

# THE VALUE OF DESIGN RESEARCH

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## DESIGN FOR ALL: THE ROLE OF DESIGN AS ANOMALY FOR A CHANGING PARADIGMA

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### ABSTRACT

*Design today is a research discipline seeking design as a mediation factor that create and manage compromise rather than conflict. To contrast this view, this paper argues that "Anomaly" is desirable and necessary in order to accommodate the most daring and thought innovative ideas and approaches expressed in the design thinking process. Design for All is a radically innovative way of thinking, looking at, and acting the design process. We are not standard, and design often doesn't know it. DfA expresses the critical issues of a design project in the most enabling way, answering to the abilities, necessities and aspirations of all people and people behaviours involved in the design process. DfA is well-suited to keep pace with a fast changing environment because as an approach it is constantly evolving and updating itself: thus, it answers to social complexity and human diversity and creates mutual benefits for entrepreneurs, users and public administrators. Approaching Human Diversity means capturing a larger market. The 'All' of DfA are the individuals who wish to use that which is designed (product, space, service, etc.) and that the decision makers want to implement. Desire is the only proper element of discrimination and one of the factors that makes DfA a successful approach, even in mature markets. In this context we introduced Design for All as a way to embrace the randomness generated through disruption, and suggest that the creative professional has to acquire the capability to navigate rather than oppose the uncertainty.*

*Keywords: anomaly, design for all, human diversity, disruption.*

### INTRODUCTION

Driving forces in Design for All Anomaly: designing derives of evolution

The rising of new and dissenting transformation paradigms required making a step backward. As we will explain in the next sections, design activity can be described as a creative disruptive action leading the innovation process. We argue that the design expansion identity has to be framed from this perspective: a process in which new derives of innovation take place starting from touch points with unexplored leading forces and circumstances.

Actually, in the past, Pestel's analysis (Strategic management insight,

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2013) identified the key external forces that can create both opportunities and threats to affect a social organization and its business in the design process evolution (Figure 1). However, in recent years, the rapid improvement of science and technology such as smart devices and wearable technology innovation and the arising of social media, public online platform and e-shopping have generated a strong influence on our daily lives creating new disruptive opportunities and challenges for the Design process. As a consequence, instead of following the traditional trace to accomplish the evolution, Design process today is exploring new derives of evolutions tightly connected with these two leading impulses.

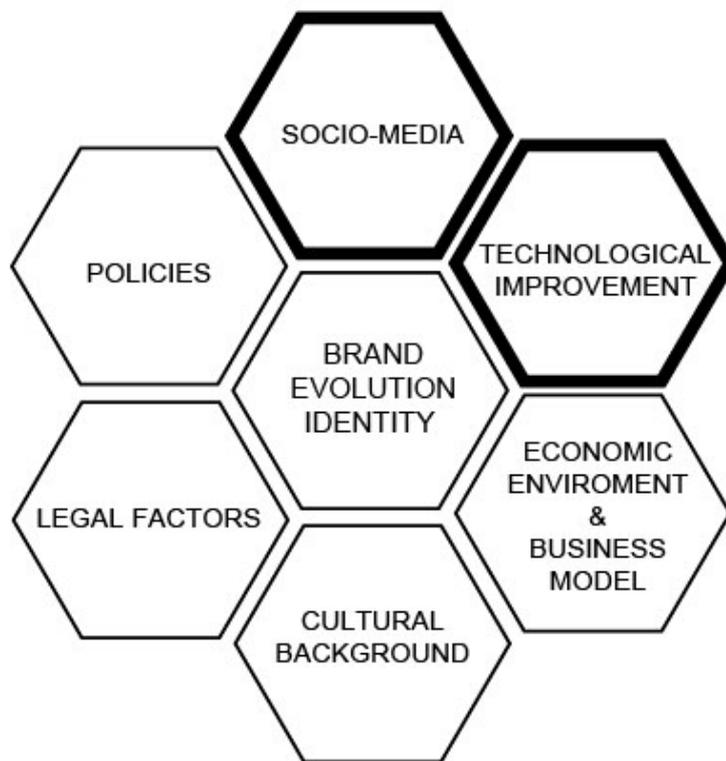


Figure 1: Pestel model of design evolution identity

In next section we will provide a theoretical framework of design attitude as creative disruptive approach to innovation and strategies that adopted derives as leading forces, in particular technology innovation and social behaviour changes.

