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## ABSTRACT

*Holding different languages and planning tomorrow products, designers occupy a dialectical space between the world of today and the one that could be. Advanced design practices are oriented to define new innovation paths with a long time perspective that calls for a cooperation with the Future studies' discipline. Advanced design and Anticipation have frequently parallel objectives, but face them from a different point of view. Design is often limited to the manipulation of visual or tangible aspects of a project, while future studies are seen as an activity oriented to policy that occurs in advance of actual outcomes and that is very distant from a concrete realization. Even with these distinctions they are both involved with future scenarios building and the necessity to make informed decisions about the common future.*

*Taking into account this cultural framework, the main objective of the study is to understand, and improve, the role of Advanced design as facilitator in the dynamics of shaping, but mostly sharing possible visions of the future. In order to explore this value, the paper identifies the specific area of Design fiction as an illustrative field of this approach. Emerged in the last decade as "a discursive space within which new forms of cultural artefact (futures) might emerge", Design fiction is attracting multi-disciplinary attention for its ability to inform the creation of a fictional world. The paper will develop the discourse through three levels: presenting the potential role of Advanced design in the debate about "Future Literacy"; introducing the notion of design fiction through a reading of the evolution of the respective theoretical framework and, finally, discussing a selected body of case-studies from which the value of design in the practice of sharing futures emerges.*

*Keywords: Advanced design, Future, Design fiction, Fictional value*

## 1 FROM FUTURE BUILDING TO FUTURE SOCIALIZATION

Already in the 1950s Fred Polak, one of the fathers of Future studies, recognizes that the human condition is governed by the fact that whereas all experiences are of the past, all decisions are about the future. According to his view, the greatest task of human knowledge was to bridge this gap and to find those patterns in the past that can be projected into the future as realistic "images" (Van der Helm, 2005). His work *The image of the future* (Polak, 1973) remains a milestone for clarifying the role of future for society: the capability to develop and project images of futures is the key to all choice-oriented behaviours.

Along the years, inside the international futurists' debate, visions, although

# THE VALUE OF DESIGN RESEARCH

*Advanced design practices for sharing futures: a focus on design fiction*

*Manuela Celi, Elena Formia*

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recognized as common approaches for making claims about and for the future, were often interpreted as private (my own vision) or personal (the leader vision). On the contrary, actually, most futures practitioners confirm that the active development of shared visions is needed for successful actions (Van der Helm, 2009).

As the term vision is often associated to a connotation of vagueness and to a non-scientific approach, in the last years some futurists, Riel Miller in particular, have worked on the definition of Anticipation intended as all efforts to “know the future” in the sense of thinking about and using the future (Miller and Poli, 2010). This new field of research feels the emergence of diffusing Anticipation abilities, in the same way as, during the industrial revolution, it was necessary to read and write. The acquisition of knowledge and competences (know-what, know-how) to use the future appropriately can be called Futures Literacy (FL). As Roberto Poli points out, FL entails the capacity to decipher and categorize as well as produce (design, conduct and interpret) explicit (volitional and intentional) processes of anticipatory knowledge creation, as a necessary and ordinary skill (Poli, 2010). FL is the “fluency” in anticipatory processes: from a first scenario of future creation, we have now moved to the need of future sharing.

Designers are involved in this process on two counts: as creators and as mediators. Able to create models, prototypes, and propositions, designers occupy a dialectical space between the world that is and the world that could be, they can grasp patterns of past, match them with slightly visible trends and shape future ideas. They operate in situations that call for interventions and they have the unique ability to turn these interventions into material and immaterial forms: communication, fashion, products and other kind of artefacts that are put to use in the social world (Margolin, 2007).

Artefacts “per se” are useless, the meaning of artefacts and their role arises from their use (Krippendorff, 1995). As poetry, for example, does not reside in text but in its being performed in the presence of “others”, in its being read and listened to, material artefacts similarly come to live in use, in their being woven into stories that are told and retold by their users, in public celebrations, and in their connection to the mythologies of a culture. As Klaus Krippendorff suggests, any project, however broadly formulated it may be, must be realizable in local practices and afford individual users' conceptions. Visions may change, but the actual interfaces between users and objects must always work, must be able to enter human communication and to survive within the ecology of artefacts.

