorite design methods and tools are path to participation, culture hunt, participant journals, contextual interview, distributed scenario brainstorm, graphic facilitation, co-creation, filming, conjoint analysis, storyboarding, service prototyping, empathy tools, shadowing, relationship mapping, and desktop walkthroughs.

Map 040
Map of tools and methods, Engine
Resource: personal (based on Sanders 2006)



04|3|6 Designit

Type	Private
Founded	1991
Headquarters	Aarhus, Denmark
Founders	David Fellah Anders Geert Mikal Hallstrup
Employees	80+
Website	http://designit.com

Designit®
Strategic
Design
Consultancy

Who they are

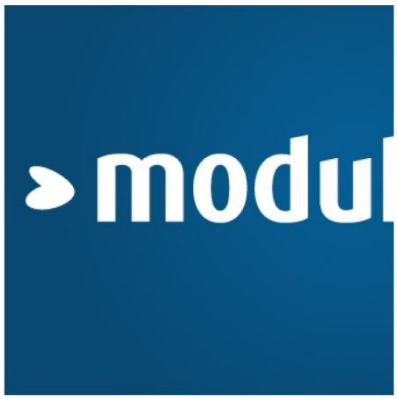
Founded in 1991, Designit is one of the European strategic design consultancies, with offices in Aarhus, Copenhagen, Gothenburg, London, Munich, Oslo, Paris and Shanghai. The company focuses on integrated services in innovation, service design, product design, instructional design, interaction design, and branding and communication. “By combining human needs with strategy, Designit acts as an agent of change for society and business” (http://designit.com).

Their work

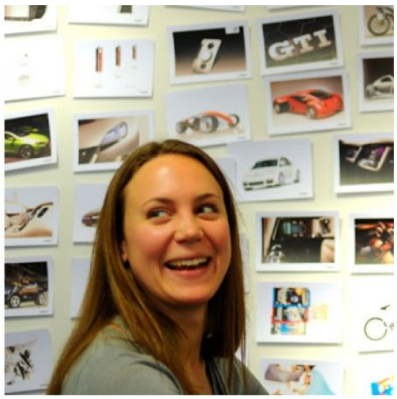
Designit offers its services to clients in various sectors, such as architecture, consultancy, consumer electronics, energy, entertainment, financial services , fashion, food, healthcare, home, industrial design, institutions and associations, leisure, professional equipment, public sector, retail, telecom, and transportation. Among its famous clients are National IT and Telecom Agency, Danish Enterprise and Construction Authority, Danish Ministry of Culture, IBM, Microsoft Business Solutions, Danish Chamber of Commerce, Danish IT Industry Association and many others.

Image 016
Project samples, Designit
Resource: personal

Helping Hand™ for Bang & Olufsen Medicom
An intelligent tablet dispenser that reminds patients to take their medication
2005



New visual identity for Modulex
Supporting the company that cares about clients and their future



Service design for The Danish Enterprise and Construction Authority
Improving service delivery in state-run job centers
2007

Their team

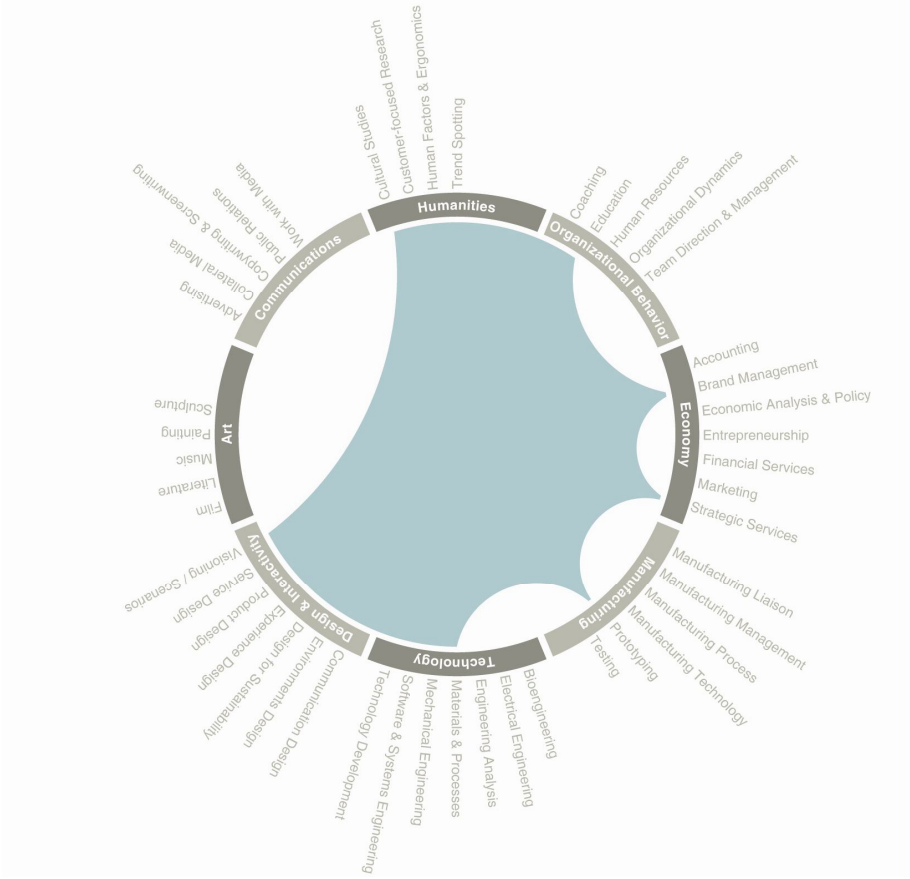
The company works in multidisciplinary teams, involving clients and users in the design process. They call themselves “creative zoo – a diverse bunch of idea-centric individuals working strategically in multidisciplinary teams” (http://designit.com). By working in this multidimensional way, the studio provides innovative and high-impact solutions for their clients.

What they offer

Designit offers strategic design expertise in the following areas:

1. Brand and communication: Designit handles the entire communication process, from research and concept development to strategic planning and implementation.
2. Interactive design: a multidisciplinary interactive team can guide the entire design process, from concept development and system architecture to interactive design and implementation, thinking strategically at every stage.
3. Product design: taking care of the entire process, providing deep design research and thinking strategically, Designit improves product’s usability and aesthetics.
4. Design research and ideation: Designit multidisciplinary team aims to create multitude of scenarios, from production costs and logistics to consumer behavior and service delivery.
5. Service design: as service designers, Designit helps businesses and organizations optimize their service and deliver great experience.
6. Instructional design: the company’s strength in this area lies in its multidisciplinary teams. Linguists, industrial designers and graphic designers join forces to structure information by synchronizing text and visuals into one message.

Map 041
Map of services offered, Designit
Resource: personal



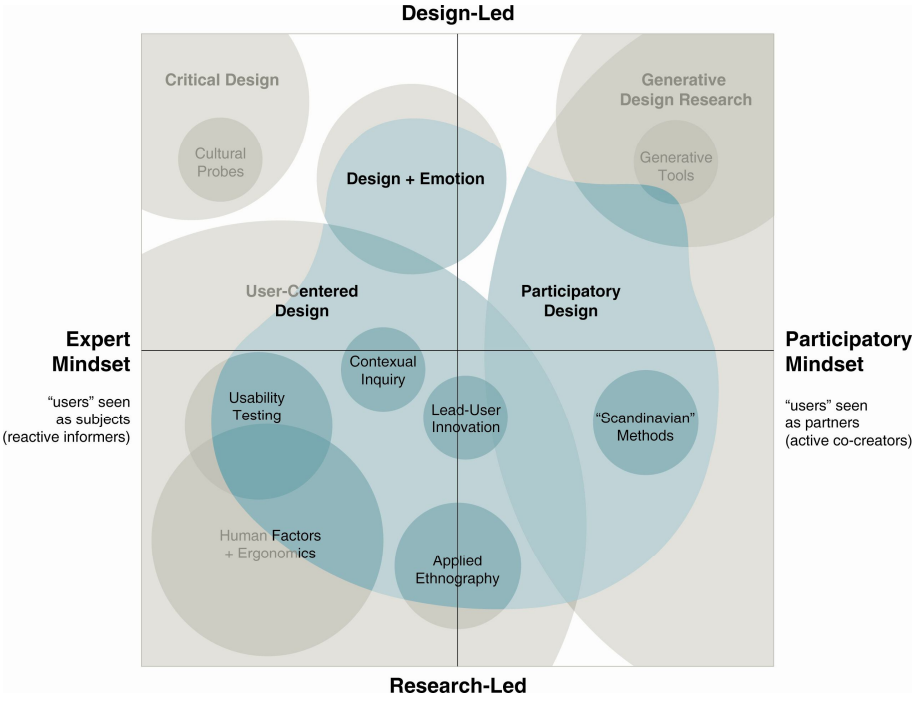
Their methods and tools

The company's Triple I process is based on three steps: after analyzing information and identifying emerging market opportunities, creative phase of idea generation starts followed by implementation phase to ensure that the new strategy has an optimum impact.

Designit has a creative approach based on a multidisciplinary teamwork. Together they bring innovation to life by asking questions, involving clients and challenging problems in multidimensional ways. The main characteristics of the company's approach are:

1. Client involvement: the client's know-how forms the foundations for innovation process.
2. Reality-centric: the company's design is reality driven. They deliver solutions that have an impact where it matters – on the particular market.
3. Know-how: Designit emphasizes research.
4. Master plan: Designit defines the client's market position and mission. Challenge: the company questions every decision so mistakes are part of the learning process – not the result.
5. Simplicity: at Designit they believe that good design makes sense and always make sure that the client and its customer understand the proposed solutions.

Map 042
Map of tools and methods, Designit
Resource: personal (based on Sanders 2006)



04|3|7 Philips Design

Type	Independent unit within the Philips Group
Founded	1920
Headquarters	Eindhoven, The Netherlands
Founders	Louis Kalff
Employees	550+
Website	www.design.philips.com

Who they are

Philips Design's history can be traced back to the mid-1920s, when Louis Kalff established the Advertising Section of Philips, and later, in the 1960s, Philips Board of Management established the Industrial Design Bureau, directed by Rein Veersema. "In 1969, the competence center was renamed the Concern Industrial Design Centre (CIDC), led by Norwegian Knut Yran. In 1980, Robert Blaich was appointed as the new Director of CIDC. In 1991, he was succeeded by Stefano Marzano, current CEO and Chief Creative Director of Philips Design. In 1998, Philips Design became an independent unit within the Philips Group, able to provide design services to all business divisions of Philips, as well to selected external clients" (http://en.wikipedia.org).
Today Philips Design is a global design agency with the headquarters in Eindhoven and offices in Amsterdam, New York, Paris, London, Vienna, Seattle, Andover, Atlanta, Pune, Hong Kong, and Singapore.

Their work

During its long history, Philips Design has worked both with Philips and many external well-known clients in the area of consumer electronics, home appliances, medical systems, lighting and corporate identity. Philips Design also designed a range of products in collaboration with such companies as Renault, Leolux, Alessi, Nike, Olivetti, Cappellini and Securitas. Among the most noticeable designs of the recent period are mobile X-ray machine Libra, Metal Cuby kettle, Wearable Key, vacuum cleaner City Lin, flat TV Ambilight, and Ambient Hospital.

Image 017
Project samples, Philips Design
Resource: personal

Wake-up Light
Waking up linked to the natural biological patterns and rhythms
2008

SKIN: Dresses
Examining the future integration of sensitive materials in the area of emotional sensing
Ongoing research

Chulha
Designing a stove that could stop 1.6 million people dying annually through smoke inhalation
2009

Their team

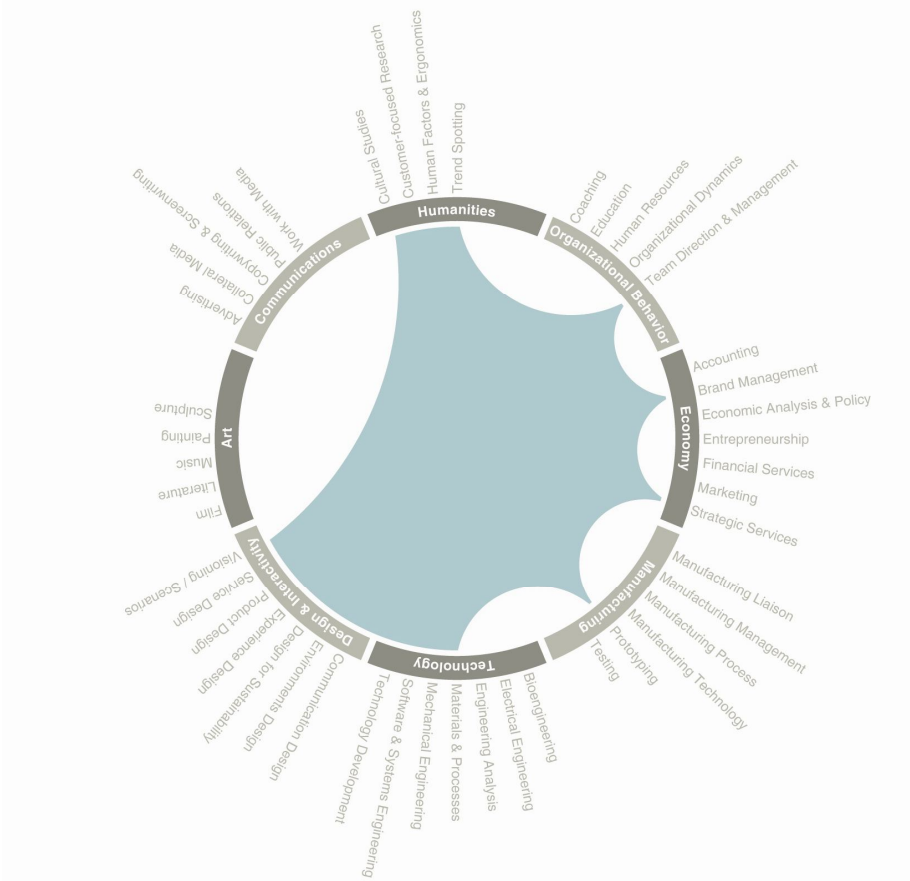
Philips Design believes in High Design that integrates traditional design skills with other disciplines in the areas of human sciences, technology and business. So the company team combines sociologists, psychologists, anthropologists, technology specialists, visual communication designers, product designers, human factors specialists, brand consultants, user interface designers, project managers, interaction designers, innovation consultants, visual trend analysts, interior and architectural designers.

What they offer

The agency provides a wide range of design services, from product design, packaging design, identity design, environment, interface and interaction design to design of the total user experience, innovation design and expertise in understanding people, cultures and societies. All these services could be organized into four main groups:

1. Product innovation: applying people-focused and research-based method, Philips Design creates new business opportunities.
2. Brand communication: using design as a strategic tool for understanding the brand essence, the company creates interactions to increase sales and improve brand perception.
3. Design futures: taking emerging “common signals” and exploring how they could potentially shape our lives in years to come, Philips Design delivers numerous vital insights for strategic business development.
4. Philanthropy by design: the company uses its creativity to develop low-cost, easily-accessible solutions that benefit more fragile categories of society.

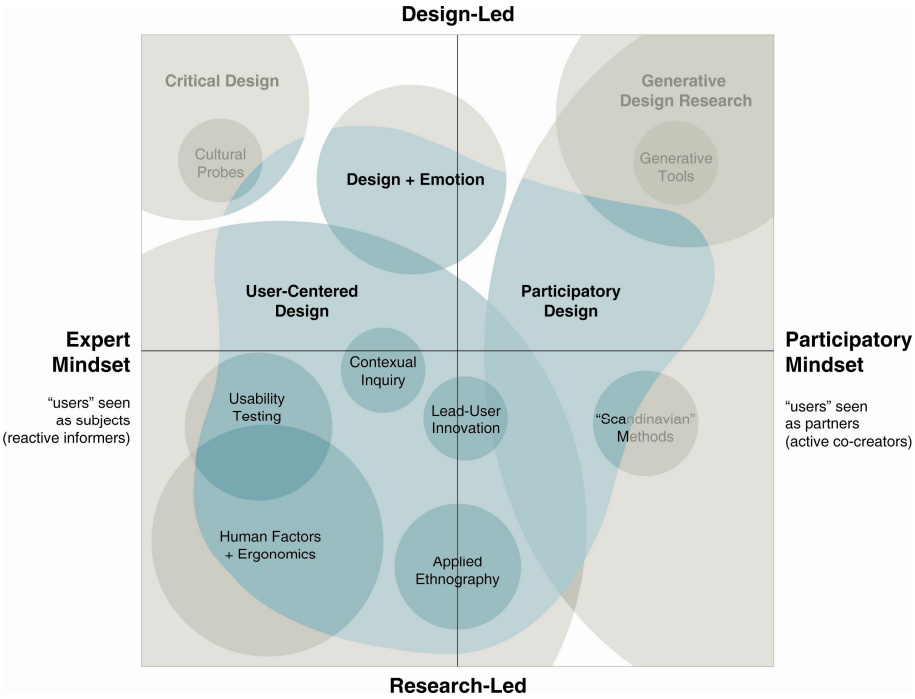
Map 043
Map of services offered, Philips Design
Resource: personal



Their methods and tools

The company approach, created by current CEO and Chief Creative Director Stefano Marzano, called High Design. It is “a practical approach to design that helps to create commercially successful products and solutions that support people in accomplishing and experiencing things in natural, intuitive ways” (www.design.philips.com). According to Marzano’s vision, High Design is an integrated and holistic approach, combining all the conventional design skills with the new ones needed to respond to complexity of today’s and future context. This method advocates multidisciplinary teamwork and collaboration of professionals from various fields such as designers, psychologists, ergonomists, sociologists, philosophers and anthropologists to understand customers’ needs and desires and generate relevant designs. Thus, High Design is people focused, multi-disciplinary, research-based and business-integrated process.

Map 044
Map of tools and methods, Philips Design
Resource: personal (based on Sanders 2006)



04|3|8 A Piece of Pie

Type	Private
Founded	-
Headquarters	Barcelona, Spain
Founders	Anna Cucurull
	Joan Vinyets
Employees	11-50
Website	www.piecepie.com

APIECEOFPIE

Who they are

A Piece of Pie is a Barcelona based management consultancy specializing in innovation, founded by Anna Cucurull and Joan Vinyets. The company works with its clients to identify opportunities and to market them. Additionally, they aim to improve corporate innovation capability, helping the client "perform better, faster and more profitably" (www.piecepie.com).
The company's name, A Piece of Pie, briefly describes their expertise – to innovate, or, in other words, to guarantee the clients "have a large piece of the pie".

Their work

A Piece of Pie works with governments, multinationals and large-sized companies from all key sectors in Europe, America, Asia and Africa, varying from consumer goods and electronics manufacturers to the financial services sector and new business development.

Image 018
Project samples, A Piece of Pie
Resource: personal

The Global Aging Experience Project for Intel
Ethnographic fieldwork and logistical collaboration
2006

New social service scenarios for Spanish government
Analyzing future needs of dependents

New business models for telecom company
Identifying novel telecom business opportunities for emerging markets

Their team

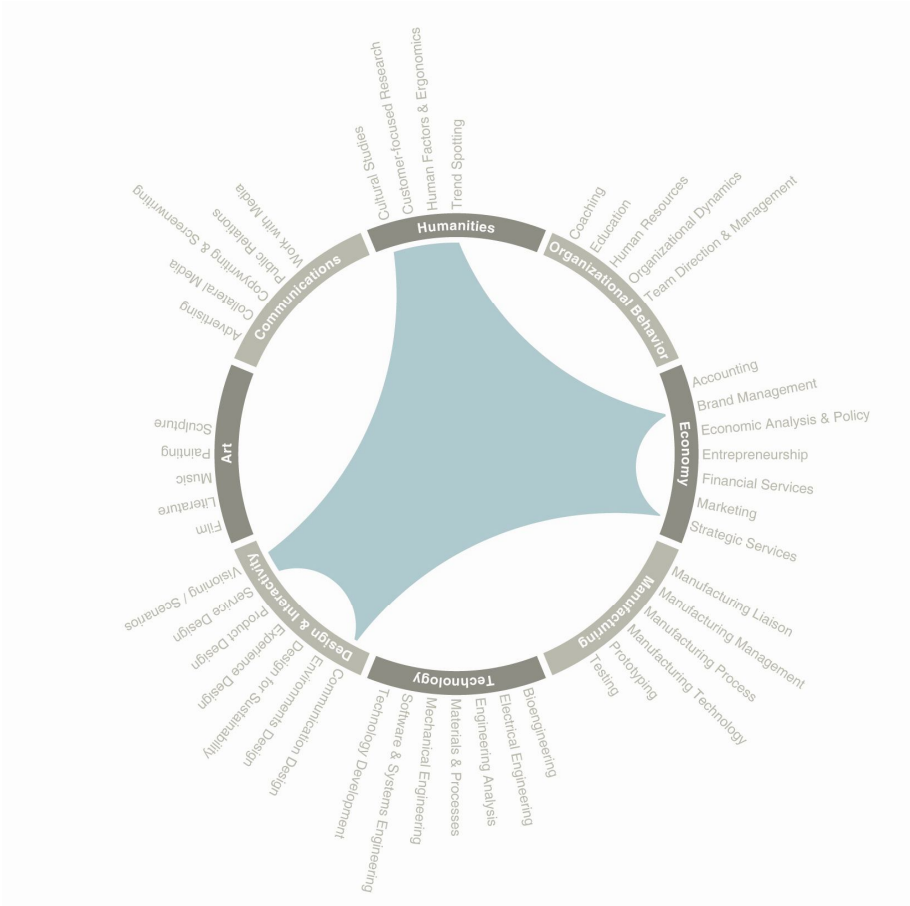
The company's team of innovation professionals is highly experienced and covers three main areas - business strategy, marketing insight and product and service implementation. A Piece of Pie draws on an international network of ethnography specialists to offer their services to clients across the globe.