## LEADING INNOVATION THROUGH DESIGN ATTITUDE

The function of the design activity

Perhaps one of the most influential design writings is Viktor Papanek's *Design for the real world* (1985). Papanek signalled the importance of

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the design as a discipline, and the radical changes brought by it in an almost imperceptible way. Far from being in awe for the versatility and the potential of the design professionals, he acknowledged design as a danger and the enormous responsibility the designers have. This way of reasoning comes from being conscious of the artificial alienation from the innate human capability to create tools for specific personal needs, making use of the resources at hand. In order to pinpoint that design has to be meaningful and therefore functional following relevant user needs, he proposes six dimensions of function (Figure 2).

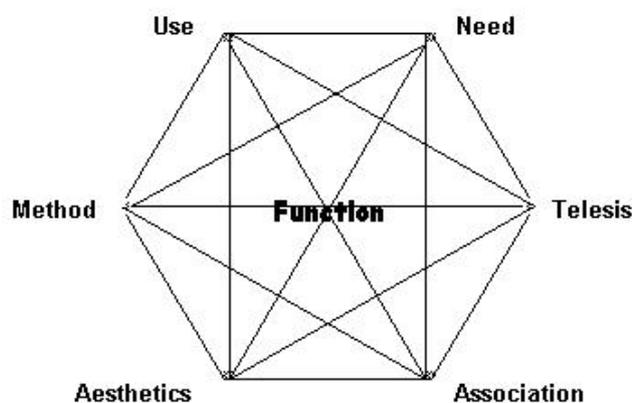


Figure 2: Papanek six dimensions of function

These are: the *method* or the interaction of tools, process and materials in the making of a product; *use* and the relevance of the product designed; *need* and making the clear distinction between the personal preferences or desires and the final purpose of the artefact produced; *telesis*, or how to plan the process as to reflect the “times and conditions” from the environment; the *associations* suggested by the product and the meaning the product might acquire accordingly, and finally the *aesthetics* and the pleasurable meaning and the beauty of the product (Papanek, 1985).

It is important to stress out that although the model proposed by Papanek was initially developed from the product design perspective, it essentially applies to a system of thinking specific to all areas of the design discipline. His visionary ideas and the concern for the threats of the meaningless practice of design, have been further on amplified by Margolin (1998), in the context of sustainable design agenda:

*“The primary question for the design professions thus becomes not what new products to make, but how to reinvent design culture so that worthwhile projects are more clearly identified and likely to be realized.” (Margolin, 1998)*

Both Papanek and Margolin stress out the need for a radical paradigm shift, in the design discipline, reacting to the traditional approach and introducing new starting assumptions in considering the meaning of

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design. In this respect we argue that the starting point for a change of mentality in the design culture is what Papanek calls the *telesis* dimension which

“must reflect the times and conditions that have given rise to it, and must fit in with the general human socio-economic order in which it is to operate.” (Papanek, 1985)

In the present crisis conditions, the role of design is to capture the stimuli coming from the surrounding environment and deconstruct the circumstances rather than attempting to fix irrelevant problems.

First and foremost the challenge this paper intends to tackle, is the change in the imaginary of “good design”, reconsidering the disruption brought by the design approach, and demystifying the beneficial potential of the design thinking. This is in order to dismantle a stereotype and trying to offer an alternative reading lens for the function and meaning of the design activity for a Design for All process.