Advanced design, in particular, is a branch of design that directs and uses the tools, practices and knowledge of conventional industrial design in long-term projects, or in projects that are addressed to a distant future (Celi, 2015). Born in the post-war period when the automotive industry - dew to its manufacturing high complexity - began to design and build “dream cars”, Advanced design products are not expected to be immediately placed on the market. These artefacts evolve in time; they are actually defined as “concept products” - but also semi-finished design products as meta-design plans, trends and scenarios – and have a leading function with respect to consumer tastes and their progressive alignment towards the morphological and structural codes used in the contemporary world. We may recognize that Advanced design and Anticipation often share similar objectives, but face them from different perspective, with different strategic position and different results. Design is seen

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as the manipulation of visual or tangible aspects of physical matter or information at the point of output, while Anticipation is seen as an activity oriented to policy that is very far from a concrete realization (Celi and Zindato, 2014).

However, there is a common need between Advanced design and Anticipation. Both involved in the mission of exiting the crisis of our society, called to introduce innovations, they need to involve and interact with people and to engage them in the changing process. The reflection on possible futures must be accessible to all citizens, end users and consumers in order to activate literacy and sharing processes of building possible future visions and scenarios. Advanced design practices, almost developed and used in big enterprises, should increase their social value and catalyse new collective awareness.

## 2 THE FICTIONAL VALUE OF DESIGN: THE ROLE OF DESIGN FICTION

This was the main question proposed by Eleonora Masini, eminent futurist and one of the founders of the Club of Rome, in an article that addressed the need to re-conceptualize the futures. Masini (1982) distinguishes between three main ways to look at the future. A first one, that she defines a “prognosis” approach, relies on extrapolation, makes heavy use of social and economic indicators and helps identify what is probable between what is possible. A second one is a “vision” approach, where the future is connected to utopias and built on the basis of something we wish to happen, oriented to desirable societies. In this second approach the key element is the transformation of the present by a vision of the future: there is a stress on the need to examine the forces that draw us on. The third model (a combination of the previous ones) it is the level on which people think about the future in terms of projects. This means they seek to undertake projects that will change reality according to specific indications directed by utopias, by social ideals, by models and by visions, while, at the same time, taking into account empirical data on trends in the past and conditions in the present.

This third approach is based on both a knowledge of “possibles” and “probables” and on a vision of “desirables” (on models and on ideals). Here we see emerging the choice - the interest of the observer. It is based on the belief that “something can be changed”. Many Future studies’ authors discussed about the different kind of potential futures we deal with. The cone model expresses the idea that “at any given moment in time, multiple paths are available and that, by an unknown combination of chance and design, we make our way ‘forward’ through a particular path, which is only one of many possible tracks” (Candy, 2010). The cone scheme of Trevor Hancock and Clement Bezold (1994) has several interpretations but the one expressed by Joseph Voros (2003) (Fig. 1) underlines how preferable futures - concerned with what we “want to” happen – are connected with a more emotional and subjective perspective and enable a “visioning” and constructive view.

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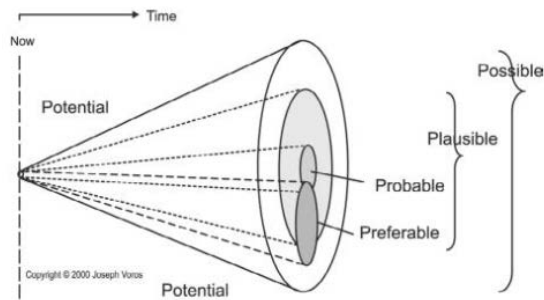
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Source: Adapted from Hancock and Bezold (1994)

Figure 1 –The cone scheme adapted by Joseph Voros (2003)

This way of interpreting future as a project is very closed to every-day wicked design problems: the continuous precarious tension between opportunity and constraints is the natural environment in which designers produce concept ideas and transform them into innovation. Moreover this third approach recalls to us the idea of design as “Third Culture” (Snow, 1961; Brockman, 1995; Lingardi and Vassallo, 2011; Citton, 2012) and culture for dialogue. Vilém Flusser (2003) realized that the word design came to bridge together arts and science when the breach between them had become unsustainable: in contemporary life, it represents the place where art and technology meet as equals, making a new form of culture possible. The design mixed nature and its well known trans-disciplinary approach, push toward a conception of design as an ideal place of meeting of different and diversified knowledge (Celi and Formia, 2014). It is the field that, perhaps, can better embody the present “attempt to overcome the dichotomy between hard and soft sciences” (Maldonado, 2010, p.9).