What they offer

"A Piece of Pie identifies new opportunities for growth and superior market differentiation through in-depth anthropological research to uncover high-performing consumer insights" (www.piecepie.com). They turn these insights into specific and implementable actions tailored to particular company and its customers.

A Piece of Pie uses a consumer driven approach, focusing on three key areas: targeting consumers relevant needs to provide a competitive advantage, transforming innovation strategies into results through the integrative and multidisciplinary approach and international expert capability allocation for quick results. The company operates in the following sectors: retail, healthcare, financial services, media and entertainment, consumer electronics, information technology, and telecommunications.

Map 045
Map of services offered, A Piece of Pie
Resource: personal



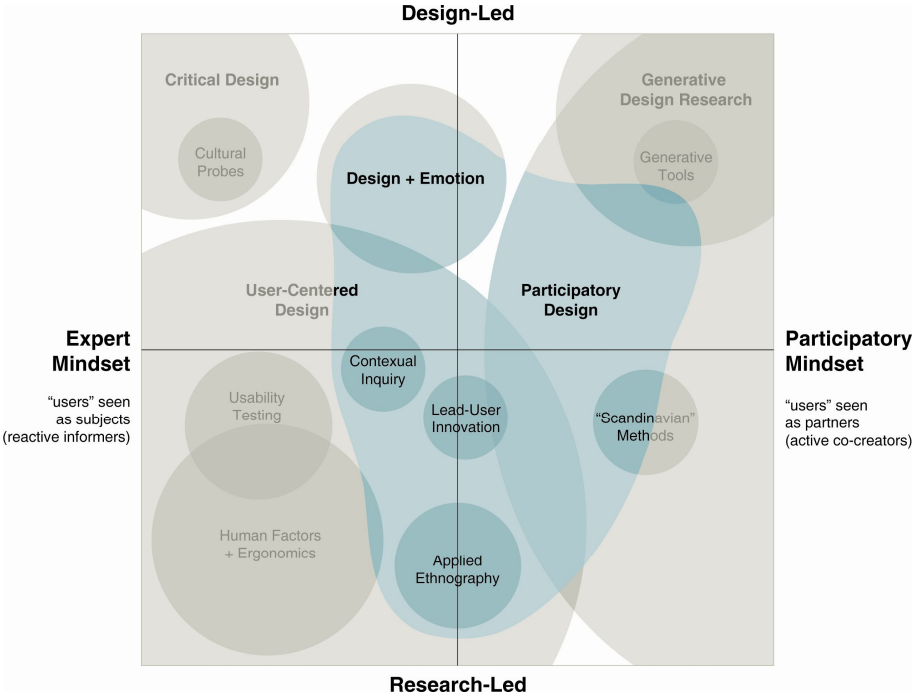
Their methods and tools

A Piece of Pie's approach is consumer centered, based on discovering peoples' implicit needs and translating them into business opportunities. By using a unique combination of methods including traditional business consultancy, quality market insights and design thinking, A Piece of Pie creates strong links between the company and its clients and long-term "win-win" situations.

A Piece of Pie has an unparalleled ability to work worldwide with an international network of ethnographers to gather relevant insights transformed into action and innovation.

In order to focus on the identification and transformation of customer insights, the company employs a variety of research techniques depending on the client's unique challenges and innovation goals. Among the commonly used tools are co-creation workshops, demographic and psychographic analysis, experience scenarios, cultural inventory, shadowing, experience diary, contextual interviews, field observation tours, guerrilla, card sorting, semiotic analysis, innovation scenarios, cognitive mapping, usability testing, brainstorming sessions, role-playing and others.

Map 046
Map of tools and methods, A Piece of Pie
Resource: personal (based on Sanders 2006)



04|3|9 Total Tool

Type	Private
Founded	1999
Headquarters	Milan, Italy
Founders	Giulio Ceppi
Employees	-
Website	www.totaltool.it

Total Tool

Who they are

Total Tool is a design consultancy and planning firm founded in 1999 by Giulio Ceppi. Its headquarters are in Milan, Italy, but the company has also offices in Buenos Aires and Tokyo. As it is mentioned on the company's website, "Total Tool activity is focused on identifying and defining innovation and producing creative and strategic opportunities for companies, via design, communication, architecture and visioning, intended as operative tools".
Total Tool main mission is to help its clients to innovate and to create value by bringing excellence and creativity to their business and supplying new strategies and unique opportunities. "Total Tool goal is to bring a human component into discussions about technology, communication, behavior, value and real needs" (www.totaltool.it).

Their work

Total Tool provides architecture, communication, design and visioning services to many national and international companies. Among its clients one can find such respectful and well-known corporations as 3M, Auchan, IKEA, Illy, Nike, Philips, Pirelli, Motorola, Nestlé, Luceplan, Nissan and many others.

Image 019
Project samples, Total Tool
Resource: personal

Layout of the factory outlet for Luceplan
Project of a modular element for non-flagship stores
2003

Brand and institutional identity for Provincia di Lecco
Publication editing and design
2003-2008

Children's furniture for Play+
Design of a family of furnishing products for children's spaces in collaboration with Reggio children
2004-2005

Their team

Total Tool employs an efficient team of design engineers, consultants and experts in the creativity sector and business innovation. The team creates an international multicultural network of professionals and experts in various disciplines. Total Tool truly believes that “there’s no creation without contamination and mutual understanding” (www.totaltool.it).

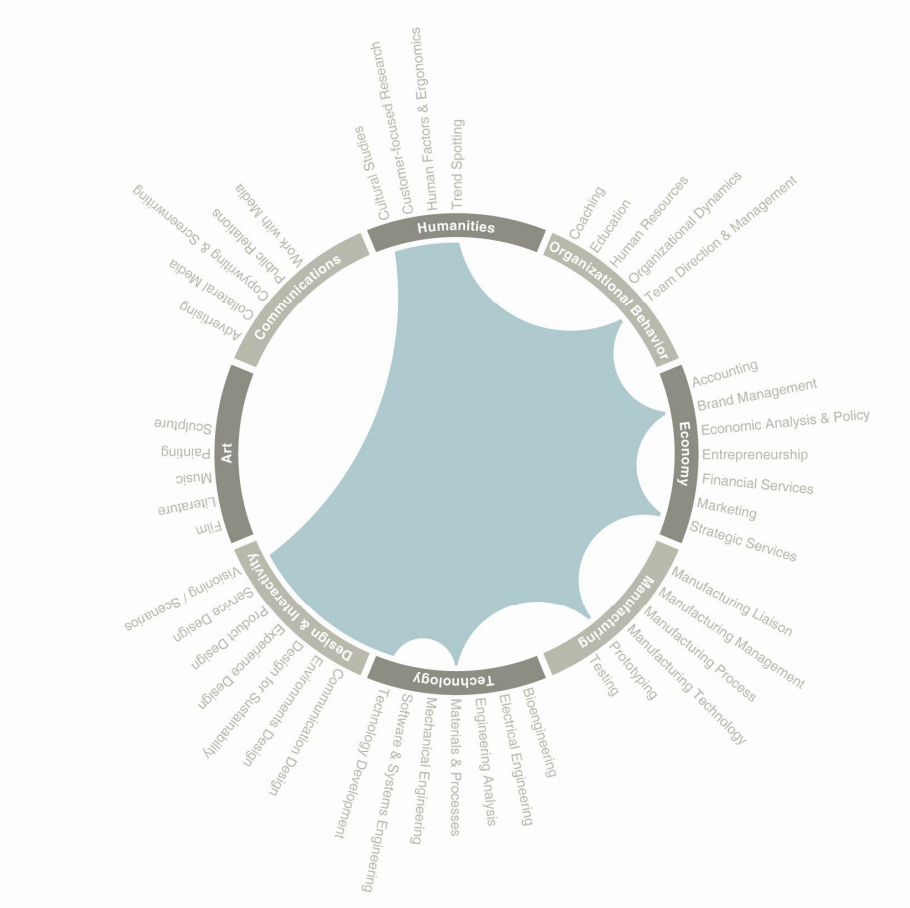
What they offer

The company’s offer consists of four main services:

1. Architecture, including landscaping, building, interior design and ephemeral architecture.
2. Communication design, including brand identity, visual design, interaction and multimedia.
3. Visioning, including value building, user experience and education.
4. Design that includes strategy, direction, concept, product design and material development.

Combining the offered services, Total Tool always tends to design direction and looks for projects where design, architecture, communication and visioning melt in an original way.

Map 047
Map of services offered, Total Tool
Resource: personal



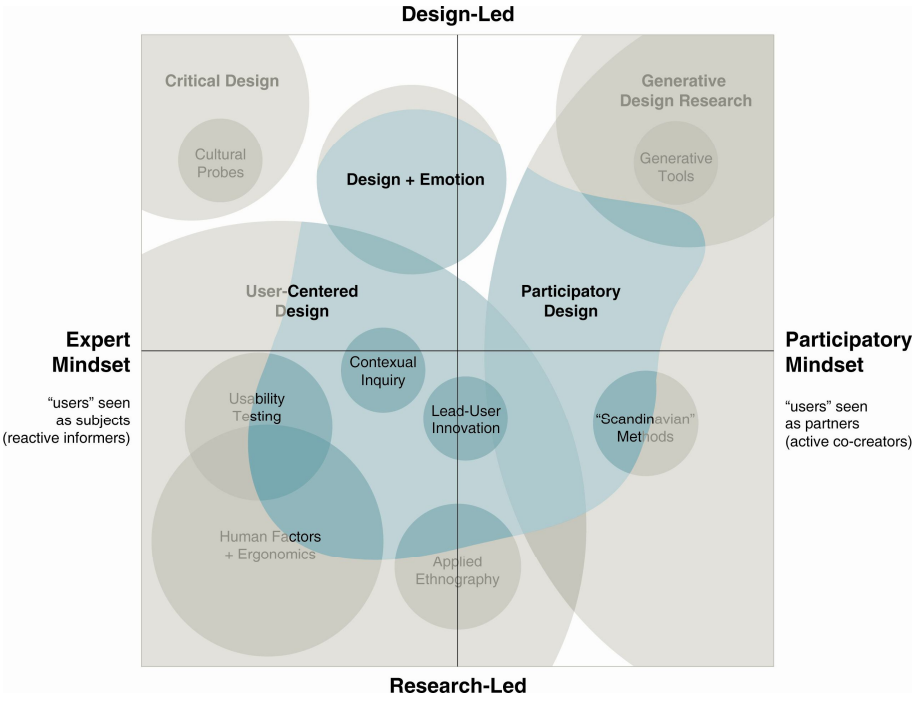
Their methods and tools

Total Tool's design process is interdisciplinary and aimed to deliver projects able to last in time and to be managed in today's complex reality. The process consider all the aspects of the project including materials, technologies, senses and behaviors. Comparing this process with production of a good wine, Total Tool describes its approach to innovation as a multiphase process that includes different languages, rituals and aesthetics. The company believes that the quality and consistency of a good project, exactly as in the case of wine, deserve time and efficient management of a long-term process built up with different layers and components.

On the basis of the company's approach is an understanding that each project has its own timing and duration and, consequently, different levels of complexity. Total Tool aims to create projects that last in time since "design is not only for the present, but it generates its own time, to extend values and actions in different time spans and intervals" (www.totaltool.com). Thus, projects designed by Total Tool can vary in their duration: some of them can be quick and focused on precise problem, others can generate a complex and multidimensional exploration and study.

To solve specific issues as well as manage ongoing processes and dynamic situations, Total Tool builds operational and rational tools.

Map 048
Map of tools and methods, Total Tool
Resource: personal (based on Sanders 2006)



04|3|10 H-Farm

Type	Private
Founded	2005
Headquarters	Ca' Tron (Treviso), Italy
Founders	Riccardo Donadon Maurizio Rossi Patrizio Bof
Employees	100+
Website	www.h-farmventures.com

Who they are

H-Farm is an international platform, an incubator and a unique organization redefining the role of venture capital, founded in Italy in 2005 by Riccardo Donadon and partners. The mind of the company can be expressed in the following words: “Humanity. Simplicity. Collaboration. Creativity. Rationality. Passion. Curiosity. Innovation” (www.h-farmventures.com). This culture is considered by its people as a shared one, a framework and basis that allows innovative start-ups to grow and expand. H-Farm’s mission is to create new innovative companies, the H-Companies, that aim to unique scope: simplify and create significant value in the field of technology and new media.
H-Farm combines three different cultural and market areas: Italy, Seattle and Mumbai. These epicenters respond to specific market demands in order to extend the business at international level.

Their work

Till today H-Farm helped grow the following start-ups: H-art, H-care, H-umus, H-play, ZOOPPA.COM, Shado.tv, e DomainsIncome.com, while many other new initiatives in progress. Since H-Farm's foundation all its startups have become innovative companies and several have already had successful exits.

Image 020
Project samples, H-Farm
Resource: personal

H-umus
The idea of using new media instruments to enable new modern experiences and services to change the way we live in spaces, stores and expositions
2006

Zooppa
The idea of creating a space for social advertising through user-generated content
2007

Shado
Designing next-generation TV channels and interactive formats able to reach everyone in every way
2007

Their team

The objective is to create a dynamic working environment, where professionals with different skills come together, discuss and argue ideas and projects that truly innovate and simplify technology. H-Farm works with people passionate about the internet, the innovators who are shaping tomorrow's world.

What they offer

H-Farm offers to startups an opportunity to focus on their business and relationships with external partners without worrying about administrative, financial and marketing aspects. H-Farm provides unique support to early stage companies, from capital resources to a full range of services and logistics to enable rapid growth. They invest in selected ideas, providing capital support from the seed throughout the early stage. Incubator services include office space and facilities and support for marketing, financial advice, human resources, legal, accounting and business development. Most importantly, H-Farm provides advice on strategy, branding and corporate structure.
Initially H-Farm controls a large portion of the shares but promotes the opportunity to spread the remainder among investors and employees of the company. Also from this point of view could be seen the elements of innovation. From the beginning the startup's key people are the shareholders with the motivation and stimulation resulted from sharing the property.

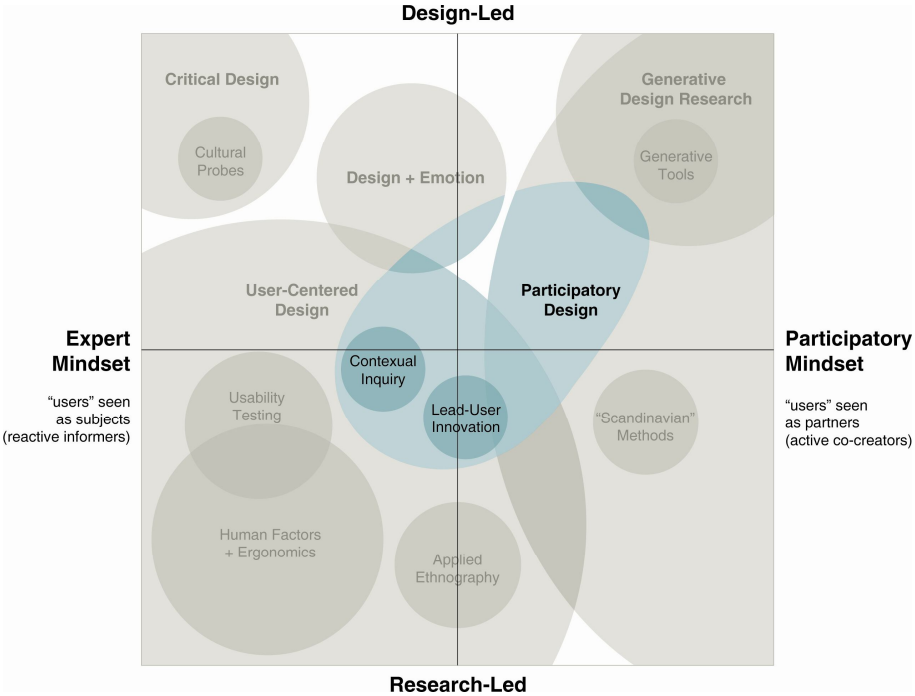
Map 049
Map of services offered, H-Farm
Resource: personal

Their methods and tools

At the center of H-Farm's approach is an idea that technology should be compatible with the man and user-friendly. H-Farm uses Internet as a driving innovation to their systems, processes and habits. The company's tools can be explained by a division into the following areas:

1. Investment area: H-Farm invests in Internet and new media business models with the intention to rethink new communication and interaction formats able to simplify processes, cost efficiency, new opportunities, or simply enhance the quality of life.
2. Seed Program: H-Farm periodically launches seed competitions to attract the best ideas focused on specific areas or segment (Internet and New Media) "with the aim to transform them into successful initiatives such as start-ups, projects, properties" (www.h-farmventures.com). This program enables startups to grow through a 36-48 months process to achieve a self-sustainable business. H-Farm supports the early stage companies by capital and financial support, full bootstrap support and good team creation, implementing the latest technologies, business development support to generate revenues and identifying the strategic partnerships. H-Farm generates exit strategy by 36 to 48 months that aims to support an industry partner or third investor and helps them drive the startup to the next level.

Map 050
Map of tools and methods, H-Farm
Resource: personal (based on Sanders 2006)



04|3|11 RobilantAssociati

Type	Private
Founded	1984
Headquarters	Milan, Italy
Founders	Maurizio di Robilant
Employees	70+
Website	www.robilant.it

Who they are

RobilantAssociati is one of the leading design and brand advisory firms in the Italian market. The company was founded in 1984 and headquartered in Milan. RobilantAssociati considers each new project as an opportunity for improving and refining its planning and executive processes. The company believes that its profession is “to be closely bound up with the needs, desires and culture of consumption of a constantly changing world” (www.robilant.it). Since the foundation, RobilantAssociati aims to be, through its professional support to small and large Italian excellence manufactories, an active actor to promote and enhance the culture of "Made in Italy" worldwide.

Their work

RobilantAssociati offers its services to clients in more than 25 countries worldwide in various sectors: automotive, banking and finance, beverages and food, household and personal care, tobacco, wine and many others. In the basis of every successful project is the partnership with clients: RobilantAssociati has a customer loyalty rate of more than 75%. The company and its clients make an effective professional relationship focused on innovation and development. RobilantAssociati brings a special sensitivity to evaluating the company focus theme and develops it into a brand able to become a powerful catalyst for innovation.