## CREATIVE DESTRUCTION AS A DESIGN ATTITUDE

In order to better understand the potential of dissent and controversy as a factor of change at a larger scale, we will make reference to the term “creative destruction” coined by Schumpeter (1942). In brief, creative destruction refers to the incessant product and process innovation mechanism by which new production units replace outdated ones (Cabbalero and Hammour, 1996) and in the context of this paper it delineates a phenomenon that might occur spontaneously as well as being consciously provoked and controlled. This last stance is the terrain in which design moves from a way of thinking to become a pro-active critical attitude geared towards questioning the outdated patterns of thinking. To sustain this argument, Abernathy and Clark (1985) bring forward one of the best examples in the history of the design practice, the T Model by Ford build in 1908. In this case the break through design is integrated with a new way of technological thinking but also a breakdown of the existing linkages between producers and costumers, and the disruption of the obsolete competencies (Abernathy & Clark, 1985, pp.8-9).

We look at this kind of radical change in terms of a cyclical renewal that can only occur in determined circumstances. The design attitude has therefore to be looked at as having three different contributions: first as identifying the necessary circumstances that will allow the change, second providing the stimuli that will enable the disruption and third controlling the creative destruction process. At global scale socio-economic situation invites a reflection upon the insights coming Schumpeter’s view on the crisis:

*“...depressions are not simply evils, which we might attempt to suppress, but ... forms of something which has to be done, namely, adjustment to ... change.”*  
(Schumpeter, 1942)

The quote above reflects the imaginary of a constant struggle, a fight for

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re-shaping a local and global ecology even before attempting to seek balance between the living organisms and the environment in which they inhabit.

## DESIGN FOR ALL AS A PARADIGM CHANGER AND AN ETHICS ENABLER

Design for All: a radically innovative way of thinking, looking at, and acting in design process.

While attributing to design and designers a great social, environmental and economic responsibility, Design for All (DfA) goes through it with a positive, proactive and integrating approach.

In this context we introduced Design for All as a way to embrace the randomness generated through disruption, and suggest that the creative professional has to acquire the capability to navigate rather than oppose the uncertainty (Taleb, 2012), being able of provoking change, observe the behaviours, consider which are the usual stereotypes and try to “destroy” them.

Design for All (design for human diversity, social inclusion and equality, EIDD Stockholm Declaration© 2004) is new way of addressing design process, based on two principles: a) ethics can work and be business-oriented b) the complexity of worldwide societies is a never ending process.

### Innovation in thinking design process: the ethics that works

Ethics is not goodwill. It is a state of mind. Bruce Weinstein in “Ethical Intelligence” argues that in a world of claw-your-way-to-the-top-at-all-costs mentality, it’s time for a paradigm shift for a better humanity, a clearer conscience in a healthy society. Skeptical would argue that ethics oriented companies are a minority and maybe successful only remaining a minority.

DfA makes ethics business-friendly because of the capability of answering to the market needs of the whole population of potential experiencers and therefore of addressing the primary objective of industrial decision makers and entrepreneurs.(Figure 3)



Figure 3: Design for All against design for the standard, the power of diversity

We are not standard, and design often doesn’t know it. DfA expresses the critical issues of a design project in the most enabling way. It

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answers to the abilities, necessities and aspirations (A.N.A.) of all people and behaviours involved in the design process. People do not use but experience tools, environment, system and situations. People are experiencers because they have a complex and multilayered perception, understanding and feeling about tools and systems, and this complexity deeply influences the way they approach designed items and the result of the experience. (Accolla 2009)

Holistic ergonomics (Bandini Buti 2008) is a structured, complex tool, well suited to exploring and understanding Human Diversity. So, who are the 'All' in DfA? An inclusive design should respond to differences in culture, background, ability, time of the day, habits, biological age, generations, etc. How do you put utopia into practice? The 'All' of DfA are the individuals who wish to use that which is designed (product, space, service, etc.) and that the decision makers want to implement. Desire is the only proper element of discrimination and one of the factors that makes DfA a successful approach, even in mature markets.