To build compelling visions of futures Advanced design needs to immerge the end users in the vision. As Masini (1982) epitomizes the ability to nurture the seeds of change and develop visions is even more important than the capacity of making future analysis. Advanced design works on the capacity to recognize the seeds of change that lie in the past and the present and to create visions combining artistic inspirations and technological breakthroughs (Celi and Rudkin, 2013). Visions narrated through scenarios, trends and images are effective, but the most fascinating practice of Advanced design enhances its fictional value.

The capacity to engage people who carry and nurture the seeds of change, and to enable people to shape possible futures, is represented by Design fiction.

## 2.1 THE THREE DESIGN FICTION PATHS

Within the last decade, there has been an increased attention in the concept of Design fiction as a new approach or practice within design research. As Julian Bleecker observed in an essay published in 2009, the link between design and fiction was originated as an integration of three different paths (technology, art, science fiction), in order to find opportunities, for design, “to re-imagine how the world may be in the future”<sup>1</sup> (Fig. 2 and 3).

<sup>1</sup> “The questions I thought about are these: How can design participate in shaping possible near future worlds? How can the integration of story telling, technology, art and design provide opportunities to re-imagine how the world may be in the future? How does the

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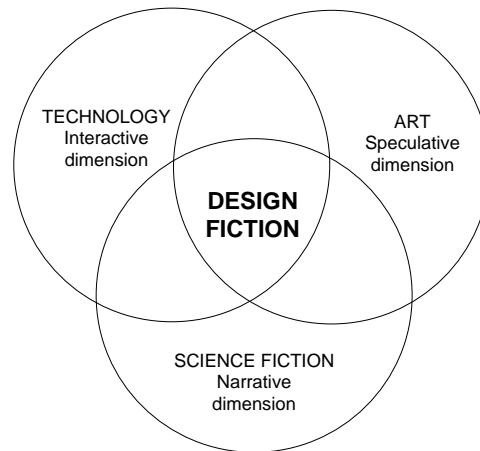


Figure 2 –The three paths through which Design fiction operates

According to Bruce Sterling (2013), who was the first to use the term in 2005, "Design fiction is the deliberate use of diegetic prototypes to suspend disbeliefs about change. [...] 'Deliberate' use means that design fiction is something that people do with a purpose. 'Diegetic' is from film and theatre studies. [...] Design fiction doesn't tell stories, instead, it designs prototypes that imply a changed world. 'Suspending disbelief' means that design fiction has an ethics."

References to the "diegetic" dimension of Design fiction were quoted also by Bleecker (2009) and by the film scholar David Kirby, who coined the term "diegetic prototypes" in his article "Future is Now: Diegetic Prototypes and the Role of Popular Films in Generating Real-World Technological Development" (2009). While Bleecker proposed a definition of Design fiction as the "cousin of science fiction" (2009, p.8), a link between science fact and science fiction, materialized through the initiative of the Near Future Laboratory, Kirby "refers to the way that a science fiction film provides an opportunity for a technical consultant to speculate within the fictional reality of the film, considering their work as more than a props maker or effects artist creating appearances" (Bleecker, 2009, p.39). This concept was partially applied in the work of the futurist Brian David Johnson who wrote the book *Science Fiction Prototyping: Designing the Future with Science Fiction* in 2011. However, increasingly Design fictions are moving beyond the medium of film, video and photography towards the materialization of, for example, physical props, models and prototypes.

At the same time, it is recognized that the technological world represented an important context for experimentations in this field, mostly due to the engagement of ICT based corporations and industries (such as Nokia with the project "Mixed Reality", 2009; Microsoft's Office Labs 2019, 2009; Apple Future Vision, 1987, etc.). Especially in the approach proposed by Kirby, the convergence between narrative and technology becomes evident. Featuring papers by scholars such as James Auger or Andrew Morrison, Ragnhild Tronstad and Einar Sneve Martinussen, in 2013 Derek Hales edited a special issue of

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material act of making and crafting things - real, material objects - shape how we think about what is possible and how we think about what should be possible?" (Bleecker, 2009, p.15).