Image 021
Project samples, RobilantAssociati
Resource: personal

Rossetti ONE
The innovative brand for Fratelli Rossetti
2009

Brand identity renewal for Fiat Automobiles
New logo: continuity with change
2007

The visual identity for Tenuta Poggio Verrano
Dromos:the pathway to a new identity
2005

Their team

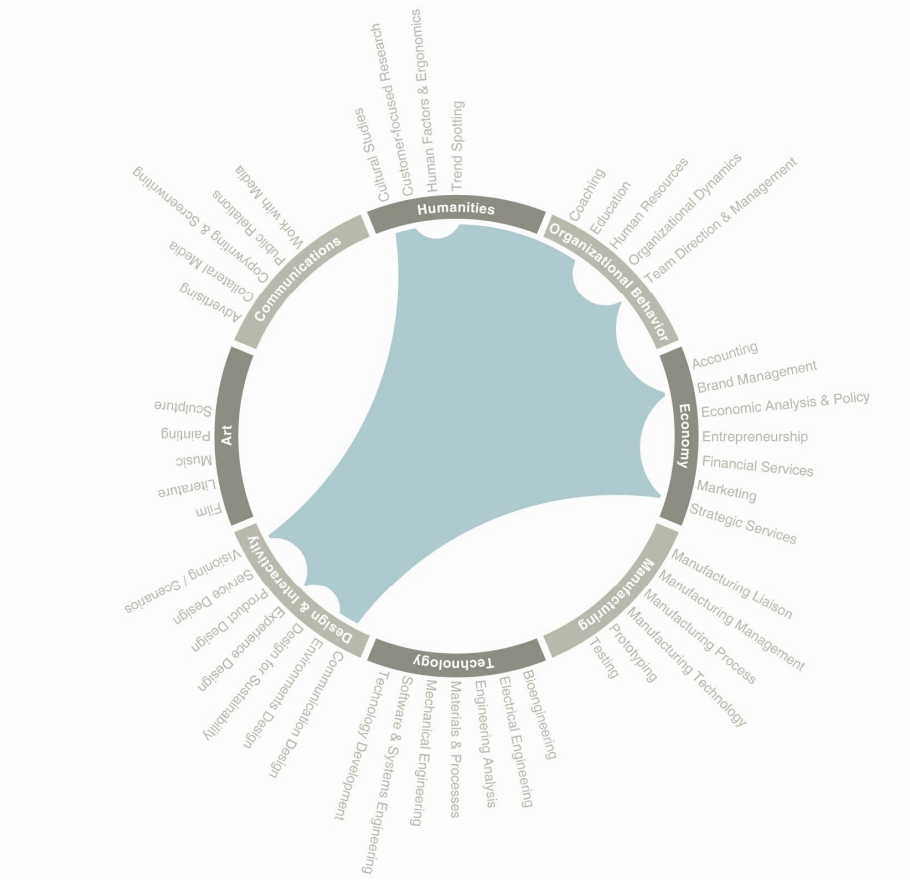
RobilantAssociati currently employs over seventy professionals with different and complementary talents and skills.

What they offer

As mentioned before, RobilantAssociati aims to enhance the “Made in Italy” concept through the promotion and development of the country's business talent. In addition, the company seeks to extend this concept beyond traditional concepts and facilitate future business opportunities for successful dealing with the global market challenges. RobilantAssociati's main mission is to discover the client's original talent and transform it into a brand with a unique and strongly distinguished profile. The company identifies innovative strategies that make discerning use of design, brand strategy, and business communication. They transform “business intangibles into tangible brand-guided processes of innovation, enhancement and fruition” (www.robilant.it).

RobilantAssociati’s activity can be detailed as following: discovering client’s guiding talent based on the business unique characteristics and its mapping onto the brand strategy; laying out action plans that bring to fruition the latent values of intangible business assets; designing the Brand Architecture that is most effective and most in line with the brand values; implementing product and/or service innovation projects through a brand driven approach; planning all brand communication including corporate branding, product branding and packaging, web branding, retail branding, and communication strategy; brand engagement or translating the uniqueness of the brand into business culture; becoming "Brand Tutors" to support the client company in its principal decision-making processes.

Map 051
Map of services offered, RobilantAssociati
Resource: personal



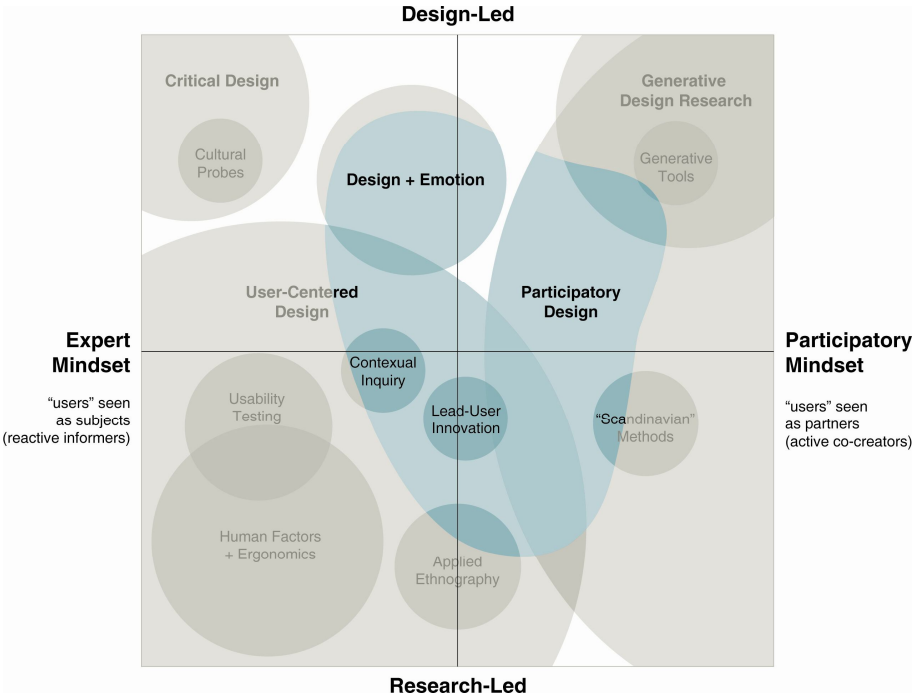
Their tools and methods

A fundamental part of the company work involves gaining and understanding data about specific identity and experience of the client's business. The main characteristics of RobilantAssociati's approach is its multidisciplinary and participatory nature, because it involves generally distinct perspectives and instruments (brand strategy and brand engagement) and considers company employees as active protagonists. In addition, the method is flexible and fast since it is tailored to client needs and employs readily accessible resources.

The company's process includes four main steps that may be described as following:

1. Brand scan: check up of the brand state. Among the tools used in this step are brand insight, desk analysis, competitors benchmarking, interviews to the top management and opinion carriers, market research.
2. The Strategy of Talent, a specific and tailor-made approach frees up and unleashes dormant energy within the company through the identification of the company's guiding talent, its inimitable identity, savoir-faire and knowhow. This is a process that brings out the company's "who we are" and transforms it in a unique, competitive and enduring brand. Among the main sub-phases of the talent strategy are analysis and selection of value set, guide talent identification, defining vision and mission, brand profile description, and brand positioning.
3. Plan of action: identification of activities to be implemented for the brand development.
4. Implementation of projects.

Map 052
Map of tools and methods, RobilantAssociati
Resource: personal (based on Sanders 2006)



04|3|12 PROject Science

Type	Private
Founded	2007
Headquarters	Milano, Italy
Founders	Roberto Verganti Adriano De Maio
Employees	-
Website	www.pro-jectscience.com

Who they are

PROject Science is a business consultancy that has been founded by Roberto Verganti and Adriano De Maio in Milan, Italy. The company's vision is "to provide managers who want to "innovate the way they innovate" the most advanced and proven business methods" (www.pro-jectscience.com). The focus of the company is on innovation processes and continuous research for the most unique, advanced, proven and novel methods. PROject Science helps its clients build their capabilities in asking the right questions and building network relationships.

Their work

PROject Science collaborated with various companies and public institutions, such as Ferrari, Volvo Group, Ducati, Indesit Company, Whirlpool, B&B Italia, Xerox, Kodak, Samsung, Barilla, Kraft, Nestlè, Unilever, Ericsson, Pirelli, Tetrapak, Vodafone, Regione Lombardia, Camera di Commercio di Milano, Norwegian Design Council and many others.

Image 022
Project samples, PROject Science
Resource: personal

Social Innovation Lab for Kent County Council
Connecting peoples' everyday lives with the process of policy making and service design
2007

Matchbox project for Design Council
Matchmaking designers and SMEs
2005

Insight Out program for NESTA
Creating modular and cost-effective entrepreneur's training program
2007

Their team

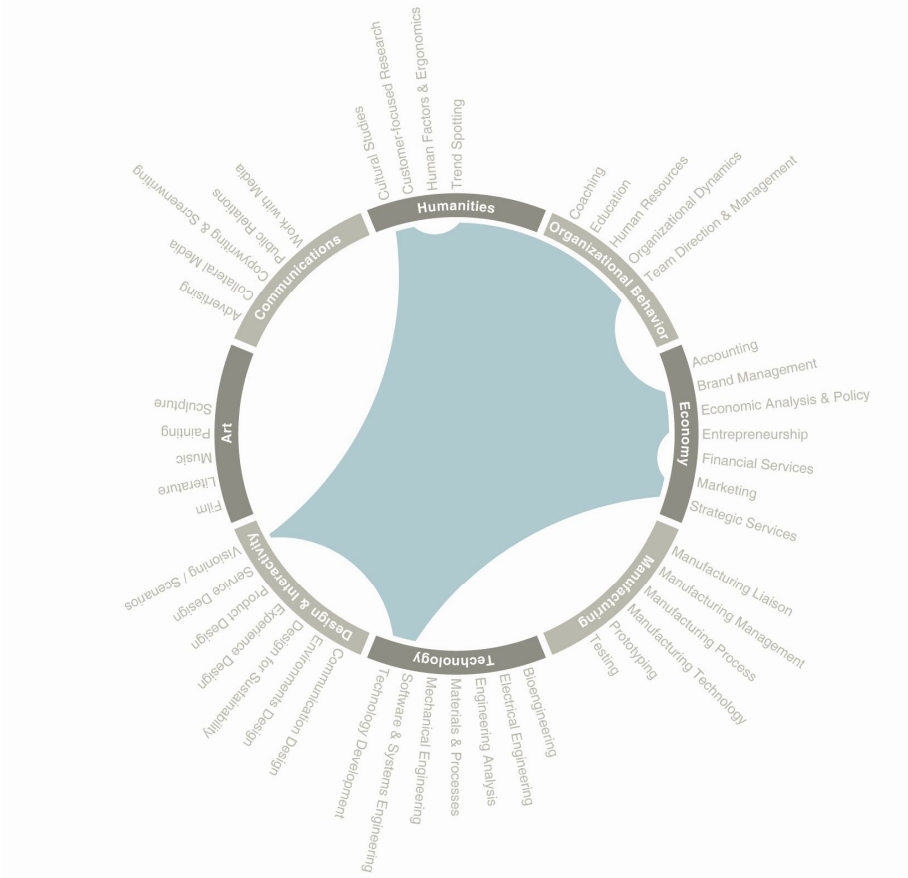
The current team includes a unique combination of practical experience in various fields and methodological and analytical skills provided by academic research. The core expertise of the team is in innovation processes. Having a global network of experts and developers, PROject Science builds the most appropriate method for each client and develops strategic, technological and socio-cultural scenarios.

What they offer

PROject Science supports its clients in the entire process from strategy creation to execution and measurement, tightly integrating innovation in strategy, products and brands. To provide this, the company offers the following services:

1. Consulting: working together with the client during the whole process, PROject Science helps them improve performance and achieve sustainable competitive advantage.
2. Coaching and education: PROject Science provides a methodological support to executives and their teams that includes coaching, thematic workshops, education and empowerment.
3. Customized studies and intelligence: the company performs custom-made studies designed for the needs of particular client.
4. Networking: PROject Science acts as brokers and creates a framework to access global experts in business, markets, technologies and policies and funnel their expertise towards the creation of innovations.

Map 053
Map of services offered, PROject Science
Resource: personal



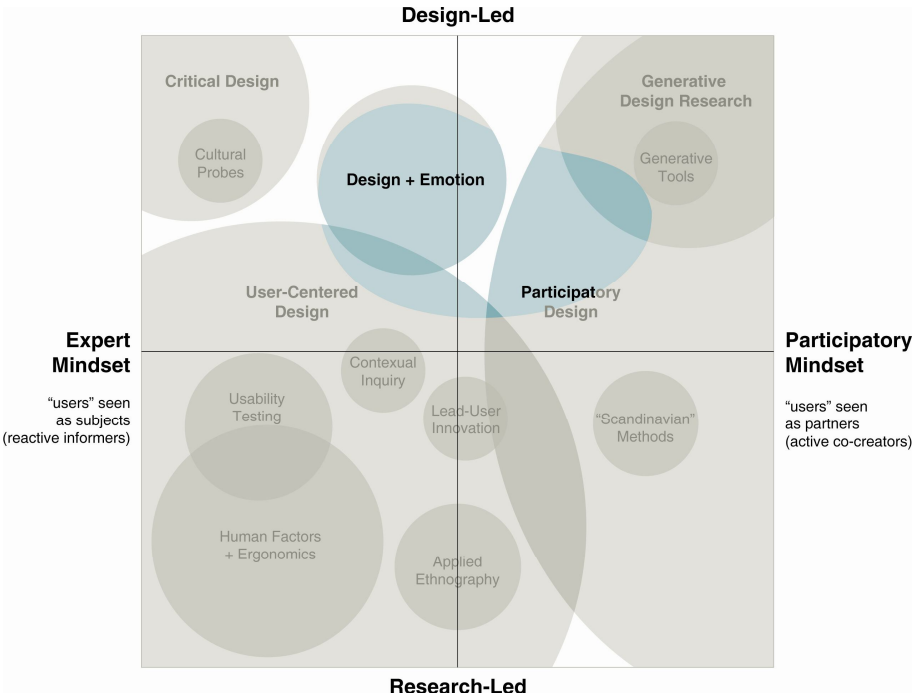
Their tools and methods

PROject Science applies its unique and proven process called Strategic Innovation, characterized by having a direct impact on competitive advantage and acting coherently in different elements, such as business models, products and services, organizations, processes, systems and ICT, and business ecosystem. Strategic Innovation combines scientific research with industry practice and includes the following activities:

1. Practices aimed at sensing opportunities and creating innovations, such as business strategy, technology strategy, market brand and design strategy, product and process pipeline, conception implementation.
2. Practices aimed to improve capabilities and processes that firms use to generate strategic innovation, such as business strategy, process assessment, process design, learning and improvement, organization for innovation, context management.

One of the company's methods is a continuous worldwide research aimed to explore the most advanced processes and ways to innovate applied by successful firms and evaluate their impact on competitive performance. In addition, this nonstop investigation process is completed by state of the art research conducted at top international business schools and universities, such as Harvard Business School, Sloan School of Management of the MIT, London Business School, Copenhagen Business School, and Leuven University. This direct collaboration with thought leaders allows PROject Science's team to have an access to the most recent insights and intensely assimilate and test the novel methods.

Map 054
Map of tools and methods, PROject Science
Resource: personal (based on Sanders 2006)



04|3|13 Design Innovation

Type	Private
Founded	1998
Headquarters	Milano, Italy
Founders	Carmelo Di Bartolo Pino Molina Betancor
Employees	15
Website	www.designinnovation.it

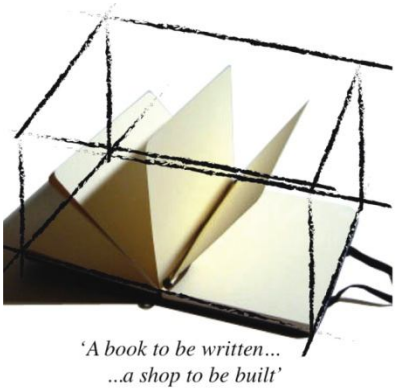
Who they are

Design Innovation is a process design consultancy founded in 1998 by Carmelo Di Bartolo and Pino Molina Betancor in Milan. The company's mission is to apply its twenty-year experience in coordinating designs, production, communications and markets. Moreover Design Innovation helps its clients "enlarge business vision by looking for innovative solutions for the future" (www.designinnovation.it). Additionally to its Milanese headquarters, the company has an office in Las Palmas of Gran Canaria, Spain. Design Innovation is divided into three departments: "Research", "Studio", and "Academy".

Their work

"Design Innovation has cooperated with national and international organizations, private and public research institutes, universities and corporations, and has promoted international events and workshops on research, development and innovation" (www.designinnovation.it).
The company's client list includes Fiat, Motorola, 3M, Sidac, Centro Ricerche Fiat, Gillette, VLM, Johnson Controls, Commer, Laika, Sony, Lever, Pirelli, Giovanardi, EP, Piaggio, Indesit Company and many others.

Image 023
Project samples, Design Innovation
Resource: personal



Advanced Innovation Laboratory for Moleskine
Generating concept for a possible retail
2009

Food Room for Ariete
Developing new concept ideas for new product lines consistent with market and consumer lifestyle evolution
2008

Prime Cup for Triennale di Milano
Coordinating the match between demand and supply in innovative projects
2007

Their team

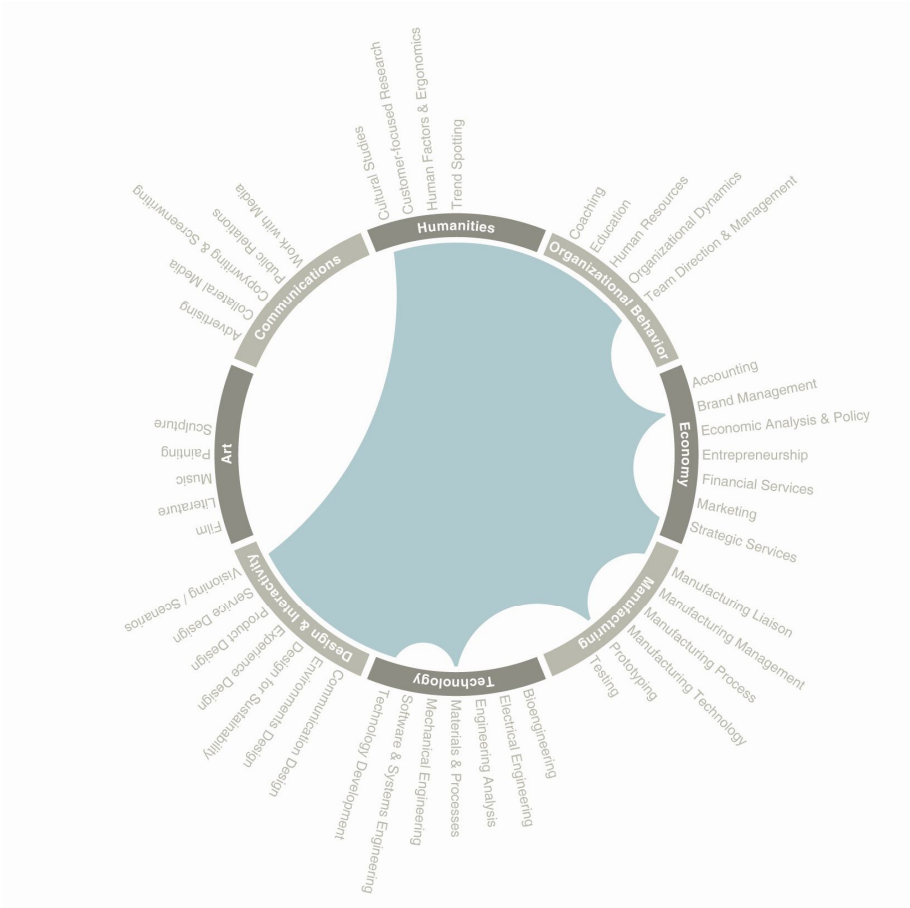
Design Innovation works by setting up interdisciplinary groups where designers, architects, engineers, economists and experts in buildings consumption scenarios and models team up with managers, corporate executives and technicians to develop future scenarios and designs.

What they offer

Design Innovation offers services in three macro areas:

1. Design research: this sector is occupied with scenarios, technology trends, materials and processes, strategic design, concept design, and materials design. The research activity is based on company's belief that the way objects produced, used and then disposed has to be coordinated according to the whole lifecycle and economy of resources.
2. Product design area deals with industrial design, landscape design, interior car design and exhibit design. Here the company combines manufacturing strategy with innovative design method to generate successful projects.
3. Design management: this area is responsible for advanced design, innovative design projects for small and medium enterprises, educational projects, workshops and international and interdisciplinary internships and projects for the urban quality.