In fact, design based on human diversity is a way of capturing the largest market. Recently founded, DfA marketing (Gilardelli, Accolla 2009) relates the issues of market segmentation to DfA's inclusive approach and tools for exploring human diversity.

## Innovation in thinking design process: the non targeted approach targets the moving target

Target is dead, people are not. Technology innovation and social behaviours are among many factors creating a continuous evolution of the way people are experiencing the product or service result of the design.

DfA is well-suited to keep pace with a fast changing environment because, as an autopoietic approach, it is constantly evolving and updating itself: thus, it answers to social complexity and human diversity and creates mutual benefits for experiencers, entrepreneurs and public administrators.

The design for accessibility approach is not sufficient: we are all disabled. Our discomfort in managing daily life (handicap) is generated by social and design factors: it is not generated by our disabilities, incompetences, lack of knowledge etc. The things and environments we use were not devised for us, but for somebody else: somebody with a benchmark imagery technically dedicated to the specific situation of use, somebody who speaks a different language, somebody with a different system of cultural de-coding, somebody with different intentions and necessities of use, somebody who is younger or older, taller or shorter, stronger and so on. A person of 1.60 meters in height will experience many challenges and discomforts in some European countries where the average is above 1.80. Often human diversity is not perceived as a complex reality to cater for. When it is considered, human diversity is limited to mere anthropometric evaluations: how much does the size of the palm of your hand matter (which, by the way, it is not easy to find in manuals) in the use of a remote control which implies de-coding, comprehension and managing the interface in different use situations?

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Ergonomics has for long been proposing the systemised and structured involvement of the “end user” in the phases of concept, design and control. This is a fundamental and valid principle: but do the hypothetical “users” examined and involved represent us? For example, does the methodological system applied to evaluate the use of packaging for medicines anticipate greasy hands, the presence of smoke, a headache and residual panic?

Different people, within the value chain, may have different ANAs (Figure 4) according to the role they have in the value chain itself. The same individual, when having different roles in the same value chain, may experience quite different ANAs for each role. The same individual, when participating to different value chains, may as well experience different ANAs for each value chain. This fact may represent a true game changer: when design does not consider people as such, each one as one entity with its own specific characteristics that can be generally considered descriptive. DfA recognizes that each individual may drastically change what 'she/he is' for design purposes according to which value chain she/he is in and in which role she/he is in. This gives a powerful tool to the designer during the design process focusing on answering to the artefact challenges in the most enabling way for everybody. Design can answer to the real actual ANAs of each “user” without falling in undesired classifications and stigmatizations.