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"Digital Creativity" in which he presented a "provisional taxonomy" of Design fiction. Together with the focus on interface culture, he stressed the role of Design fiction in exploiting "the power of media design to craft and deploy compelling visions of the future" (Hales, 2013, p.2), where the most interesting concept, according to our vision, is the word "compelling". This objective is also shared by the social science community: "For social scientists the usefulness of SF prototyping is not only to fantasize about (or fetishize) speculative technologies, a role fulfilled eagerly by the media, but also to encourage vatic insights into the possible unintended consequences and social practices emerging from people's varied engagements with 'technology' and involvement in innovation. This helps to bring people's social practices into various forms of thinking and planning about the future, from policy making to marketing." (Birtchnell and Urry, 2013, p.25).

The purpose of Design fiction to "create a discursive space within which new forms of cultural artefact (futures) might emerge" (Hales, 2013, p.2), thus to designing with stories, involved also the word of design closer to art, through, for example, the experiences of Critical design (Raby, 2001; Bardzell et al., 2012; Dunne and Raby, 2013). Presenting the difference between American and British approach to Design fiction, Sterling wrote (2014): "Even though 'design fiction' is a form of design and not fiction - and even though its best-known practitioners today are all barnstorming, globalized nomads - it is likely to take on a stronger local colour. 'British critical design' and 'American design fiction' will remain as distinct as the RCA in London and USC and ACCD in Los Angeles; and we will see other regional variants emerging. European critical-design scenes will appear, plus some distinct US West Coast/East Coast approaches".

From these theoretical premises, we isolate some actions that demonstrate how Design fiction may represent a practice through which design, as a tool for public engagement, intervene in the processes of social sharing of the future. The role of the designer, and in particular of the Advanced designer, in this sense is becoming crucial: the materialization of tomorrow products-service-system through scenarios or prototypes (Celi and Zindato, 2014) allows to present ideas of possible futures to a community of people without specific design skills. Thus, the value of designer's contribution is rapidly evolving from giving form to future scenarios to educate people, citizens, consumers, users to the practices of imagining futures and to the relative processes and dynamics (Celaschi and Formia, 2014).

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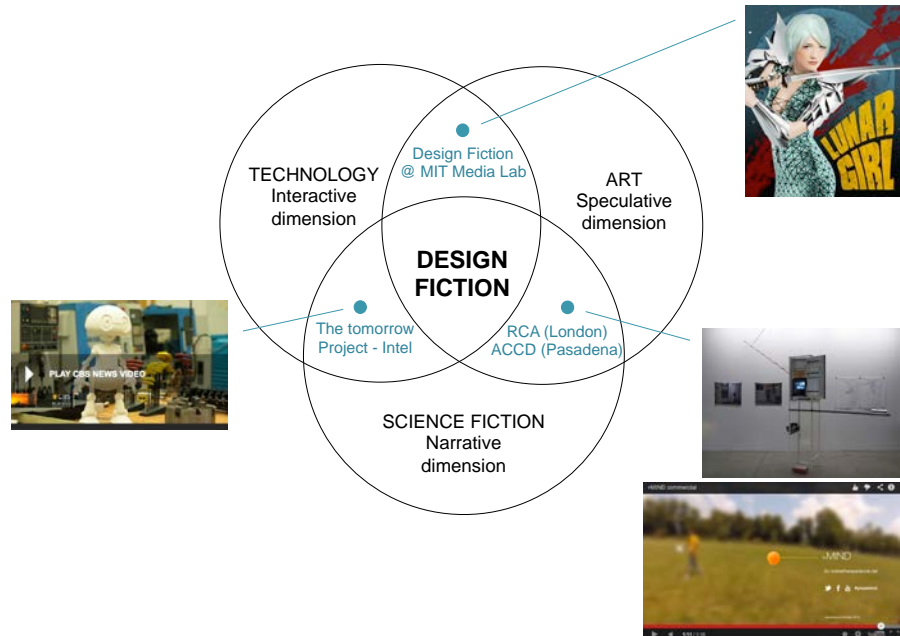