Map 055
Map of services offered, Design Innovation
Resource: personal

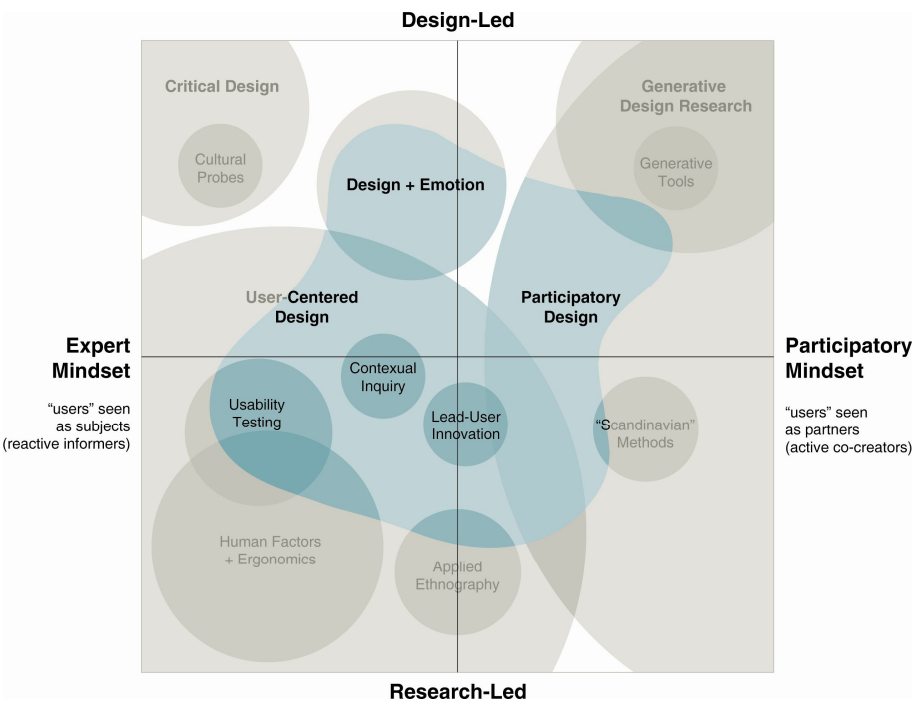


Their methods and tools

The methodology of Design Innovation studio is based on three main concepts:

1. Bionics: a discipline that studies the phenomena and functional solutions of the natural world (minerals, plants, animals) in order to find out useful ideas for applications in design of effective and affordable products and industrial systems. From 1978 to 1998 Caramelo Di Bartolo has developed the bionic method at CRIED in Milan, giving the rise to numerous experimental projects and research activities at Design Innovation studio.
2. Advanced Design: a method aimed to consider all the aspects of the project, focuses on definition of plausible scenarios, understanding and interpreting the signals coming from users and technicians, unification of product development and innovation emergence.
3. Perceived Quality: this aspect is one of the fundamentals of the Design Innovation approach. In all the projects of the studio a product and its material interact with the end-user, communicating the product identity by form, color, surface and performance. Design Innovation developed its own unique method to choose and apply an appropriate material to the product. In the beginning the needed qualities are discovered followed by choosing materials that can fit. After that the chosen materials are mapped on the technical and sensorial maps, developed at the studio by designer Paola Rossi. When the mapping process is finished, the critical analysis of all the aspects is done and final and the most suitable material is chosen.

Map 056
Map of tools and methods, Design Innovation
Resource: personal (based on Sanders 2006)



04|3|14 MetaDesign

Type	Private
Founded	1979
Headquarters	Berlin, Germany
Founders	Erik Spiekermann Uli Mayer-Johanssen Hans Ch. Krüger
Employees	330+
Website	www.metadesign.com

MetaDesign

Who they are

MetaDesign is one of the leading European agency for corporate design, branding and corporate identity. The company was founded in 1979 by Erik Spiekermann, Uli Mayer-Johanssen and Hans Ch. Krüger in Berlin. Today the business with more than 330 employees has offices in Berlin, Beijing, Hamburg, Düsseldorf, Zurich and San Francisco. MetaDesign applies “a customer- and user-centered methodology to designing logotypes, packaging, collateral systems, websites, applications, mobile interfaces and other branded systems of communication” (www.metadesign.com).

Their work

MetaDesign provides continuing support for companies, helping them develop and manage their corporate identity and branding processes. The company operates in various sectors ranging from brand strategies to the design and implementation of complex identity systems and images. Among MetaDesign’s clients are many famous international corporations, including The Economist Group, Ferrari, Lexus Lufthansa, Volkswagen, Audi, Conrad, Osram, eBay and Škoda Auto.

Image 024
Project samples, MetaDesign
Resource: personal

Corporate design system for Volkswagen
A long-term partnership
1995 -

MoMA in Berlin
Attracting at least 700,000 visitors
2004

An image change for Audi
A new brand experience
1994 -

Their team

MetaDesign's multi-disciplinary teams include brand specialists, visual designers, interaction and information designers, content strategists, production specialists, and project managers.
The management board has a great experience in understanding brand and user needs in a wide range of applications, including print and digital media.

What they offer

MetaDesign provides the following services in corporate identity and branding:

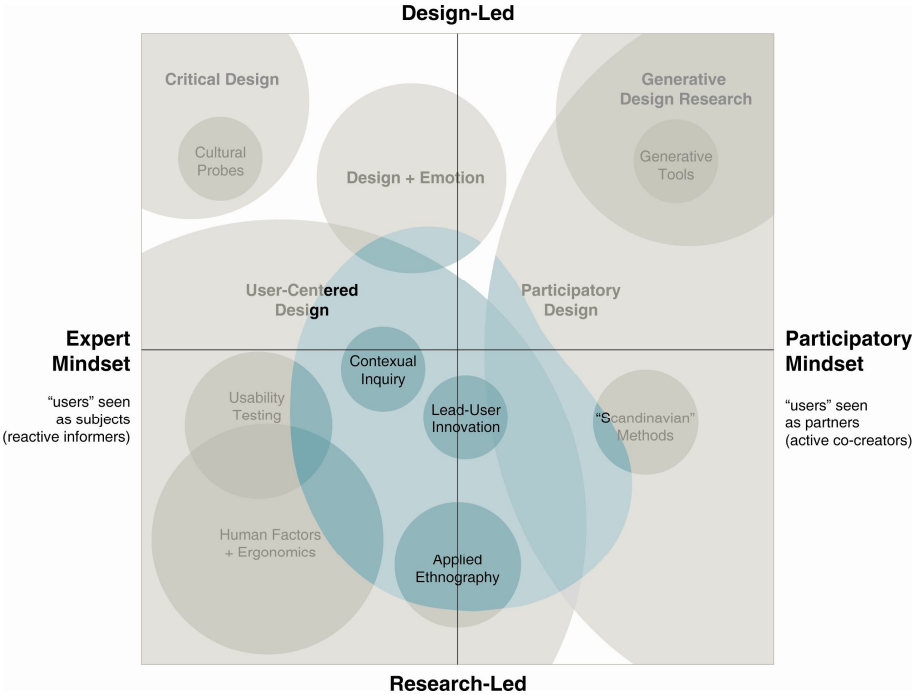
1. Strategy: strategic services use holistic approach to brands, considering internal and external factors in equal measure.
2. Design: to create a multi-sensory brand experience MetaDesign offers design services such as corporate design, sound branding, 3D (trade fair stands, interiors, packaging, shops) and interactive branding.
3. Communication: this service includes corporate publishing (annual reports, magazines and brochures), employer branding, campaigns, naming, and brand language.
4. Implementation: this service includes brand management systems that provides fast, easy, cost-effective brand documentation, brand events, brand training, and brand media (brand movies, pocket guides, brand books and other media).
5. Production: this service guarantees the high quality of all printed materials such as layouts and templates for layouts based on corporate design systems, logo files for all application fields, perfecting images, and managing the production of print media.

Map 057
Map of services offered, MetaDesign
Resource: personal

Their methods and tools

The brand identity design is done on a “meta” level, always keeping an eye on the big picture, but producing simple, clear and aesthetic visual solutions.
MetaDesign’s integrated corporate identity projects are based on the MetaBrandProcess. This process ensures effective interaction between the diverse competence areas of the agency, using proven tools and methods to guarantee optimal results. The steps of MetaBrandProcess include MetaAudit, MetaStrategy, MetaDevelopment, MetaImplementation and MetaMonitoring.
An integrated kit of tools used by the company is called MetaPlatform. It ensures that the designed identities are adapted to all areas of the company relevant to brand management. A strategic brand platform includes broader concepts such as brand design, brand experience influenced by the external factors (product / service, marketing, distribution, corporate communications, corporate strategy, personnel management) and their interactions on the market.

Map 058
Map of tools and methods, MetaDesign
Resource: personal (based on Sanders 2006)



04|3|15 Carmi e Ubertis

Type	Private
Founded	1986
Headquarters	Milan, Italy
Founders	Elio Carmi Alessandro Ubertis
Employees	24
Website	www.carmieubertis.it

carmieubertis

Who they are

Carmi e Ubertis is a company specializing in creation and management of brand images, founded in 1986 by Elio Carmi and Alessandro Ubertis. Among the company's values are common sense, proactive attitude, professionalism and creativity. Carmi e Ubertis tends create tangible, concrete brand performances to optimize companies' return on investment. Thus, the studio mission is to support its clients throughout the process of brand optimization. According to Carmi e Ubertis website, communication systems they create are characterized by coherent and clear presentation, differentiation from their brand competitors, and relevance to the brand's prospects.

Their work

Carmi e Ubertis collaborated with many national and international brands and companies, including Antica Erboristeria, ATM Milano, Bocconi, Perugina, Cappellini Design, Coin, Ferrero Italia, Gucci, Henkell Italia, Johnson Italia, Kerastease, Tuborg and others.

Image 025
Project samples, Carmi e Ubertis
Resource: personal

Brand governance for Dainese
Updating the brand for leading manufacturer of protective motorcycle and ski wear in Italy

Vivimi for Triennale di Milano
A large–scale exhibition
2007

Alfredo's for Amica Chips
A new premium line packaging

Their team

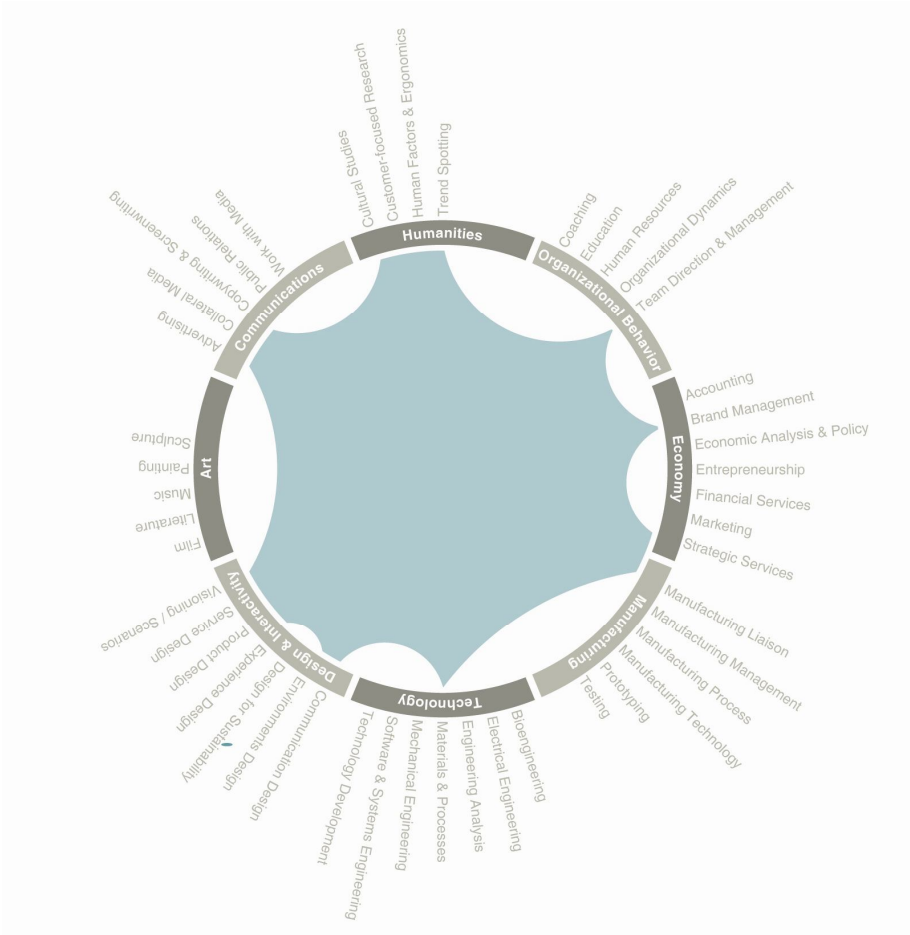
In spite of the company size, the team consists of professionals in different disciplines, including design directors, designers, copywriter, strategic planners and project managers.

What they offer

Carmi e Ubertis provides brand governance services that include the following tangible aspects (www.carmieubertis.it):

1. Corporate design focuses on defining guidelines, rules and standards to coordinate the various aspects of a brand in communication materials: from internal to external manifestations of the brand, from stationery to signs, from physical to virtual support.
2. Editorial design includes presenting the brand within the publishing world and creating a strong relationship with the readers.
3. Packaging design communicates values and distinctive features of the product through a combination of functionality, protection, conservation and transport. The aim is to present the brand and its packaging as a uniquely identifiable whole.
4. Space design brings the brand into environments where it has a tangible physical presence. It is concentrated on creating temporary or permanent displays such as stands, shop windows and exhibitions with the aim of giving the target market a memorable, distinctive and multisensory experience.

Map 059
Map of services offered, Carmi e Ubertis
Resource: personal

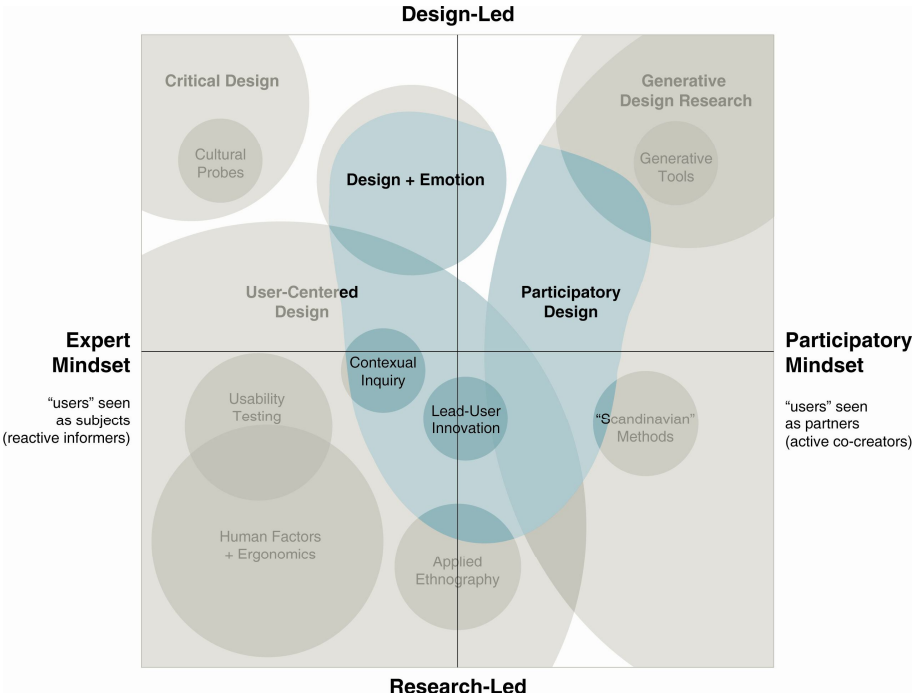


Their methods and tools

Carmi e Ubertis employs a continuous 360-degree approach to brand governance, with specific attention to each individual sphere of intervention. This holistic strategy provides a unique perspective from which the brand is presented in every sphere of communication. Having analyzed brand's history and values needed to establish a communication strategy, the studio transforms the way it is perceived into a inimitable and clearly defined experience.

The working process is based on a sequence of rigorous stages and continual checks, such as set up kick-off meeting, research and analysis phase, strategic phase, creative phase, consultation and coordination of production, and, finally, brand guardianship. In spite of its very structural nature, this approach is flexible and depends on symbolic, emotional and rational contents of each brand.

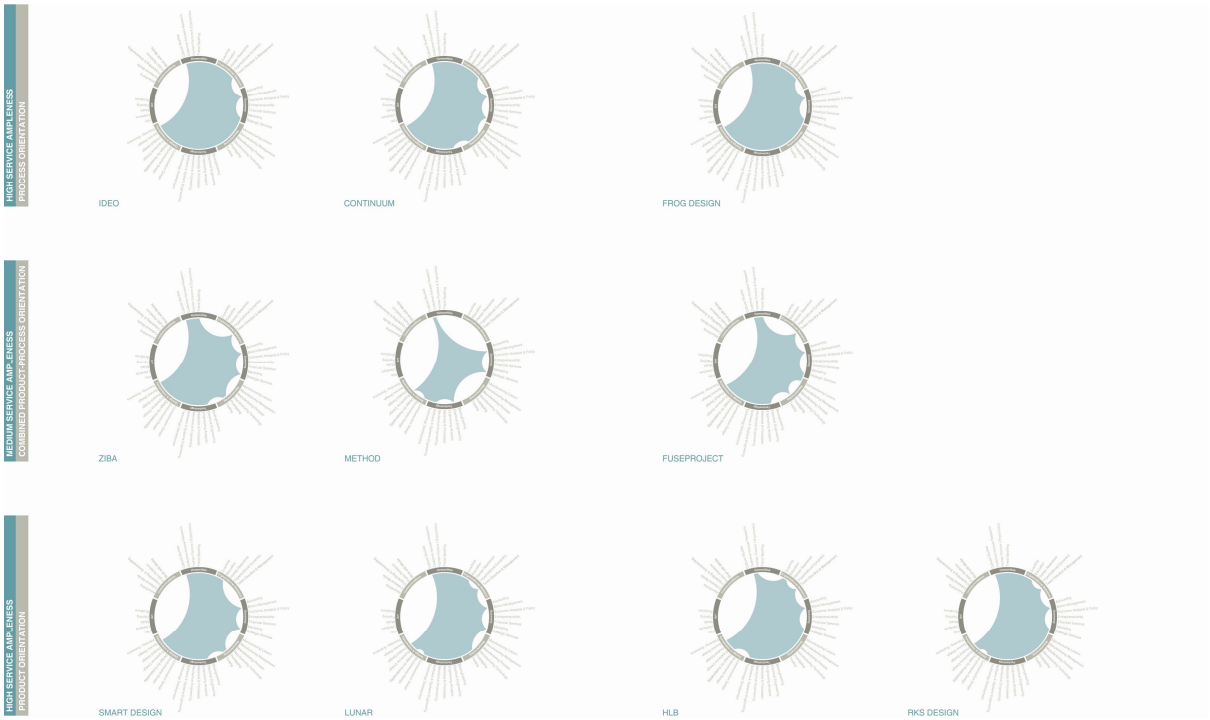
Map 060
Map of tools and methods, Carmi e Ubertis
Resource: personal (based on Sanders 2006)



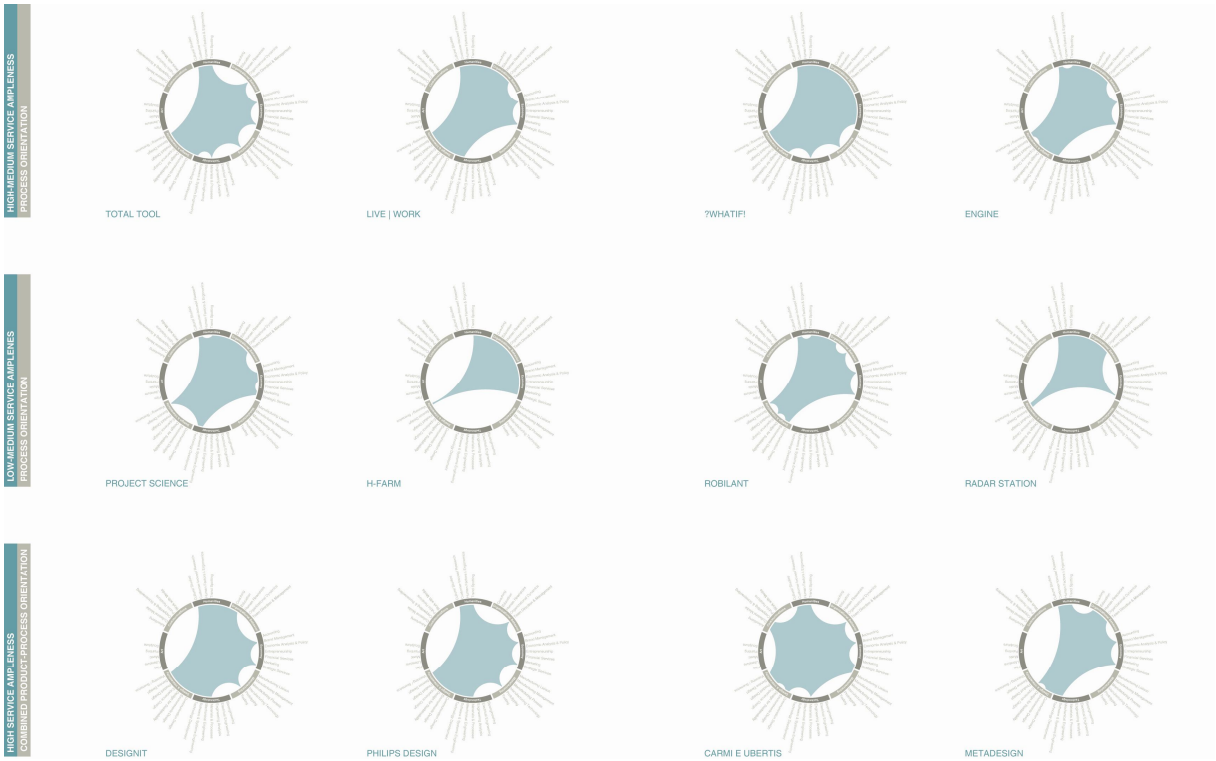
04|4 Comparative mapping and conclusions

In order to uncover some characteristics of process design drawn out from case study analysis, I have positioned all the observed consultancies within the discussed context. For that purpose there was developed a two-axes map. One of axes is presented by the opposite design approaches: product orientation defined by a linear problem solving process and process orientation, which, being the main focus of the research, is defined by systemic and holistic character. The second axe is composed of a dualism adopted from E. Sanders's evolving map and defined by participatory and expert mindsets. Since the relationships in contemporary production system are changing (as it was discussed in the previous chapters), user and client involvement in creative process has a great impact on today's design culture, being one of the characteristics of systemic meta-approach. Given that the data gathered is qualitative, there is no definitive degree distribution and the scale varies from XS (extra small) to XL (extra large) measures of activities.
The positioning was based on summarizing maps (061, 062, 063, 064). According to them, American consultancies have mostly a product or combined product-process orientation. At the same time, European companies are mainly characterized by process orientation. Additionally, I found out that most of American companies, on the contrary to European ones, have an expert and research-led approach to design, considering users as subjects. Some of them, as Method and Fuseproject, can be placed in the middle of the map, while their tools are more focused and specialized. Thus, mapping the observed cases in the contextual map, I could define just three American design consultancies using holistic meta-approach, drawing upon tools from each zone and cluster. These companies are IDEO, Design Continuum and Frog Design.