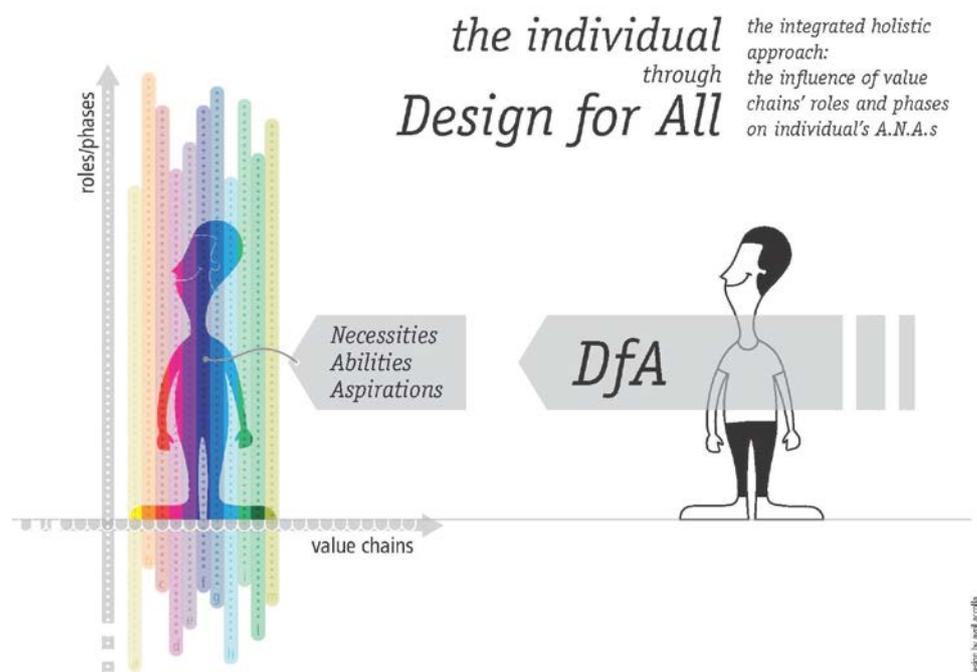


Figure 4: DfA spectrum of the individual A.N.A.s in the value chain

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## if it is not beautiful is not DfA

DfA introduces also a new way of implementing inclusive design, introducing a "two must theory" : "Designed for All" product not only must be approaching the diversity but also make sure to keep the focus on beauty and aesthetic research (if it is not beautiful is not DfA).

First of all, accessibility for DfA is necessary but not sufficient: to be able to use a product doesn't mean enjoying it and be satisfied by the experience. Functionally accessible social discrimination (Accolla 2006) identifies those systems adding ad hoc solutions, in response to a specific need of a specific user group, to the provided general one for the not existing standard user, without any designed synergy with and for the solutions for All. This strategy creates a discriminatory situation both for the defined group to be included and for the remaining potential users. An illustrative example could be the interior design choices of the largest cinema in Italy, which, in its biggest projecting theater features two little areas exclusively for wheelchairs. The areas are located lateral to the pit and surrounded by barriers of thick steel pipes. The outcome, assessed according to a checklist based on the a posteriori building regulations, is an effective physically accessible for wheelchairs cinema. The result, according to the DfA holistic approach, is an effective discrimination of both people in a wheel chair, segregated in a small prison where watching the movies is an uncomfortable experience, and of friends who share with them the evening, deprived from the friend's company: they'll meet again only outside. Equipping aisle seats with folding chairs it is neither particularly expensive nor a sci-fi technology: the *forma mentis* designs the barriers.

Not less important, DfA recognizes and enhances the role of aesthetic quality and research in processes of understanding and enjoyment. Human nature is attracted by beauty which, through trends, fashions and costumes, remains a recognizable factor. Cognitive psychology shows that the aesthetic emotional involvement is not only a pleasure, but it can also improve the understanding that comforts the experience. Positive emotions amplify the creativity of our thinking and reacting. The synaesthetic experience is more intense, more varied, (Luria 1969) and it facilitates cognitive processes (Norman 2004): the person understands and remembers more and easier than in a mono-sensorial beauty experience. A designer that works effectively on multisensorial synergies provides a better experience to everyone and gives various possibilities of access and enjoyment to different residual abilities, important for example in people with sensorial impairments.

Design for All does an uneasy task: it keeps life simple, and does it gracefully with the excellence which design in itself can reach through research in communication, aesthetics, culture and emotions' triggers. It is what people want from their everyday tools and ask to the systems which informs lives, experiences and exchanges.

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## CONCLUSIONS

In this paper we analysed the evolution of design in recent decades, supporting the idea that today design should follow a disruptive attitude based on design as anomaly.

Design today is still a discipline moving between art and method. Beside its strong and deep involvement within the industrial activities, beside the large quantity of engineering tools able to support it in studying, developing, verifying and testing, beside the so many methods oriented toward a solid progress during a project, the role of the designer is always connected to creativity, and such a role is commonly felt in the universities, or at the beginning of their career.

We tried to invert some of the above elements, considering disruption as a starting point and the principle of provoking constraints, possibly to be overtaken. So, following a slightly different approach: select an application field, define an intervention area, observe the behaviours, consider which are the usual stereotypes, try to destroy them and so define new formal constraints, provide preliminary solutions, use different principles and methods as validation means, and provide the final proposal. The constraints, defined in terms of formal elements or of conceptual elements (think in term of four genders, invert the social values of the genders, avoid usefulness and follow futility), were able to provoke very innovative attitude (e.g. "personal empathic dream communication" between two emotionally involved unit) in respect to other, as well as boring and without any success possibility.