Figure 3 – Leading examples of international research institutions that are operating in the convergence between design and fiction and their respective driving contexts. 1) The Design Fiction Research Group at the MIT Media Lab through the work of its director Sputniko! - Hiromi Izaki (in the photo, the video installation “The Moonwalk Machine – Selena’s Step”, 2013, a story about a science geek girl who invents a lunar rover rigged with high-heels with the hope to leave her marks on the surface of the moon). 2) Research and training programs at the Design Interactions Department of the Royal College of Art and the Art Center College of Design in Pasadena (in the photo, “Supercalifornia!: Forever future” by Sascha Pohflepp, 2010, presented for the 2011 exhibition “Made Up: Design’s Fictions”, curated by Tim Durfee with Haelim Paek, Media Design Program, MFA program, Art Center College of Design in Pasadena). In the same direction, in 2013 Salvatore Iaconesi e Oriana Persico realized collaborative performances to engage discussions about people’s desired future, using Design fiction and Transmedia storytelling (in the photo, “+Mind” by students Francesca Canglioli, Tommaso Cappelletti, Clohé Chat presented at “Frontiers of Interaction”). 3) “The Tomorrow Project” by Intel explores possible futures through fact-based, science-based fiction and video conversations with scientists and science fiction authors (Brian David Johnson introduces the open-source robot Jimmy at a Maker Fair in 2013).

### 3 COMPELLING FUTURES THROUGH DESIGN FICTION: SOME EXAMPLES

In this paragraph we briefly illustrate some examples that demonstrate the shifting paradigm from “building” to “sharing” possible visions of the future through design and, in particular, through Design fiction. Our goal is to present projects and initiatives in which the designer’s ability to create new visions of the future is made available to students, citizens, private or public organizations. With this aim, we have built a visual representation (Fig. 4) in which we have linked the drivers of Design fiction projects (technology driven, art driven or science fiction driven) to possible targets, through three kinds of action: cultivate, promote, co-generate. These actions, documented with case studies that belong to contemporary contexts, represent also a progressive level of engagement of the public in collaboratively driven initiatives: thus the qualitative analysis is used to understand possible models that legitimate people and communities to talk about the future. With this aim, Advanced design can be

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recognized as a “transformation catalyst” able to create new opportunities and to improve, not only companies, but, more in general, people’s ability to cope with change (Borja De Mozota, 2006). Moreover it has recently been recognised, through some significant experiences (Lego case in Deserti and Rizzo, 2014; Fiat Mio case in Celaschi et al., 2011) that, gathering people’s conception of (immediate or far) future, activates new value creation in an affordable grassroots process.

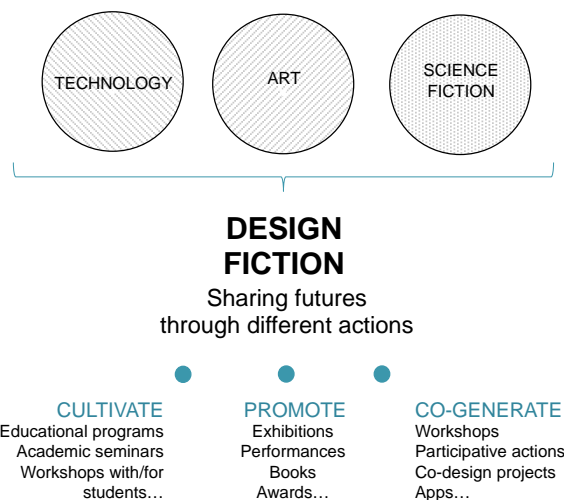


Figure 4 – Social sharing of futures through Design fiction

### 3.1 CULTIVATE THE FICTIONAL VALUE OF DESIGN

The educational context represents an important place for cultivating the fictional value of design. Recent experiences (for example, the teaching activities at the RCA in London by Anthony Dunne, Fiona Raby, James Auger, or at the Art Center of Design in Pasadena; the UCLA courses in Interactive fiction, Design Media Arts Department; the design studio programme “Design Fictions. Designing prototypes for future contexts”, Masters of Creative Industries, Interactive and Visual Design Course, QUT, Australia) have demonstrated the growing interest that Design fiction, “as a mode of inquiry on the prospective in design practice” (Morrison, 2014), is garnering at academic level. “Design fiction and imaginary Futures” is a university course at Carnegie Mellon University taught by Aisling Kelliher and populated by students from the School of Design, School of Architecture, School of Art, the Tepper School of Business and the Human Computer Interaction Institute. The interesting aspects of this course imply the multi-disciplinary public of students and professors involved, the intent of mapping the space of speculative Design fiction, the generative approach proposed (from theoretical investigation to design brief/projects), and the reflection on shared methods and tools between Future studies, Design fiction and Speculative design.