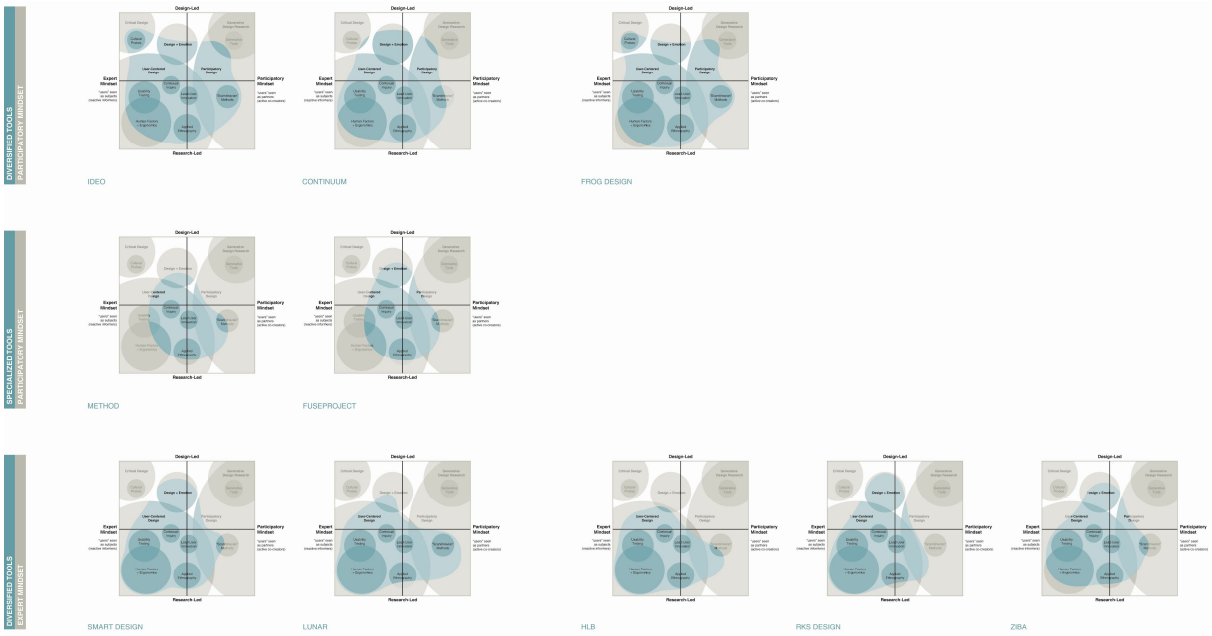
Map 061
Comparison of services offered by American companies
Resource: personal



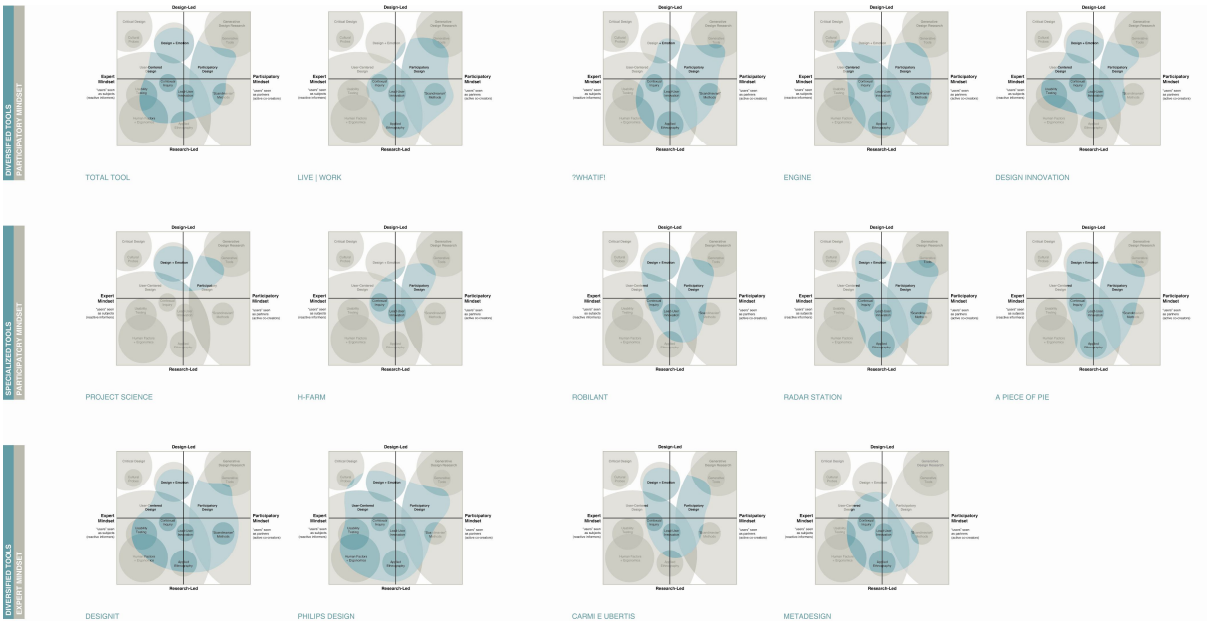
Map 062
Comparison of services offered by European companies
Resource: personal



Map 063
Comparison of tools and methods used in American companies
Resource: personal

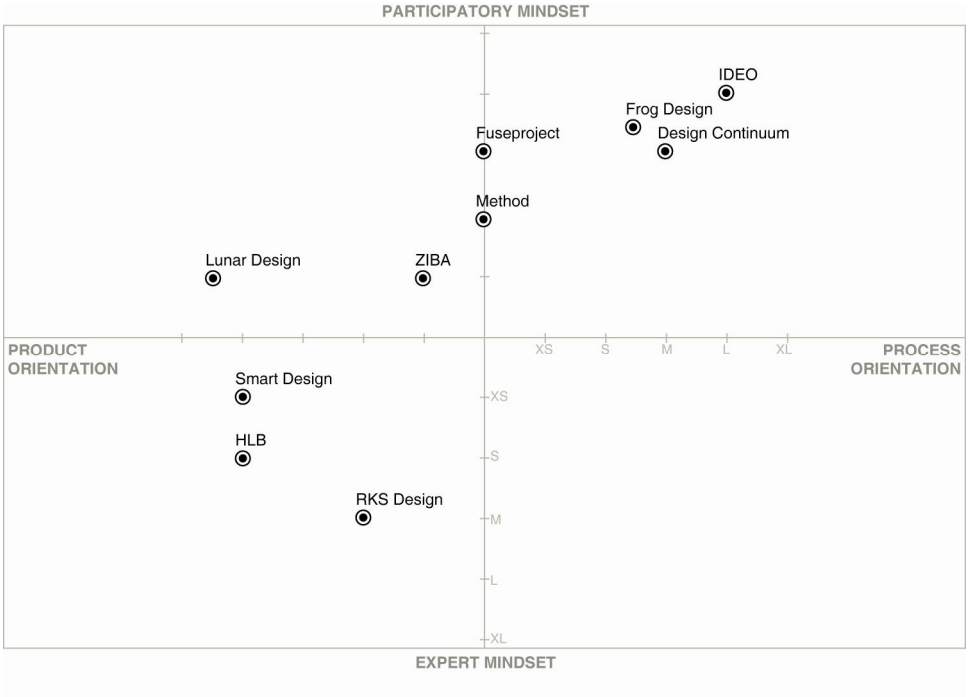


Map 064
Comparison of tools and methods used in European companies
Resource: personal

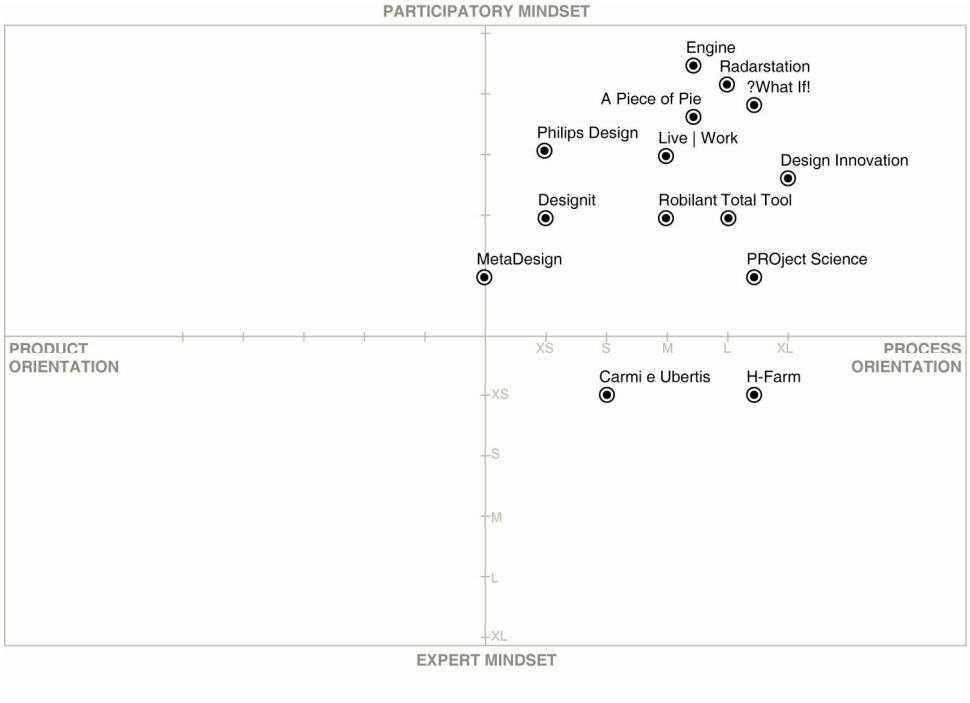


As a result, the mapping (065, 066) highlighted an evidence of process orientation prevalence within the European design consultancies. Furthermore, the maps allowed to locate an area of the most process-oriented companies, tending to collaboration and end-user involvement. These cases (IDEO, Design Continuum, Frog Design, Radarstation, ?What If! and so on) were reviewed in a more careful way, including their projects' analysis, in order to draw out some common characteristics for process design definition.

Map 065
Mapping American case studies within process design context
Resource: personal



Map 066
Mapping European case studies within process design context
Resource: personal



Consequently, process design can be described by the following key points:

1. **Co-creation and user involvement in design process**
   The case study analysis has shown a growing usage of co-creative methods and user involvement in research and synthesis phases of design process. The phenomenon is prevalently evident among the European consultancies, but is presented also in American practice. The tools used by the studios, such as ?What If!, Radarstation, IDEO, Engine, PROject Science and others, include interviews and co-creative workshops for project stakeholders. This approach helps better understand design context, providing a way for more adequate and appropriate study of real users' needs and desires.

2. **Continuous dialog and collaboration with client**
   Some consultancies (Method, Fuseproject, RobilantAssociati, H-Farm, ?What If!, Design Innovation) have created long-term collaborative relationship with their clients. First of all, such co-working occurs during the whole project development process, giving an opportunity to all the stakeholders to express themselves and arrive to the most suitable solution for all the interested sides. Secondly, since product innovation is a process that can continue months and even years, most of the observed process-oriented studios tend to develop long-term relations with their clients during for many years. Thus, in many cases the projects are almost endless, having a possibility to be continued in any particular period. Some of these processes can give a birth for the new project developments and scenarios.

3. **Complexity and ampleness of the projects: many directions for future development**
   Almost all the process-oriented consultancies deal with projects of a great complexity and ampleness, while the subjects span between organizational innovation, ethical and social issues, sustainability, complete brand identity and other similar ones. Projects usually contain

multidisciplinary aspects, combining elements of art, communications, humanities, organizational design, manufacturing and technology. Such projects have a great potential to give a start for many new developments and project directions.

4. **Holistic, systemic and scenario-based approach to problem**
   Design method of the reviewed process-oriented consultancies is based on systemic meta-approach and scenario building. This process can be portrayed by organizational innovation projects that provide scenarios as a meta-framework for the future company development. In fact, each process design project offers a number of various scenarios for further implementation and development, which becomes more important than definite result since it creates a real innovation guide.

5. **Usage of customized and tailor-made tools**
   As the chosen projects have shown, process design can be also characterized by flexibility and adaptability of methods and tools for each project. Since there are no identical companies, territories, contexts and cultures, process design approach aims to uncover the particular characteristics of every given situation and to choose for it the most appropriate methods from an available toolkit, or to mix and combine existing tools in order to create new more effective ones. As a consequence, each process, even following the same logical phase division, is unique and modified according to every single situation.

6. **Involvement of extended and multidisciplinary team**
   Since contemporary context makes us to take into account enormous quantity of variables, the number of stakeholders taking part in the innovation process is growing continuously, as well as design teams become multidisciplinary, including professionals from various fields, such as psychologists, anthropologists, engineers, researches, human factor specialists, business people and others. Turning back to case study analysis and comparison, in all the observed consultancies the team included specialists from diverse disciplines, such as branding design, business strategy, communication design, electrical engineering, human factors, industrial design, interaction design, mechanical engineering, environmental design, social sciences.
   However, I have found out a difference between American and European consultancies based on their teams' professional composition. American studios, being generally product-oriented, focus on technical and engineering product's aspects, while European consultancies are strongly oriented to strategic and business design activities, including coaching, training and organizational design. Additional confirmation for this tendency presented by educational background analysis of studio leaders. More than half of American bachelor, master's and doctorate degrees are done in industrial design, while the rest refers to architecture, visual communications, business administration, electrical engineering, ergonomics and biomechanics (Map 067).
   Instead, an European degree dispersion appeared to be different. First of all, the percentage of companies' leaders graduated from industrial design is less than in America. Moreover, additional disciplines present an opposite direction from American perspective. Professions studied by European leaders include interaction design, visual communications, responsibility and business practice, design strategy and innovation, social communication.

This division presents an additional confirmation of different approaches between European and American consultancies.

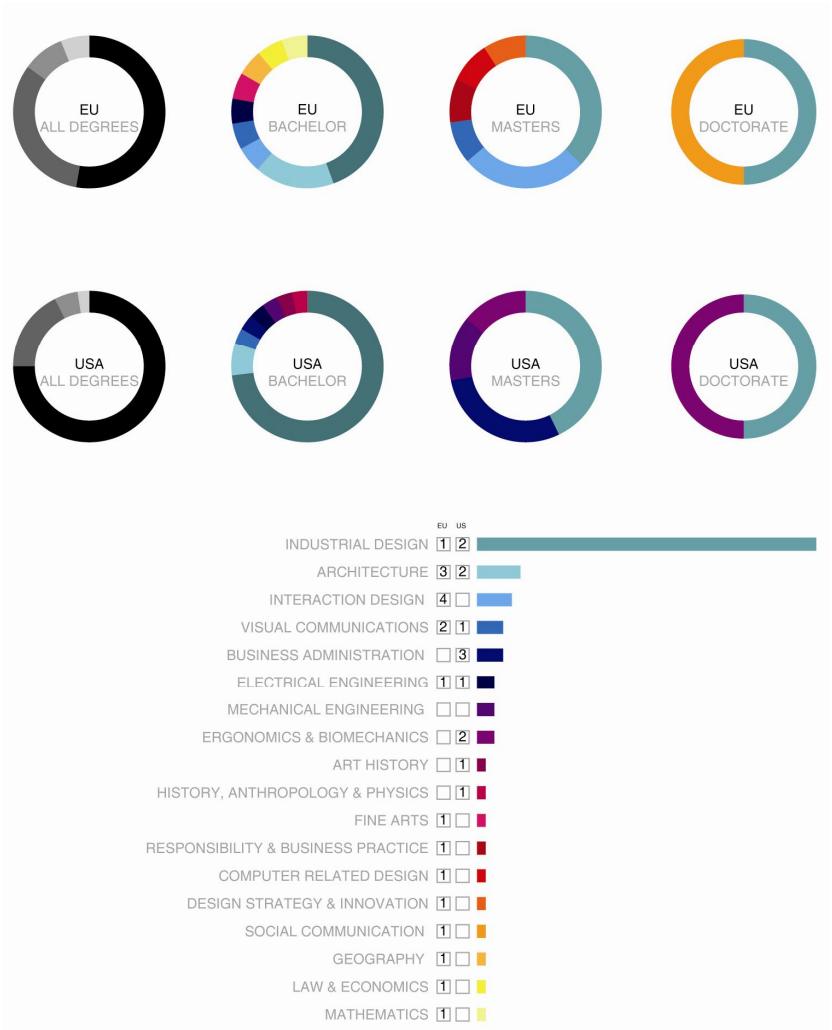
7. Time dimension: duration, repetition, periodicity

As the case study analysis demonstrated, time has a great importance in process design projects. Since organizational course of actions cannot be stopped, there is a need to systematize innovation projects paralleled to the current flows, step by step making them an integrated part of the company's everyday activity.

Additionally, the time factor has a duration meaning. In the beginning of the thesis there was already discussed a changing rhythm of nowadays context: the product life cycle became very short, while the organizations should reply to this reality with the same velocity. Moreover, process design takes into account a slow progression of research aiming to understand weak signals and future necessities of the market.

Another connotation the time element has within process design context is the project's repetition and periodicity. As it was already explained, process design projects are continuous, can be repeated and redefined after the formal ending and have a potential to give a start for the new processes by interconnecting with other scenarios.

Map 067
Educational background of design consultancy founders: USA and EU
Resource: personal



The following chapter starts to describe one of the most significant examples in the field, Design Innovation studio. As an introduction to studio methodology, philosophy and tools will be presented and analyzed some projects of the companies within defined focus area.

05

Design Innovation: an Italian process design consultancy

The fifth chapter demonstrates one of the representative case studies in the field of process design – Design Innovation studio, leading by Carmelo Di Bartolo.