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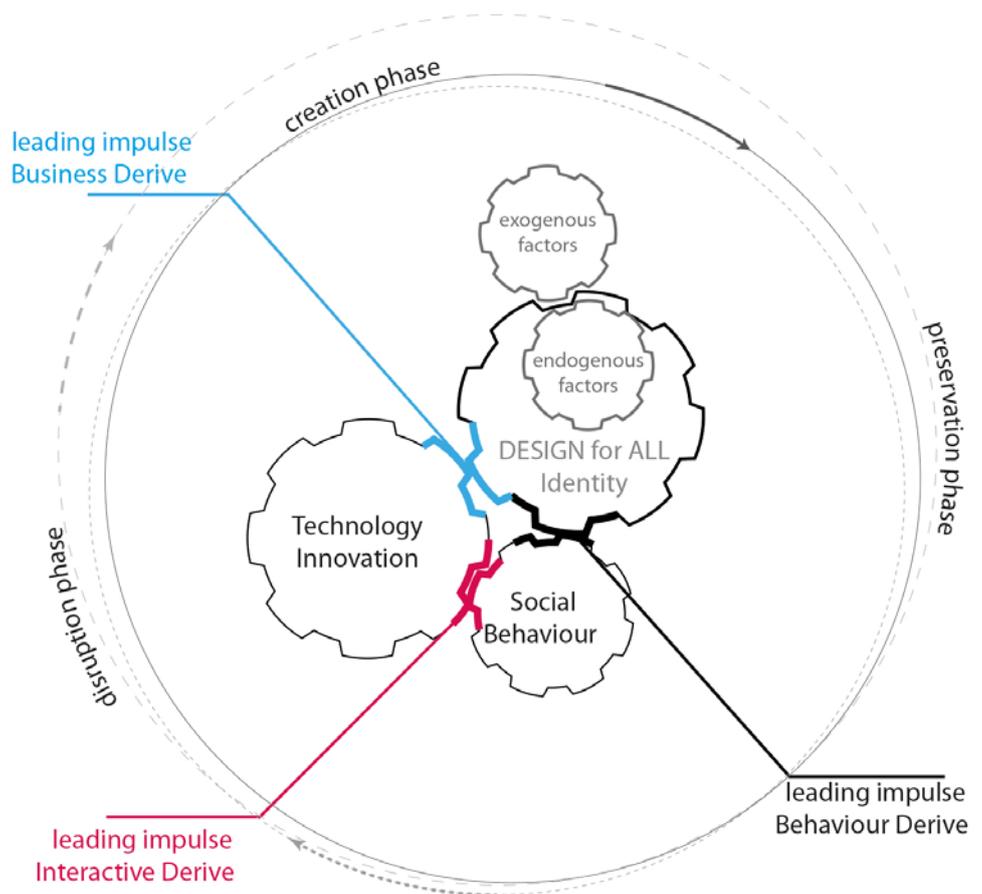


Figure 5 : The entropic energy system model for brand expansion

We apply this approach to design, suggesting, among several others, two possible derives, technology innovation and social behaviour. The entropic energy system (Figure 5) is the resulting model of this research and it describes design process as follows: every time new impulses (like technology innovation and social behaviour) impact with the design, anomaly and entropy arise. However, embracing the limits and constraints of anomaly and disorder, new derives and forces emerge as driver of DfA approach.

Design for All is an anomaly and changes the paradigm in today design culture and production, but, when implemented, its results are truly felt and perceived as natural and must-haves throughout the whole value chain, not only by the final client or experienter. Big, medium and small companies have recognized not only its value for sustainable development and corporate social responsibility, but also the increase in revenues, market shares and competitive advantage.

DfA disrupts in a constructive way: there is the need to change methodology and tools when one wants to shift the paradigm.

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