### 3.2 PROMOTE THE FICTIONAL VALUE OF DESIGN

In the last decade, international exhibitions, as well as books, seminars and awards have stressed the attention on the topic of the interactions between design and futures in order to spread the debate around Design fiction to a wide



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public of not specialists. The exhibition “Design and the Elastic Mind” at the MoMA of New York, under the curatorship of Paola Antonelli (2008); the books and conferences by the main representatives of the US Design fiction debate, such as Sterling or Bleecker, the second founder of the Near Future Laboratory (Fig. 5); the institution of the category Best Design Fiction Project of the Internet of Things Awards, founded in 2010, are only few examples. Nevertheless, the activity of Dunne and Raby seems particularly interesting because it finds materialization both at a theoretical and at an operative level. In 2013, they organized the exhibition “United Micro Kingdoms (UmK): A Design Fiction” at London’s Design Museum (Fig. 6). Located in a small room on the Museum’s top floor, the exhibition depicts an unspecified future in which England has been divided into four “micro kingdoms”: Digitalarian; Commune-nuclearist; Anarcho-evolutionist; and Bioliberal. The narration was based on prototypes, visual representations, maps, video, photographs; moreover the web site (unitedmicrokingdoms.org) offered an online access to share opinions and debate. A review by Catherine Rossi (2013) well stresses this attempt to provoke, to generate discussions about alternative ways of being and to encourage people’s imagination: “Dunne and Raby have undoubtedly produced an exhibition worth seeing, whose message on the necessity for debate over our technological future is important. ‘United Micro Kingdoms’ shows the potency of design fiction, but also arguably the importance of being able to imagine ourselves in its fictional scenarios, if we are to participate in this debate and make it effective”. This idea is also stressed in the book *Speculative Everything: Design, Fiction, and Social Dreaming* in which they reflected, presenting an articulated body of historical and recent examples, about how things could be, but not through prediction or forecasting: “Design speculations can act as a catalyst for collectively redefining our relationships to reality” (Dunne and Raby, 2013, p.2).



Figure 5 – TBD Catalogue: the Design Fiction product catalogue for the normal ordinary everyday near future. The Volume 9, Issue 24 (Sept. 2014) contains 162 products, such as “Future Protein Sources. See the Uber of Personal Security. Find out about Luxury Ice. Get in on the latest Social Network - Oglie: The Social Network for Your Pet. There are Anti-Drone Services in the future, as well as Data Enlargement Services. 3D Food Printer Accessories. And much, much more”. Publisher: Near Future Laboratory

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Figure 6 – TBD The Communo-nuclearist society (proposed as one of the four “micro kingdoms” by Dunne and Raby) is a no-growth, limited population experiment. Using nuclear power to deliver near limitless energy, the state provides everything needed for their continued survival

### 3.3 CO-GENERATE THE FICTIONAL VALUE OF DESIGN

Private and public organizations are demonstrating the interest in applying Design fiction’s methods and approaches. Significant contributions come from ICT, automotive and household sectors (such as Apple Future Visions, Microsoft Office Labs 2019, Nokia Mixed Reality, Fiat Mio, Toyota Vision of Future Mobility, Philips Vision of Future, Whirlpool Europe Project F). Nevertheless, recent experiences are addressing more complex cultural, societal and political issues (i.e. policies making, open-government practices, economic sustainability, active citizenship, new entrepreneurship, smart cities). In these cases, multidisciplinary teams of experts adopt co-design approaches to generate alternative scenarios to solve societal challenges.

This is testified, for example, by the project “NESTA Future Londoners”: a series of imaginary characters created to explore the possibilities of urban life in the future (Fig. 7). This series of imaginary personas was produced for a one-day workshop in September 2013 by a collaboration between Arup, Social Life, Re.Work, Commonplace, Tim Maughan and Nesta. They built on the team’s knowledge: from urban neighbourhood engagement (developed by Social Life, a social enterprise created in 2012) to smart technologies in the city. In particular, the workshop “Ethnographic Foresight”, hosted by the Arup Foresight team (during which each group took charge of an imagined Future Londoner), evidences the growing impact of “anticipatory ethnography” methodologies, an emerging field that assimilates design ethnography and Design fiction’s approaches as forward-looking processes (Lindley et al., 2014).