05|1 About the studio

In the previous chapter there was made a general review of design consultancies worldwide providing process design services. It aimed to discover some common touch-points between the chosen case studies, to analyze them and find out their main characteristics and methods used. In this section I would like to extend the topic and to talk about one of the leading Italian design consultancies in the field of process design, Design Innovation. To study and investigate the studio's methods, approaches and tools I have done there a three month internship from October till December 2009. In the following subchapters I will explain all the aspects of the studio uniqueness, starting from its background and structure, its current team and main clients, followed by the studio leader description and his philosophy.

05|1|1 Background

Design Innovation was founded in 1998 by Carmelo Di Bartolo and Maria Del Pino Molina Betancor. For more than two decades the studio practices in coordinating the needs of design, production, training, communications for industry and public administrations. Design Innovation follows an interdisciplinary approach, in which designers, architects, engineers, economists are integrated with managers, administrators and technical stuff of the client's firm in order to develop scenarios and project visions. The studio makes connection between companies and the world of research through collaboration with academic and professional institutions around the world. Design Innovation helps the companies to broad their vision by focusing on innovative solutions for the future.

Image 026
Design Innovation studio – library and meeting point
Resource: Design Innovation archive

The studio offers its services in three macro areas:

1. Design research that includes scenario development, technological trend monitoring, study of new materials and processes. It also comprises strategic design, concept design and material design.
2. Product design that covers the areas of industrial design, landscape design, interior car design and exhibit design.
3. Design management that includes advanced design, projects integrated design-driven innovation for SME, educational projects, international and multidisciplinary workshops and internships , and projects connected with urban quality.

Design Innovation is a member of some important professional associations, such as ICSID - International Council of Societies of Industrial Design, ATA - Associazione Tecnica dell'Automobile, Questio - research and technology transfer portal. It has a Lombardy Region's accreditation in the work and education sector. Since 2005 the studio holds ISO 9001:2000 certificate.
The studio has conventional connections with many international universities and educational institutions, including Universidad de Buenos Aires, Fundación Duoc Uc - Universidad Católica de Chile, Universidad Técnica Federico Santa Maria, Universidad del Bio-Bio - Escuela de Diseno Industrial, Universidad de Talca, Universitè de Montreal, Politecnico di Milano, Università degli Studi di Napoli, Universidad de Girona, Centro de Diseño Castilla La-Mancha, Universidad de Las Palmas de Gran Canaria, and this list is growing constantly. In addition, Design Innovation has collaborated with professionals and researches worldwide.
To conclude, the studio has two autonomous headquarters, located in Milan and Las Palmas (Canary Islands). The offices are equipped with all the tools and resources necessary for research and design activities.

Image 027
Design Innovation studio – outside view
Resource: Design Innovation archive

05|1|2 Design Innovation structure

When you describe Design Innovation, it is inevitable to talk about its location. It became clear from the interviews with Carmelo Di Bartolo that he always wanted to create a pleasant and creativity supporting atmosphere for his employees and it was really important to him to build a team based on almost family connections. He believes in moods, feelings and emotions that a nice and homelike space can generate, and, moreover, Design Innovation is such a place. The studio building is sited within the *Antiche Fonderie Napoleoniche*, a foundry that once closed down its casting activities and now continues to be a place of work, art and culture, testifying the industriousness of the past. From my first visit at Design Innovation I was fascinated by the building and I couldn't imagine better place for design studio.
Also interior space of the studio is amazing: one can imagine himself being in a botanic garden full of light and freshness. Plants brought by Carmelo Di Bartolo from different places worldwide serve as a green division between the studio areas: director's office, material library and material research zone, project management area, internship zone, kitchen, library and meeting place, bionic research, secretary. Although the studio administration, academy and the place for international workshops and courses are separated by walls from the open space, they are also filled with light and peaceful feeling. The whole complex gives you a sensation of calmness, recreation and desire to come there again and again.

Image 028
Design Innovation studio – inside view
Resource: Design Innovation archive

Design Innovation is divided in three main areas as following:

1. **Research**
   The studio deals with a broad spectrum of research activities, while the main studied topics include product vision development, identification of technological trends and scenarios, concept design and strategic design, bionics and study of functional solutions in nature, analysis and research of new materials and processes. Some of these research activities begun many years ago, such as bionic research with the first results dated 1976. Furthermore, the study of new materials, technologies and processes started by designer Paola Rossi since her first steps at Design Innovation in 2003. Today the studio can be proud of the great material library and their own methodology for choosing the most suitable innovative material.

2. **Studio**
   The studio develops projects in two main areas: product design and design management. Among the projects that refer to the first sector are industrial design, landscape design, car interior and exhibit design. Design management area includes advanced design projects, design-driven innovation projects for SMEs, educational projects, international and multidisciplinary workshops and stages, projects for the urban quality. The next chapter will describe in a detailed way the projects done by Design Innovation.

3. **DIBA – Design Innovation Business Academy**
   DIBA was born as an extension of Design Innovation to provide co-existence of educational and practical realities that would guarantee a continuous transfer of a methodical and design know-how. The external professors belong to different professional fields, thus, they offer a variety of methods and approaches one can adopt to create his own working process. DIBA offers post-graduate Masters that allow to acquire new tools and design methods using the techniques already widely tested and applied by Design Innovation. DIBA proposes international Masters in three areas: Advanced Design: Italian Design Strategy, Advanced Fashion: Italian Fashion System and Advanced Environment: Environment Design.
   In addition, the academy provides short courses that use an experiential methodology and the principles of collaborative learning. The courses offered are divided in two areas: image identity, a training program created to improve both experts and aspiring professionals in the field of image consulting and personal shopping; and creative training, aimed to demonstrate to professionals in the field all the spectrum of tools and methods that help getting in touch with the creativity.

05|1|3 The clients

Design Innovation has cooperated with national and international organizations, private and public research institutes, universities and corporations, and has promoted international events and workshops on research, development and innovation. Among of the main customers of the studio are: Fiat Auto, Motorola, 3M, Sidac, Centro Ricerche Fiat, Gillette, VLM, Johnson Controls, Commer, Laika, Sony, Lever, Pirelli, Giovanardi, EP, Piaggio, Indesit Company, Same, Canary Government, Junta de Castilla-La Mancha, Xunta de Galicia, Colombia-Sistema Diseño, Instituto Tecnologico de Canaries, Triennale di Milano, Fondacion Duoc Universidad Cattolica, Cis-Galicia, DZ-Centro de Diseño, Berufs-Building Center-Vorlberg, and Ernest & Young and many others.

05|1|4 Current studio team

The Milanese office of Design Innovation, where my internship was done, includes the following professionals:

1. Maria Del Pino Molina Bentacor, co-founder and CEO
2. Eleonora Giacomello, administrative secretary
3. Carmelo Di Bartolo, founder and director
4. Carlo Dameno, industrial designer
5. Mimma Baseggio, architect
6. Paola Rossi, industrial designer
7. Roberto Siena, industrial designer
8. Valeria Turolla, secretary
9. Emanuela Missanelli, industrial designer
10. Mark William Salerno, industrial designer
11. Duccio Mauri, industrial designer
12. Marco Dolera, industrial designer
13. Camilla Fecchio, industrial designer

As I have already mentioned, the studio team is not just a group of professionals working together, but a family or a group of friends at least. They know how to work and deliver the project to the client on time, but at the same time they do it in such an "easy" way, having dinners together, making fun and supporting each other.

Image 029
Studio team with students
Resource: Design Innovation archive

Also there is no a clear job division between the team members. Of course, each of them has his main focus area, such as Paola Rossi e Duccio Mauri are responsible for material research and development, Emanuela Missanelli mostly directs complex projects, Carlo Dameno is the leading studio expert in bionics, Mimma Baseggio and Camilla Fecchio are in charge to direct and promote DIBA, Marco Dolera is generally tasked with graphic and visual representations of the studio work, and, finally, Mark Salerno is Design Innovation's 3D specialist dealing with computer modeling, sketches, physical mock-ups and many other things. But if it is necessary, each of them separately and all of them together become a multitasking team, trying to help each other, support and get an appropriate result. People in Design Innovation are really dedicated to their work, they love it, and they fill at the studio as if they are at their home. They continuously propose ideas to improve the studio, they have launches together, they go out together, they help each other. Indubitably, this peaceful atmosphere couldn't be created without the managing and organizational skills of the studio leader, Carmelo Di Bartolo. The next chapter will explain in a more detailed way his educational and formational background, his philosophy and methodology.

05|2 Carmelo di Bartolo: the founder of Design Innovation

05|2|1 Biographical notes and formation

As a starting point, I want to underline that the "training journey" of Carmelo Di Bartolo wasn't linear neither ordinary or usual course almost all designers completed. This extraordinary man has been experienced different activities and played various roles through his formation until the foundation of Design Innovation.
Carmelo Di Bartolo was born in Acireale, Sicily, which is a great baroque city in Etna. This green and pastoral area together with parents, who were simple farmers, had a great influence on his personality. One could say that his connection with natural world was "bred-in-the-bone". Lately, having finished the scientific lyceum, Carmelo Di Bartolo began to work at his father's bar and pastry shop, where he learned an art of Sicilian baking. This first working experience gave a lot to the future designer: there he made his first steps as a creator, comparing a mysterious "chemistry" of baking cakes with design process; in that place he took the first lessons in marketing, having responsibility to find a right approach to each client.

In 1970, Carmelo Di Bartolo went to the Art Institute in via Crociferi, Catania. The trip he has been doing every day from Acireale to the institute had a meaning of mental depuration because the road passed over the nature, sea and countryside. The institute was very advanced for that time, having laboratories of thermoforming, plastics, industrial machinery, lacquering, gilding, fresco. Many important artists came to teach there, such as Munari, Marcolli, Figini. The general atmosphere at the institute was open, very dilated, providing a continuous contact and experience exchange between the students and professors. One of the professors, the artist Rosario Grasso, advised Carmelo Di Bartolo to go to Milan for studying. Thus, the institute management paid the tickets for him and other students to see art and design schools in Italy. They visited some institutes in Rome, Florence, Venice, and, finally, have chosen the Istituto Europeo di Design in Milan, where they studied from 1973 till 1976. At the IED Carmelo Di Bartolo found incredible professors, Roberto Lucci, Paolo Orlandini, Giovanni Simonessi e Pietro Antoni, who were assistants of Marco Zanuso. Thank to these docents, Carmelo Di Bartolo found again the same open atmosphere he liked at the Art Institute in Catania.

Special close relationship Carmelo Di Bartolo has developed with Roberto Lucci who recently came back from USA where he studied Basic and 3-dimentional design.

Having graduated from the IED in 1976, Carmelo Di Bartolo started to work at the architectural studio of Adalberto Dal Lago. The same Di Bartolo described the studio as a “war machine” that supplied to clients a complete product including all its aspects from graphics to architectural design. The studio was very structured and organized, employing product designers, architects, graphic designers, marketing and PR specialists. In my opinion, this model of complex project approach had a great influence on Carmelo Di Bartolo and the future structure of Design Innovation. Still working at Adalberto Dal Lago’s studio, he has received an invitation from Italian professor living in USA, Renaldo Petrini, to be an assistant for Industrial Design course at the IED. Thus, since 1978, Carmelo Di Bartolo worked as a designer during the day and as a Basic Design coordinator in the evenings. Given that in 1973 has occurred a massive energetic crisis, the main target of this tutoring was to uncover how to design with the minimum material use. Together with the students Carmelo Di Bartolo studied light and reticular structures inspired by basic geometry. Actually, the first steps towards bionic research started from this activity at the IED, from comparison between the Basic Design results and natural structures. Later, in 1982, Carmelo Di Bartolo established at the IED a Research Center for Natural Structures (CRSN) that was occupied with bionics and its development. He directed the center until 1998, the year he founded Design Innovation.

Image 030
Carmelo Di Bartolo
Resource: Design Innovation archive

At the same time, starting in 1978 to experiment with light and reticular staructures, Carmelo Di Bartolo decided to study architecture at the Politecnico di Milano. Renzo Piano was the one to convince him not to do that, but to travel and visit places worldwide dealing with light architecture.

Following this advice, in the period from 1979 till 1982 Carmelo Di Bartolo traveled in various places learning a range of light structure approaches. Primarily, he went to UK to visit Keith Critchlow, a professor of Islamic Art at the Royal College of Art and leading expert in Sacred architecture and Sacred geometry. Next year he took a trip to USA, New York, where he visited Mario Salvadori, a structural engineer and professor of both civil engineering and architecture at Columbia University. The same American journey continued to Chicago where Carmelo Di Bartolo stayed at the house of Ray Pearson, a professor at the IIT. Chicago followed by a trip to Ottawa Carlton University. The final step of this "educational journey" was to come back to England for floral gothic architecture study.

Having competed this experience, Carmelo Di Bartolo started to work as a designer at Renzo Piano's studio where he stayed for nearly two years. The work at the studio continued day and night, but its pleasant and family-like atmosphere was similar to one of the Art Institute and the IED. Actually, family-like relationships and homelike feeling had always a significant impact on Carmelo Di Bartolo: the lack of this atmosphere forced him to quit the IED, but the same feeling he successfully created at Design Innovation.

After establishing Design Innovation, Carmelo Di Bartolo didn't finish his tutoring career. He was a lecturer at the Politecnico di Milano during the period 2001-2005, at the IED Madrid and at the DZ - Centro di Disegno di Bilbao, Master of Design management. Actually he is Associate Professor at the Montreal University.
In addition to his educational activity, Carmelo Di Bartolo is an author of numerous articles published in the specialized design magazines. He also wrote the following books: *Strutture naturali e modelli bionici* and *Ripensare il design.*

05|2|2 Philosophy and vision of design

Having such a broad and non linear formation and education background, Carmelo Di Bartolo created his own vision of design culture. First of all, he believes that design process is strictly connected with designer's personality and individuality: there is no universal unchangeable recipe one can use for all kind of projects. Design is a complex discipline that includes numerous aspects, such as ethics, functional requirements, marketing, technology, emotional characteristics and many others. According to Carmelo Di Bartolo, the only way designer can deal with this complexity is to develop a systemic approach to problem and be able to harmonize and integrate its diverse and heterogenic issues in a coherent project. This definition of design has a particular importance in today's reality where the complexity is constantly growing and the number of elements and aspects to consider in design process is enormous. Consequently, the development of systemic and transversal approach is logical and inevitable. The "happy project", as Carmelo Di Bartolo calls it, occurs before working on each of its problematic issues and starts from the way you think about it. Such a systemic approach has general and comprehensive characteristics, coming before design method. In other words, this methodology tends to focus on susceptible materials that can stimulate various directions for further project development rather than on completed products. This method is not pedantic and it doesn't include long linear courses and predefined rules, but, on the contrary, allows everyone to build his own way to intend the design process.

In Carmelo Di Bartolo's opinion, decision to enlarge the project view has dual advantages: it is more adapted to respond on typical complexity of the contemporary design culture; and, secondly, this approach doesn't deny or makes less important a capability of designer to synthesize, formalize and

develop the project. On the contrary, a correct setting during conceptual phase, which opens a number of different directions for further project development, allows to manage all the following phases in a better way, providing a good communication between the project stakeholders and tools for better process control.

Another positive and highly suitable for the contemporary context aspect of Carmelo Di Bartolo's approach is that it allows to generate a qualitative innovation and not just product restyling. It was already discussed in the previous chapters that in today's rapidly changing reality, where the products should survive in a quickly saturated market and high-competition context, the only reaction can be a fast and nonstop innovation. As a consequence, the systemic thinking guarantees a wide perspective, allowing to create innovation based on more extensive inputs than usability, functionality, styling and typology. The main objective of Carmelo Di Bartolo's systemic design approach is not a conceptual development of a single product, but an organic vision of complex relationships between objects, manufacturers and consumers, between materials, technologies and ways of use.

According to Carmelo Di Bartolo, in order to manage system complexity full of potential inputs for creativity and innovation, designer should develop and cultivate the following skills: good informative capability or a great ability to select an filter today's enormous information flow; ability to reflect intensively aiming to add something meaningful to data collected. The development of these capabilities depends on some basic conditions: availability of time; ability to reflect and communicate with other disciplinary languages; and, finally, the capability to create a more profound esthetics in objects.

To conclude, the systemic thinking proposed by Carmelo Di Bartolo provides, in my opinion, an effective way to approach today's dynamic and multidisciplinary reality.

05|2|3 Carmelo Di Bartolo as a leader of Design Innovation

Having been for a short period the studio's insider, I could create my own perception of Carmelo Di Bartolo as a leader of Design Innovation. To describe design, and, especially, his work, he uses a cake metaphor. Design process, on his opinion, can be compared with the process of baking. To make a good cake one need good ingredients, it is necessary to have appropriate tools and, the most important thing, one should have a feeling and sensitivity to choose a proper and the only possible temperature of baking. Carmelo Di Bartolo has a great ability to find this "right" temperature, creating a unique and inimitable relations with every particular client. Every day different people pass by the studio and to each of them Carmelo Di Bartolo has particular approach, all the time keeping the right "degree" of conversation. I was always amazed how the simply studio tour could vary depending on a visiting person: for prospective interns the focus would be on material lab, library and bionic archive; to a possible investor would be shown the most significant projects, someone else would listen to an exciting history of the building Design Innovation placed in, another visitor would be directly invited to launch an so on. He knows exactly how to deal with any kind of person.

Sometimes he seems invisible in the studio, sometimes he is too presented, but the only thing remains constant: he is a fundamental element of Design Innovation, the real "control center" who has a complex view of all the studio activities both in Milan and Canaries. Moreover, he knows exactly how each studio project can be developed. Making a revision with him can be quite scary: you demonstrate the work done and you think you had a logic thinking behind it, but in on quick sketch he will change

your project, providing the most appropriate story with all the possible (and impossible) solutions. He has this clear and complex vision of all the studio variables, elements, projects and interpersonal relations. In other words, if the studio specializes on advanced design and systemic project thinking, Carmelo Di Bartolo is occupied with “pre-advanced” activities, building a complete view of the whole system called Design Innovation.

06

Methods and tools used by Design Innovation

The sixth chapter describes methods, guidelines and tools discovered during the internship at Design Innovation.

06|1 Design Innovation project analysis

Since the main objective of the thesis is to study process design, an analysis of Design Innovation's methods, tools and approaches had a great importance for this purpose. Thus, I have spent three months as a studio intern to analyze and systemize their projects and expand the uncovered characteristics of the process design.
In the following subchapters I will describe the process done at Design Innovation, focusing on studio work classification, project file development, and, finally, presentation of the elaborated layouts and their analysis.

06|1|1 Classification of the studio works

The observed studio projects present a grand variety: they differ by duration, subjects, approaches, methods and final results. After an extensive arrangement work it became possible to divide the projects into three main groups:

1. **Product innovation**
   This group included innovative product design, spanning through industrial design, landscape design, car interior and exhibit design.

2. **Territory innovation**
   This group mainly included projects for urban and regional quality.

3. **Organizational innovation**
   This category included design-driven innovation projects for SMEs, educational projects, international and multidisciplinary workshops and stages.

For all the groups there was developed a typical layout or file to present the story behind each project. The file development will be discussed in the following subchapter.

06|1|2 Development of the project files

The aim of the project file development was to find an appropriate and the most effective way to present the studio work. To discover all the projects' components and main elements, the analytical process was divided the into the following topics:

1. **Design process**
   At first, I reviewed numerous projects in each of the three groups discussed earlier in order to uncover common characteristics of the studio design process. Actually, I found out that each project had an organized structure based on logical procedure: starting from pre-research it continued to analysis of the gathered data and elaboration of visionary scenarios that were developed, in some cases, into concrete and tangible products. At the same time it was not a linear problem solving, on the contrary, the studio design process can be described as a "dynamic organism", where everything is interconnected. Some projects presented a direct continuation of each other, such as Cesi LIA and Cesi Disvolvo; others where interrelated circuitously by coming out from generic scenarios, but taking a different way for further development. It is very important to add in this point, that none of the projects are finished after arriving to the end of the particular phase – all the processes are continuous. If the project doesn't have a further development after conclusive step (due to various reasons, such as wrong time to market, lack of an appropriate financial support, bureaucracy reasons and so

on), it goes to the shelf archive. In this way a continuous projects' circulation and mutation of the relations and connections between them are created. Sometimes the projects, done about ten-fifteen years ago and stopped for various reasons, can be reviewed nowadays and provoke new, interesting, innovative solutions. So, as I have explained, there is no linear and rigid process structure at Design Innovation, but all the projects follow commonly agreed steps to facilitate management and communication between the involved stakeholders.
In order to discover the common phases for all the studio projects, there was compared a proper amount of works. In the beginning I divided the process into three main phrases: exploration, projection and synthesis (Jonas 2001), while each of them was subdivided into regular design process steps, from research and analysis to elaboration. The number of the sub phases can vary depending on particular project's complexity and ampleness. Some multipart design works, such as Segrate project, contain all the steps of the development process, others, instead, can't follow the same logic, including a reduced number of sub phases. Thus, the file length varies considerably from project to project.