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Figure 7 - Future Londoners is a series of imaginary characters created to explore the possibilities of urban life in the future (2013)

Another example is the DREAM:IN project, an open innovation platform that utilizes design led processes to empower communities in emerging countries using fictionally spaces to host people's dreams (Fig. 8). The project was divided into three distinct phases: Dream, Believe and Realize. During the first phase, teams of university students received basic training to perform ethnographic research. They travelled around the country asking ordinary citizens about their dreams and aspirations. The process was called "Dream Catching". After this, the "conclave" part started in form of a gathering of students, educators, and entrepreneurs dedicated to the classification and development of specific initiatives based on the results of the previous phase.



Figure 8 - The DREAM:IN project started in India in 2010 and was originally conceived by Carlos Teixeira, Parsons The New School for Design, School of Design Strategies, and Sonia Manchanda, founder of IDIOM design and consultancy firm (Bangalore, India) – then it has been replicated also in Brazil and China

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Finally, also “The Power of 8” initiative testifies this attempt. It was an experimental project based on the creation of a design led process aimed at producing a collective expression of the future, collaboratively driven by a multidisciplinary team of eight people (composed by a designer, an educator, an interaction designer, a permaculturist, a policy researcher, an urbanist, a retired civil servant, and a biomedical scientist) (Hand et al. 2010). Through a series of three workshops and a wider public engagement phase (community of local residents), they adopted a narrative approach to build a collective view representing possible futures of Brentford in London, England. The interesting aspect of this project is the creations of a complex series of tools, as materialization of the convergences between design and fiction (story, paths, maps, etc.), used to generate a series of scenarios through prototypes, films and installations.

## 4 CONCLUSIONS

All these experiences testify the attempt of Design Fiction to generate compelling, participative, shared visions of possible futures. Despite its still uncertain boundaries, Design fiction is the most effective way in which Advanced design, anticipation and their relative processes can be introduced within a wider community of not specialists. The design project, thus, becomes a critical media for observing the present and formulating concrete instruments for exploring and sharing the possible and preferable. As the reported cases show, this is mostly due to the possibility of creating a discursive space; a space that is fictionally shaped; a way of projecting ourselves into possible futures. If we translate the presented actions into transformative values, we emphasize the following aspects (Fig. 9):

- cultivate fictional value: educate
- promote fictional value: claim
- co-generate fictional value: involve

In the process of production and use of Design fiction there are different shades of people involvement. Inside institution we assist to a cultivation of Design fiction characterized by a more passive role of the audience, absorbed in a narrative experience that has been activated from a top-down perspective. The role of education, despite is “prescriptive” nature, is actually fundamental in determining future open-mindedness of people. In a more open context all the initiative addressing the promotion of the discussion on future are assessed as mid-level participation aiming at ingenerate discussion and a free imagination of future. Finally the possibility of co-generate Design fiction with people enables a bottom-up perspective where the subjective and powerful preferred futures actively nurture new compelling visions. The capacity to involve people in this new practice is jointed with the production of new tools and method for cooperative speculations and Advance design may play a special role in this new challenging task.

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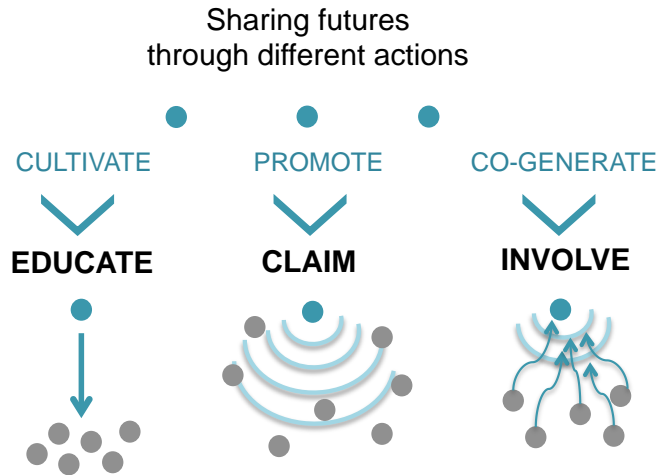


Figure 9 – The three levels of involvement (from top-down to bottom-up) implied in the construction of shared vision of futures

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