2. Timing, duration, repetition

Another important characteristics of Design Innovation's processes is their timing. The project's minimum duration is about an year, while particular importance is given to synthesis phase aimed to produce a great amount of scenarios and visions that could be developed in various time periods from intermediate implementation till the very far future applications. Since the processes in the studio are so extended, often happens that projects being developed start to interconnect and influence each other, creating new combinations, visions and scenarios. Thus, the files contain a timeline and indications of eventual interconnections and relationships with other projects.

3. Tools and method used

It is not the structured process that makes studio projects so unique, but tools and methods used. Similarly to process length, the toolset varies from project to project, being flexible and tailor-made. The main methodological elements of Design Innovation, that in different portions presented in almost all the projects, include:
1. Bionics, a discipline that studies phenomena and functional solutions of the natural world (minerals, plants, animals) in order to find out ideas for application in design of effective and affordable products and industrial systems.
2. Perceived quality. This aspect is one of the fundamentals of Design Innovation's approach. In all the studio projects, the product and its materials aimed to provoke an interaction with the end-user, communicating qualities and character by form, color, surface and performance. The studio developed its own unique method to choose and apply on product the best-fitting innovative material.
3. LIA (*Laboratorio di Innovazione Avanzata*). Design innovation practices collaborative tools, such as international workshops, seminars and laboratories. One of these tools, called LIA, has been presented in many recent studio projects (ex. Piaggio, Moleskine). The idea is to create multidisciplinary team of national and international students and professionals to work on particular project.

All the mentioned tools and methods will be discussed and explained in a more detailed way in the following subchapter. Here they are mentioned as a part of the project file development,

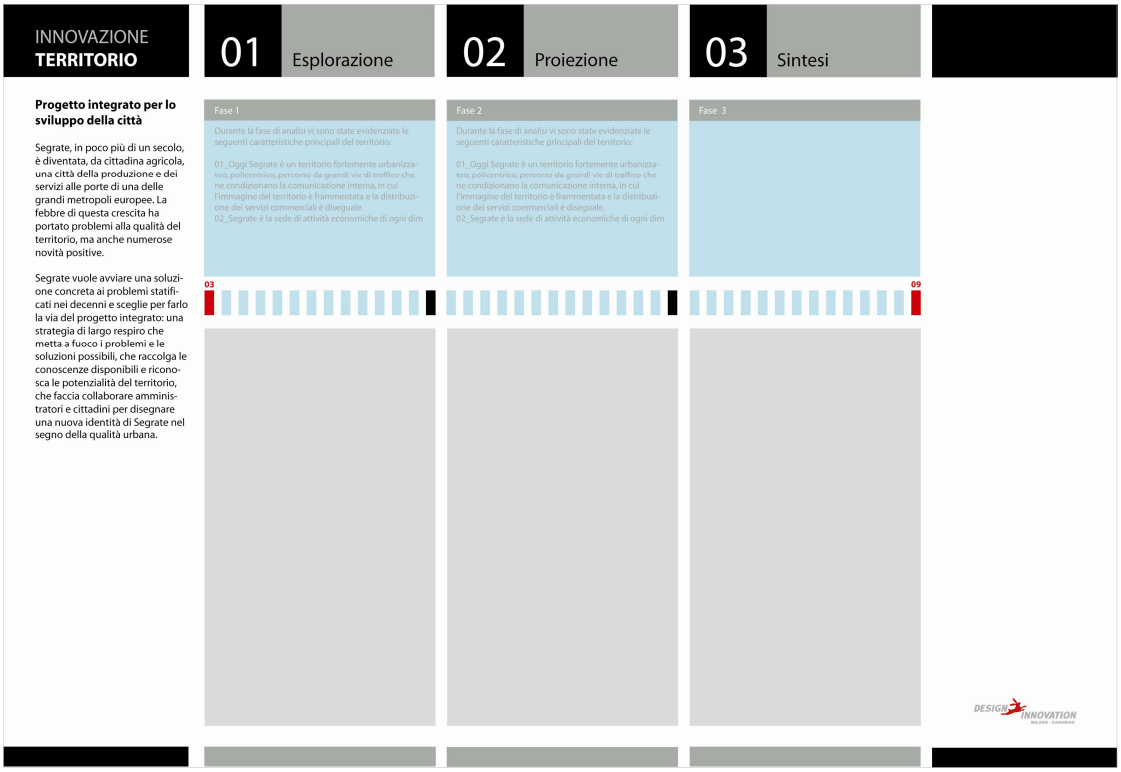
being an additional layer to include in layouts. There was created a color code for each specific tool comprising indication of its expansion level.

4. **Co-working with client**
   As it will be discussed in the following subchapter, the studio approach is also characterized by very sensitive and continuous relationship with its clients. The client is involved during the whole design process, being an active participant and co-creator. During the project development there are many touch-point meetings and reunions to exchange information and collectively generate ideas and solutions. These meeting points, usually taken place in the beginning and at the end of each step, will be mapped in the project files, using additional color code.

5. **External communications and eventual projects**
   Since the studio projects are long-term and can last for numerous years, it is inevitable to produce some external visual outputs of the process development. Reviewing the studio works, I have noticed that some phases could be culminated by intermediate communications, such as promotional events, exhibitions, printed visual material. Additionally, new eventual projects can be developed, provoked by a current process. An indication of such activities will be also included in the project files.

Based on these characteristics, the project files were created. The following subchapters will demonstrate some of the most interesting ones.

Image 031
Example of file developed – initial version
Resource: personal



06|1|3 Project samples

During my stage period numerous projects were studied and analyzed, and till the end of the internship activity eleven of them were reorganized and transformed into files. Elaborated files include the following projects, divided by three main categories:

1. **Product innovation**
   Food Room project | Ariete
   Light and breathable seat | CRF
   LIA – Ape evolution | Piaggio, Ape
   Innovative concepts for the kitchen | Indesit
   Innovative materials for cooking plates | Indesit
   Concept store Moleskine | Moleskine

2. **Organizational innovation**
   Cesi Disvolvo | Cesi
   Prime Cup for young designers | Regione Lombardia, Triennale
   Cesi LIA | Cesi

3. **Territory innovation**
   Bolla Salubre | Centropadane, Re-Lab
   City development project | Comune di Segrate, 3M

The following pages present the most significant examples from each project group in order to illustrate and facilitate later detailed explanation of the studio methods and tools.

06|2 Tools and methods

The internship completed at the studio, interviews with the studio team, the projects' study and analysis helped me to uncover some methods and tools used by Design Innovation. Actually, I have already mentioned them in the previous part since it was important for me to visualize all the complexity and multidimensionality of the studio works. The current chapter will expand the topic, giving a more detailed review of Design Innovation's approach and connecting it with process design context. I will start from the explanation of the studio method, Advanced Design, and continue with the main tools used for every project development.

06|2|1 Advanced Design

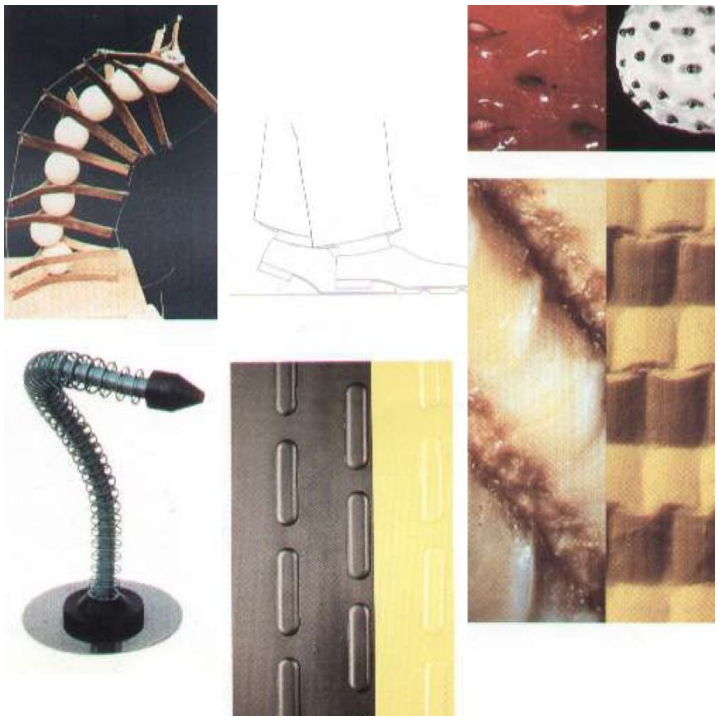
The studio method is based on the vision and perception of design as a process strictly connected with designer's personality and individuality. As I have already explained in the previous chapters, design is a complex discipline that includes numerous aspects and factors. Thus, according to Carmelo Di Bartolo, the only way designer can deal with this complexity is to develop a systemic approach to problem and be able to harmonize and integrate diverse and heterogenic issues in a coherent project. This definition of design has a particular importance in today's reality where the complexity is constantly growing and the number of elements and aspects to consider in design process is enormous. Consequently, the development of systemic and transversal approach is logical and inevitable. Such an approach is Advanced Design, a way to handle all the variables influencing design process. It includes the following objectives: develop plausible scenarios, discover and interpret signals coming from the world of end users and technicians, combine design demands with those of innovation development. In other words, this systemic methodology tends to focus on susceptible materials that can stimulate various directions for further project development rather than on completed products. This method is not pedantic and it doesn't include long linear courses or predefined rules, but, on the contrary, allows everyone to build his own way to intend the design process. Advanced Design is based on a correct process setting during conceptual phase, which opens a number of different directions for further project development, allows to manage all the following steps in a better way, providing a good communication between the project stakeholders and tools for better process control. This systemic design approach is not focused on implementation of a single product, but an organic vision of complex relationships between objects, manufacturers and consumers, between materials, technologies and ways of use.

06|2|2 Bionics

Bionics is one of the key factors of Design Innovation. Even taking into account that the main offer of the studio includes scenarios and visioning, many of the concepts are getting developed in details. But these specific solutions are usually being resolved in a conceptual way rather than searching for concrete answers. This "conceptual compass" of the studio is presented by bionic methodology or bionics. Bionics is a result of research activity and collection which started by Carmelo Di Bartolo in 1976 at Centre for Research of the European Institute of Design (CREID) and "which has become more and more precise and profound during the succeeding years till it has turned into a coherent group and a continuous development of information, data, and a work method that orbits around the observation of the nature and material structures of the animal and vegetable world. This careful and selective observation is used to identify (from a consideration of the origin of any definite design

problem) specific solutions —of material, form or process— existing in nature, to respond to particular needs" (Di Bartolo 1994).

Image 032
Examples of bionic projects developed at the CRIED
Resource: personal



It is not a case, therefore, of copying the nature or borrowing specific formal and functional solutions from the nature, but rather concentration "on the relationship between natural form and the distribution of material within the «object», on the relationships between the constituting parts of an articulated member or group of organs, and, above all, on the way in which the parts, the quality and the distribution of material, the subdivision and coordination of the various elements, collaborate towards the solution of a functional problem that has been defined as central" (Di Bartolo 1994).
Thus, the studio projects doesn't draw specific suggestions from the nature, but tends to build a reference model for problem solution based on nature observations. Actually, this tool is used in a pre-design phase, during research and analysis, in order to help find a point of reference and use a nature as a concrete base for future project development. In other words, bionic methodology is focused on functions more than in the natural objects themselves; "it is a field of research of the relationships between objects and of the interaction between the environment and the materials of which the objects are made" (Di Bartolo 1994).
Among the recent studio projects, illustrated in a clear way the bionic method, is a lightweight and breathable car seat designed in collaboration with CRF (*Centro Ricerche Fiat*). The project is presented in the sample files of the previous chapter. In the beginning were developed three concept ideas based on functions, objects and materials of the natural world, such as blood circulation in human body, pomp-based surfaces and light honeycomb structure s. The concepts were combined and elaborated in one project idea that was further developed as a detailed product.
Generally, the usage of bionics as an inspiration tool is presented in almost all the observed studio projects and it provides a rich basis for creativity and innovation.

06|2|3 Perceived Quality and Material Archive

This aspect is one of the fundamentals of the Design Innovation approach. Carmelo Di Bartolo believes that contemporary designers have a difficulty to propose convincing and potent aesthetical qualities. This phenomenon is so evident in the context of users' detachment from the forms produced nowadays and their preference of aesthetical solutions "approved by time". The problem can be explained by a constantly growing production rhythm, a continuous tension for rapid innovation and increased time to market of products. In this context, it is complicated for designer to choose an appropriate and correct product material. As Carmelo Di Bartolo points out in his book *Ripensare il design* (Di Bartolo1997), paradoxically such an insufficient aesthetical approach occurs in a contemporary context where the consumption is so accelerated that the products are partly bought by their aesthetic qualities exclusively. In fact, the consumption became only visual, ignoring human sensory that can bind at the same time and on the same object all the senses.

Image 033
The final version of Material Archive
Resource: Design Innovation archive

Thus, having this sensible vision of aesthetics, the studio projects are characterized by high quality and sensory factors. To choose and apply an appropriate product material, Design Innovation developed its own unique method that could be summarized in the following steps: in the beginning the needed product qualities are defined followed by choosing various materials that can fit; after that the chosen materials are mapped on the technical and sensorial maps, developed at the studio by Paola Rossi; when the mapping process is finished, the critical analysis of all the aspects is done and the final and

the most suitable material is chosen. The technical mapping includes an analysis of mechanical, physical and chemical product characteristics, while sensorial maps are composed of usability, resistance and emotional aspects of the product.
Additionally, the studio has its own Material Archive, which is being constantly developed and completed by new materials. During my first stage period me and a group of Chilean students helped the studio to innovate the existing material archive organization and develop a new system for material storage. The main criterion was to make material search and the whole organization easier and faster and to try to visualize perceived qualities of materials, since it had a great importance for the studio methodology. As a result we have developed an “intersection structure”, where on one side we placed materials (their amount was reduced in order to make the understanding easier and more immediate), and on the other one we put material qualities mostly used in the projects of Design Innovation. The final variant was elaborated by Paola Rossi and Duccio Mauri who used the proposed intersection structure for archive organization.

06|2|4 LIA: Advanced Design Lab

It was already discussed earlier that the studio uses a multidisciplinary approach to design and periodically organizes international courses called LIA (*Laboratorio di Innovazione Avanzata*) to develop complex and multidimensional projects.

Image 034
LIA Moleskine, 2009
Resource: Design Innovation archive

These courses allow Design Innovation to use collective creativity coming from different countries and disciplines in order to have more complex and holistic vision of the problem and, consequently, create more innovative and appropriate solutions. Students and young professionals come to Design Innovation from all parts of the world: Spain, Argentina, Canada, England, Chile, Colombia, France, Brazil, Germany.
The latest LIA hold at Design Innovation was concerned with contemporary store design for Moleskine. Having experienced the last period of this laboratory during my stage, I admired the process all the participants did. Actually, LIA concept is not just a creative workshop aimed to develop some of the studio projects, but it is also an educational method intended to expand Design Innovation's approach in an international level. LIA participants, studying Advanced Design and uncovering bionics and other tools, have an opportunity to approve it on practice. Additionally, these laboratories create a very friendly atmosphere, allowing the students not just to experience the new design method but enjoy their being in Italy, make new friends and have an interesting social life.

07

Approval of the discovered tools and methods

The seventh chapter presents an application of the tools and methods used by Design Innovation on the real design project: an innovative packaging for Parmigiano-Reggiano cheese.

07|1 The project brief

> And there was a mountain of grated Parmigiano cheese, on which people were making nothing but maccheroni and raviolis.
> Giovanni Boccaccio, *Decamerone*, 1351, description of the Bengodi land.

In order to approve the methodology studied at Design Innovation studio, I have completed another stage there. The project I had to develop was about an innovative packaging for Parmigiano-Reggiano, the most famous Italian cheese worldwide. My task from the beginning had a dual aim: finding an appropriate substitution of the single piece vacuum packaging and creating a kit packaging for Parmigiano-Reggiano and other products connected to the "Made in Italy" concept. Obviously, to find an innovative solution for a single vacuum-packed piece of Parmigiano-Reggiano was more attractive from the design point of view. Thus, the project has mainly focused on this direction.

Initially it seems not a difficult brief, but one should understand when dealing with such a project you have to consider and comprehend the whole context where the product placed in, because Parmigiano-Reggiano represents a long history full of emotions and feelings, stories and traditions. This cheese has a unique and inimitable taste, amazing aroma and texture and has been considered the king of cheeses for nine centuries. It is produced exclusively in the provinces of Parma, Reggio Emilia, Modena and parts of the provinces of Mantua and Bologna, and it "is still identical to how it was centuries ago, having the same appearance and the same extraordinary fragrance, made in the same way, in the same places, with the same expert ritual gestures" (www.parmigianoreggiano.com). In addition, Parmigiano-Reggiano is made in hundreds of artisan dairies, while the diversity of tastes and aromas depends on cheese makers' personal experience and sensitivity of their hands. A restrict controls are carried out on milk and the whole production process in order to ensure the high quality and characteristics that allow Parmigiano-Reggiano still to be "the king of cheeses".

To understand production process of Parmigiano-Reggiano and its qualities I went to one of the Consortium dairies in Fidenza. I was impressed and excited to see how this cheese is made, especially I was amazed by the way cheese makers care about it and by their hands' sensitivity. During my visit there I saw the magic of cheese production in almost all its steps: heating the evening and morning milks in a copper kettle shaped like an inverted church bell, adding the fermenting-whey starter, "cooking", collecting the cheese-granules in a hempen sieve-cloth and taking it out of the kettle. Following these procedures the "cooked" curd-mass, still wrapped in its cheese-cloth, is placed inside a circular wooden mould that give Parmigiano-Reggiano its characteristic shape. After a few hours the cloth is removed and a special matrix is inserted between the cheese and the inside of the mould. The matrix impresses over the entire side of the new cheese the words "Parmigiano-Reggiano", repeated at close intervals, which is like a true "birth certificate" for each wheel. Having left the cheese in the moulds for a few days to form its final shape, the cheese is then salted by immersion in kitchen-salt brine for a period of 20-25 days and is taken into the storehouse where the first stage of maturing takes place. There, the cheeses are placed on massive wooden shelves where they are regularly brushed, turned over and checked till their full maturation.
Having finished the fascinating journey to the art of Parmigiano making I was accompanied by Sr. Monticelli, the man who organized this experience, to some local shops where one could buy the cheese. There I could see the way Parmigiano-Reggiano is cut and packed, the mode it is exhibited on the shop shelves, the main users come to buy the cheese and other typical local products. It was an

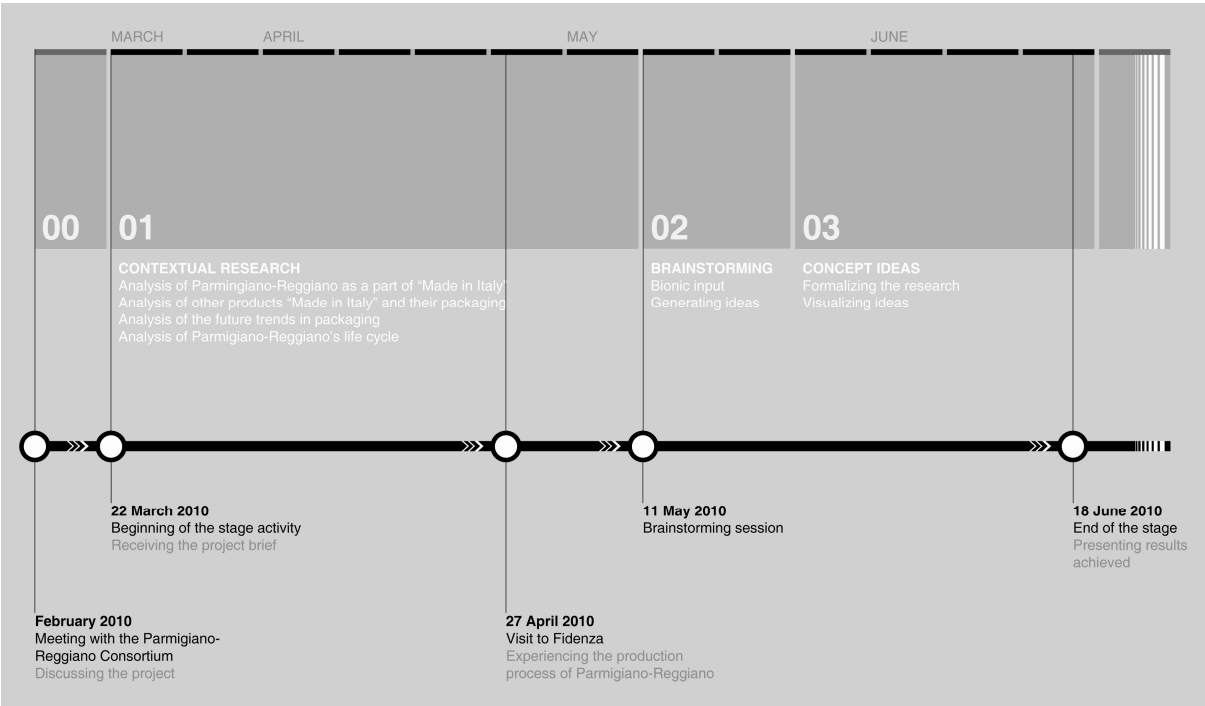
interesting and very emotional trip that helped me better understand the story and nine century tradition of the most famous Italian cheese.

Having this information as a background, it is obvious that the new packaging for single piece of Parmigiano-Reggiano should be appropriate to such a delicate, valued and respected content and should improve its current perception, adding some supplementary technical and sensorial values. The problem of today's vacuum packaging is that the values and strength points of Parmigiano-Reggiano are getting destroyed by the plastic film. The naturalness, the texture, the sensation of manually made cheese and its qualities – all these advantages are weakened by the use of actual material. In addition there is a discourse of food safety: the product's physical contact with plastics reduces its quality. For example, a heat caused by vacuum goes out leaving grease on the surface. Considering all the mentioned above, it becomes clear that the new innovative packaging is needed, so the next chapters will explain in a detailed way the project development and possible concepts designed.

07|2 The process scheme

Since Design Innovation is specialized in process design, in the beginning of the project was developed a plan, explaining the main steps of design process, its characteristics and timeline. Given that I was limited in time and the studio's projects are usually long-term processes involving many stages and people, I took part just in the initial step including contextual research and brainstorming. The activity has terminated at the concept development phase, while the whole stage has been held for three months from the end of March till the end of June. The following section will illustrate each step of the design process and present results elaborated till the current moment.

Image 035
Process scheme of Parmigiano-Reggiano project
Resource: personal



07|3 Project development

According to the studio philosophy, there is no universal recipe for design process, on the contrary, each project should be approached in a unique way, taking into account all its aspects. Although the process I have experienced included three typical to design activity phases - contextual research, brainstorming session and its elaboration, and concept ideas development, the way we approached the project was developed precisely for Parmigiano-Reggiano, including the visit to one of the dairies, researches done in Italy and abroad on food packaging and particularly on Parmigiano packaging, interviews with chemical and material engineers, literature and thesis review at the leading Agriculture Faculties in Italy, ethnographic research done by GfK-Eurisco – independent Italian institute for social and market research. All these activities allowed to construct a broad view on a system in order to produce a more complete solutions-concepts.
To clarify, the project is in a further advance now – the fact I terminated my activity at Design Innovation didn't mean that also design process was stopped. In this work I will state just the activities done during my internship.

07|3|1 Contextual research

In the beginning of the process I had to understand what was Parmigiano-Reggiano. To me, non Italian, it was a very exiting journey.

Image 036
Parmigiano-Reggiano as a part of "Made in Italy"
Resource: personal

I found out that Parmigiano-Reggiano is the real "king of cheeses", being extremely nutritious, appetizing and easy to digestion and assimilation; it is strictly bound to its place of origin; it is one of the most antique cheeses known and still produced today substantially as it was nine centuries ago: the same ingredients, same production techniques and the same artisan care; and, finally, there is no table in Italy without Parmigiano-Reggiano.
Enclosing unique nutritional values, this cheese has a great use in Italian kitchen. It can be used as an aperitif accompanied by raw vegetables or not-too-spicy chutney and dry fruits; it is also a perfect match for most of the traditional Italian pasta dishes, both grated and in slivers; it can be served in slivers on meat or fish carpaccios, or on roast beef with a drizzle of extra-virgin olive oil. In addition, Parmigiano-Reggiano mixes well with fresh vegetable salads and it is an indispensable ingredient for baked vegetable pies and for traditional recipes. Since Parmigiano-Reggiano is such an important part of Italian cuisine, it provides an essential part of Italian style, and, consequently, it is a communicator of the "Made in Italy" concept. Thus, the next step of the research was to analyze Parmigiano-Reggiano in that context. This analysis uncovered some characteristics that could be expressed also in the packaging of Parmigiano-Reggiano. Main guidelines include healthy and fresh food, family connections and traditions, quality, excellence, care of detail, style and elegance, design and creative approach.

The following research phase was to analyze other gastronomic products connected with the "Made in Italy" concept and could be combined with Parmigiano-Reggiano, such as pasta, salamis and hams, balsamic vinegar and olive oil, wine, fruits, cheeses, bakery products, honey and marmalades. This overview included actual packaging analysis of the mentioned products and some innovative solutions in each field. To collect the needed data I have made a two-day research in the library of Agricultural Faculty at the Milan University. The certain section was a part of DiSTAM (*Dipartimento di Scienze e Tecnologie Alimentari e Microbiologiche*), the unit occupied with research in the field of food science, especially focusing on development of new technologies and innovative materials for food packaging. Such research allowed to find out some influential directions for the future packaging development that could be divided into five categories: food conservation and preservation (active and high-barrier packaging), convenience (edible film and wraps, multi-component packaging, modular folding packaging), information and communication (intelligent packaging), esthetics (materials, perceived quality, added value), sustainability (green polymers, bio-based materials, 4R).
In addition to data collection I have interviewed Luciano Piergiovanni, professor of Food Science and Technologies at the Milan University and the president of GSICA (*Gruppo Scientifico Italiano di Confezionamento Alimentare*). He specified some possible directions forParmigiano-Reggiano's packaging development and pointed out a range of materials suitable for thermal insulation.

Thus, having previously discussed information and professor Piergiovanni's input we were ready to the brainstorming session.

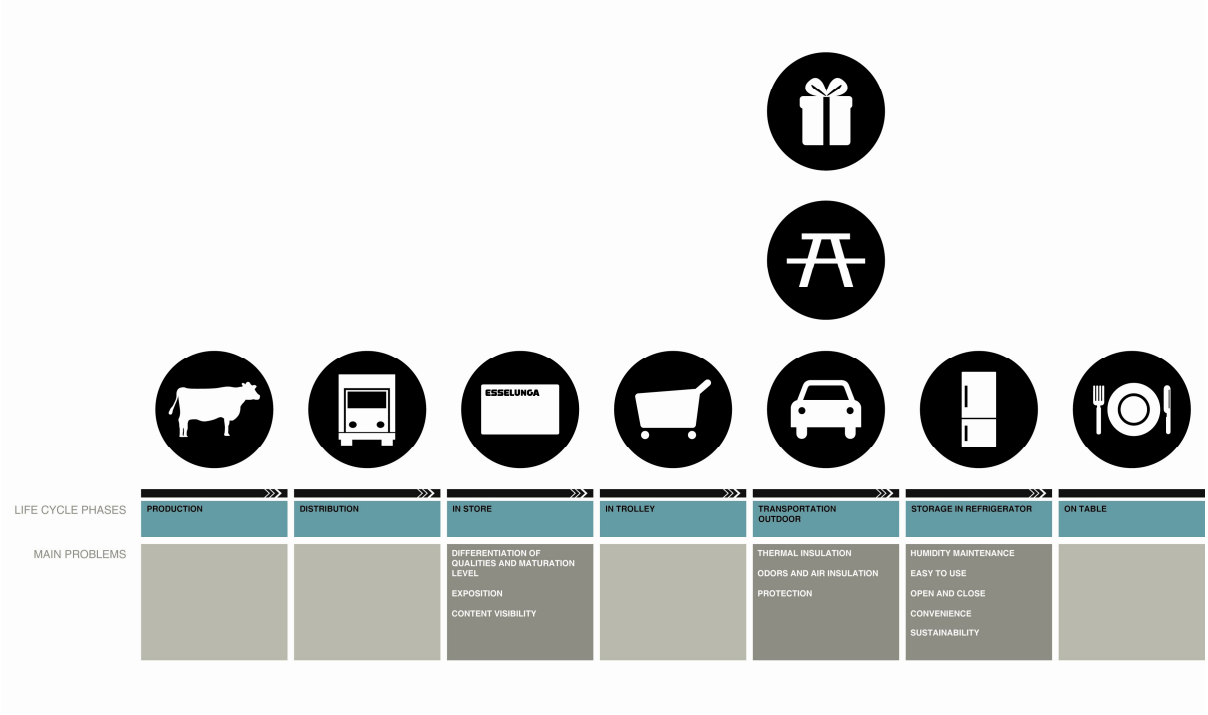
07|3|2 Brainstorming

The brainstorming was held at Design Innovation on May, 11th. Consulting team included the following studio's designers: Paola Rossi, Carlo Dameno, Mark Salerno, Duccio Mauri e Marco Dolera. Before the session I have prepared an input file including evocative images associated to the chosen keywords. These words were linked to the life cycle of Parmigiano-Reggiano, from its production till the product consumption. We discussed problematic issues concerned with each step of the cheese route, such as: traditional production and care, protection and insulation, humidity

maintenance, transportation and thermal insulation, transparency and product visibility, conservation, convenience and usability, flexibility and volume change, sustainability and reuse.

The central outputs of the brainstorming session included bionic insight, which, as it was discussed in the previous chapters, was a fundamental tool of the studio design process. Designer Carlo Dameno, the studio expert of bionics, adjoined ideas deriving from the nature for each issue discussed. These insights helped us arrive to some interesting concepts, such us “break to open” packaging inspired by the natural way of cracking nutshells; identification of the cheese maturation level motivated by various stages of the plant ripening; thermal protection materials inspired by animal fur, wool, bird feathering and crystal plants. As I have already pointed out, these bionic insights brought a unique input for further concept development since this approach is exclusive to Design Innovation and provides a great source of inspiration and creativity.

Map 037
Parmigiano-Reggiano’s life cycle – brainstorming input
Resource: personal



The keyword inputs were developed into packaging concepts linked to the following guide lines: differentiation of cheese maturation, thermal insulation and humidity maintenance, convenience, cheese exposition on the table or in the shop, and, finally, a gift version of the packaging designed for tourists.

In the brainstorming elaboration phase each conceptual guide line was supported by bionics and possible solutions of each aspect in the nature, material inspiration and suitable textures, and research works done in the certain direction or experts’ opinions.

07|3|3 Concept development

As it was mentioned in the previous chapter, several concepts were developed linked to the guide lines also detailed earlier. These concepts included:

1. The first solution emerged from a discussion about the packaging as an expositor in the store or on the table. Since Parmigiano-Reggiano is an essential part of Italian culture and Italian cuisine, it is present in almost every happening and family event, so the packaging can have an additional mission to be an “exhibitor” of the content providing an extra value to cheese perception.

2. Another proposal deals with gift conception. This packaging is made of high-appearance materials, such as aluminum, and presents a “luxury” solution. Nowadays Parmigiano-Reggiano as a present or souvenir form Italy is packed in a decorated carton box over the vacuum pack. Our suggestion is to design a more sophisticated and elegant container that will better reflect the “Made in Italy” concept, using the high-performance material and providing more careful attention to details. This solution should be stylish and well-designed.

3. The next idea follows convenience guideline, allowing the pack to be opened and closed many times during its storage in the refrigerator. This packaging, continuing the “break to open” natural concept, is hermetically closed for distribution and storing at the supermarket. Once you buy it, you “break” the pack by tearing off its upper part, but the attached interlocking zipper profiles or other resealable technologies allow you to get quick and easy access to package contents repeatedly.

4. This proposal follows the previous concept guideline and suggests to apply Venturi effect to take the undesirable air out of the opened packaging. The effect is based on the reduction in fluid pressure that results when a fluid flows through a constricted section of pipe. Thus, the concept is to use the mentioned physical phenomenon as a “homemade vacuum solution” for closing and opening the packaging.

5. One of the concepts proposes to make a simple and economical packaging adapted for sale in supermarkets and other distribution points. The main idea here is to make visible and evident the qualities varied by different maturation periods of Parmigiano-Reggiano. Today’s solution offers a differentiation by seals in addition to colorful wrapping papers: a red seal identifies the Parmigiano-Reggiano which has been matured for over 18 months, a silver seal identifies cheese which has been matured for over 22 months and, finally, a gold seal identifies a cheese which has been matured for over 30 months. Our proposal also suggests to distinguish various levels of maturation by colors inspires by nature, similar to fruits o vegetables that change their colors from green to red while ripening. In addition, this conceptual idea revises the actual graphic solution and proposes a new communication to maturation level identification.

6. Another suggestion is to create a packaging based on the “refill concept”. This container is relatively expensive, but you buy it once and you can reuse it numerous times, refilling it with Parmigiano-Reggiano. This solution is technological, made of advanced material that maintain humidity and temperature and at the same time allows the cheese to breathe. Here the packaging plays a role of glass or plastic containers recommended to be used for keeping

Parmigiano-Reggiano in refrigerator after the vacuum pack opened. The inspiration was taken from nature: from nutshells and eggshells. So the plastic vacuum pack has a meaning of "the shell to be broken and throwing away", after that the content can be placed in a more appropriate container.

7. The third concept continues protection and thermal insulation guideline, adding the level of sensorial and tactile characteristics of Parmigiano-Reggiano. During the brainstorming phase it was spoken a lot about these aspects, especially was underlined the idea to "feel and touch" the cheese and not to see it. It came out from the discussions about the storage place of Parmigiano-Reggiano, the dark cellar, where you could barely see the cheese but you might smell it, touch it and feel it. Consequently, this packaging is made of opaque material that resembles the "natural" cheese texture and its tactile sensations, such as textured technological textiles or rough rigid materials. Here the pack plays a role of the second skin.

08

Findings and critical nodes

The eighth chapter terminates the thesis, presenting findings, visions and possible future directions of the research.

To conclude the whole research I need to start from its beginning. The factors influencing contemporary context have changed dramatically today's design culture. Globalization, internationalization, financial crisis – these are only some elements that have a great impact on nowadays production system, which, consequently, is defined by complexity, immaterialization, rapid technological breakthroughs, fast socio-political changes, speedy shifts in common taste and needs and, finally, continuously shrinking product life cycles. In such a complicated reality an appropriate response for changing conditions and rapid creation of innovative products is not just a smart business practice, but an imperative.
The companies, being conservative, multidimensional and represented by a great amount of actors that usually have contra-positioned interests, lack suitable methodologies to operate the current large-scale context. Thus, as the research confirmed, there is a growing interest in methodological aspects of design and its ability to deal with abstract multidimensional issues.

My thesis objective was to study one of the emerging branches of design methodology: the process design. The research done has shown a growing usage of this holistic, systemic meta-approach by design consultancies worldwide. Moreover, since the method offers an effective form of intermediation between production and consumption systems and real innovative programs-scenarios, it was noticed also by the companies. As the working document of the Commission of the European Communities points out, "companies that invest in design tend to be more innovative, more profitable, and grow faster than those who do not. In a macro-economic level there is a strong positive correlation between the use of design and national competitiveness" (Commission of the European Communities 2009).

As a consequence, it was important to study and explore this phenomenon, aiming to figure out its main characteristics, tools and elements. The research done included theoretical background review; case study analysis in American and European perspectives; interviews to Carmelo Di Bartolo, a founder of Milan based process-oriented design consultancy and internships completed at Design Innovation focused on analyzing the studio approach. All these activities helped me to uncover the main characteristics of the discussed method that can be defined by the following elements:

1. Co-creation and user involvement in design process.

2. Continuous dialog and collaboration with client during the whole design process.

3. Complexity and ampleness of projects, providing numerous scenarios and directions for future development.

4. Holistic, systemic, scenario-based approach to the problem.

5. Usage of customized and tailor-made tools for each particular situation.

6. Involvement of extended, multidisciplinary team.

7. Time dimension as a central factor of the method.

Process design can have a broad spectrum of applications in the contemporary complex reality. The research done has shown the following findings of the discussed method:

1. **Emerging role: from star to set designer**
   Generally, the role of designer is changing. As the comparative analysis of the process-oriented design consultancies has shown, designer's activity is expanding. Some of American and the most of European cases demonstrated an increasing tendency of designer to occupy with the so-called "backstage" enterprise processes, such as organizational dynamics, coaching and team education, strategic planning and brand management, visioning and future scenario building. Thus, instead of the commonly spread vision of designer as a star, a name, a signature, the process designer is invisible backstage actor that operates the whole scene of the future performance.

2. **From universal design method to custom-made toolset**
   Process design is not a linear and structured mathematical method, where each phase is the logical continuation of the previous one. The case study analysis, and especially the analysis of Design Innovation activity, have demonstrated that the discussed method is based on systemic approach to problem that tries to integrate its diverse and heterogenic issues in a coherent project. The method tends to focus on susceptible materials that can stimulate various directions for further development rather than on completed products. Thus, instead of searching universal recipe for every problem, process designers create a set of tools that is adaptable and varies according to each given context.

3. **Necessity to explore tools and methods for co-creation and user expression**
   Process design, being oriented on co-creation and user involvement in the design process, can help in better understanding and interpretation of unmet users' needs and desires. This aspect is very important in the context of today's highly saturated marketplace and mass production of standardized products. For the companies that want to be profitable, it is inevitable to customize their products, taking into account the diversity of consumers. Thus, it is necessary to understand and explore the co-creation phenomenon, including its processes, tools and methods, in order to help companies produce more user-friendly, safe and innovative products and services.

4. **Advertising corporations are outside the process design discourse**
   The previously mentioned tendency of process design to create a tailor-made set of tools to each contextual situation couldn't be applied on design process of the advertising corporations.
   Additionally to design consultancies, during the research were examined advertising groups that also provide design services. But as it was discovered, they seemed to be outside the discourse. I have made this supposition based on insufficient information about their practice. For example, American giant advertising and marketing companies demonstrated just final print o video outputs without indicating any process steps and methods used. In some cases, such as McCann Erickson, there was presented a linear, rigid and very structured approach, applicable for every situation. Another perspective appeared to be very similar, since almost all American advertising mega-corporations had offices in Europe. Additionally, some independent European agencies showed the same position as American

giants. The only exception provided European design agencies specialized on branding and strategic corporate identity building, such as Robilant Associati, Carmi e Ubertis and MetaDesign.

Additionally, were discovered some critical nodes that could be transformed in possible directions for further research of the process design:

1. **Difficulty to visualize process design activities**
   Process design, being focused on the previously mentioned backstage practices, is hard to be visualized. Even dealing with the research more than an year, it was difficult to me to express in the presentation and in the project files the whole complexity of thinking, interconnections and relations that are behind each process. New, more effective visualization techniques should be found in order to present the process design projects as valuable innovation programs and not just a chronological development of the precisely planned phases. Since the discussed method deals with such a delicate and invisible material as processes of different kinds, should be found an appropriate way to show its results to all the stakeholders in a credible and "tangible" manner.

2. **Necessity to integrate business practice in set of designer's skills**
   Organizational innovation, being one of the process design activities emerged from the research, requires a new appropriate set of tools in the designer, including better understanding of business practice and organizational behavior. Educational background analysis of the consultancies' leaders has uncovered a tendency (mainly in European cases) to strategic, business and social disciplines as learning directions. Moreover, the pilot case analysis has shown the importance of business dynamics understanding for successful and confident long-term partnership.

3. **Difficulty to visualize client-designer relations**
   As it was mentioned before, process design is based on close and confident relationship with the client. The client is involved through the whole design process, being an active participant and co-creator. During the project development there are many common meetings and reunions to exchange information and collectively generate ideas and solutions. In addition to designer's responsibility to find the right "temperature" with the client, there is a great difficulty to express and demonstrate this aspect of design process.

Generally, there is a clear potential for design to be used as a tool for innovation and company competitiveness improvement. This potential has become increasingly evident in recent years, since the global context has changed followed by the shift in production system, its actors and relationships.

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