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Vision Concepts within the landscape of design research

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Abstract: In the landscape of design research, several techniques of speculative design -or design about ideas- have been positioned, each with a different time frame. Design Fiction and Critical Design, for instance, emerged as making activities that explore the near and the speculative future, respectively. We previously defined Vision Concepts as a design-led technique that explores and communicates speculative futures. Even though Vision Concepts, such as long-term concept cars and products, have been part of the industry since 1938, previous work has failed to identify and understand them from the design research perspective or compared them with other speculative design techniques. This study intends to identify which spot Vision Concepts occupies within the landscape of design research. To that end, we developed a multiple case analysis that includes examples of Vision Concepts, Design Fiction, and Critical Design. This paper will help design researchers identify the similarities and differences between Vision Concepts and the other speculative design techniques and gain knowledge about when and why to apply this technique.

Keywords: vision concepts; concept cars; speculative design; design fiction; critical design

1. Introduction

In recent years, design has increasingly been applied as an instrument to challenge and speculate about future technological and societal developments, rather than merely as a method to develop durable goods.

Under the umbrella of 'speculative design' (Auger, 2012), different techniques have emerged that help designers step away from the constraints of the current marketplace and enter into a fictional world that allows for future thinking, questioning, and dreaming.



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These techniques typically use design as a catalyst to start a discourse about the desirability of a new product or to open up the discussion about social implications of new technology. The resulting physical and/or digital manifestations of these techniques are not meant to be considered in their own right, but rather as provocations or stimuli, that should trigger and inspire people to consider their ideas concerning the future.

Two representative forms of speculative design are Design Fiction and Critical Design. The first one, Design Fiction, is a technique to develop "micro futures-studies [focus] on the everyday life, its short-term evolutions, and the standard objects or services that might fill these possible futures" (Girardin, 2015). It has been explored by researchers and design practitioners such as the Near Future Laboratory, a design agency that develop fictional objects (e.g. magazines, newspapers, and product catalogs) through workshops with clients, where they ask questions about the application of future technologies. The second one, Critical Design, "uses speculative design proposals to challenge narrow assumptions, preconceptions, and givens about the role products play in everyday life" (Dunne & Raby, 2013). It is extensively studied in academia, as the Design Interactions program at Royal College of Art, where designers such as Anthony Dunne, Fiona Raby, Revital Cohen, or Sputnik, among others, deliver unconventional artifacts to ask questions about the means of some specific human situations. So far, these two speculative design techniques have been applied mainly within the design research and art community.

In our previous study, we identified and analyzed a third, and older, future-oriented design technique, called Vision Concepts, which is typically used as a futures study technique within the business context of large corporations (Mejia, Simonse & Hultink, 2016). Vision Concepts embody future opportunities and ideas that are outside a company's ordinary product portfolio (Ny & Thott, 2005; Berlitz & Huhn, 2005; and Keinonen & Takala, 2010). A well-known example of a Vision Concept is the Concept Car, which has been used in the car industry since 1938 as an 'experimental artifact' (as defined by Styhre, Backman, & Börjesson, 2005) to explore and shape the future. Car companies use Concept Cars as in-house testbeds to study and develop new technologies, materials, and interactions and also use them as (expensive) showcases to demonstrate their innovation capabilities to the general public. As a result, Concept Cars can influence a large number of parties involved in innovation, both inside and outside the company (Mejia, Hultink, Pasman & Stappers, 2016).

If we consider its future-orientation and intention, Vision Concepts, could be placed under the umbrella term speculative design, but it also has some characteristics that distinguish it from Design Fiction and Critical Design.

This paper aims to identify and clarify these characteristics to position Vision Concepts as a relevant future-oriented design technique as well as to reflect on its potential value for contexts other than product development in large corporations.

2. Different forms of speculative design

Speculative design is an area of design research, presents in different design disciplines, where design is about ideas, not -factual- products. It produces artefacts, which are not intended to be mass-produced. Both Auger (2012) and Dunne and Raby (2013) distinguish speculative design from other design techniques as a space containing different forms of design that all happen when designers use fictional or imaginary worlds, thereby creating a space of challenges free from the restrictions of commercial products and separate from the marketplace. These imaginary worlds take place in alternative presents or diverse types of futures.

Through the different forms of speculative design, designers facilitate “a dreaming process that unlocks people’s imagination” (Dunne & Raby, 2013) asking what-if questions and developing alternative visions. Speculative designers “use fictitious objects at the core of [their enquiries]” (Auger, 2012) as a way to trigger discussions (Mollon & Gentes, 2014) with a broad audience.

Several authors have looked at the aims these speculative designs serve and found that they can function as a form of thinking, questioning and dreaming (Auger, 2012), as provocation and critique (Hales, 2013), and according to Dunne and Raby (2013) as inspiration, aesthetic exploration, speculation about possible futures, and catalyst for change.

The three forms of speculative design studied in this paper are Design Fiction, Critical Design, and Vision Concepts.

2.1 Design Fictions

Bleecker (2009) coined the notion of Design Fiction as a “prototyping technique tailored to facilitating conversations about the near future [3-5 years]”. It is a form of speculative design influenced by science fiction, the stories about an imagined future, in which “narrative and technology converge” (Hales, 2013). As a technique, Design Fiction stands on the intersection of futures studies and design, as a form of “forward thinking intervention” (Sterling, n.d.) or “micro futures studies” (Near Future Laboratory, 2015b).

Designers make Design Fiction proposals either as self-initiated projects or as assignments for clients. Their goal is to “forge a discursive space where design insights emerge” (Lindley and Potts, 2014). The end is to grab public attention and to influence the audience’s thoughts about the future (Sterling, n.d.).

Near Future Laboratory (2015b) defines its process as informal and experimental where “designers can create and embody new possible futures” (Grand and Wiedmer, 2010). The results of this design form of envisioning are prototypes of common artefacts of tomorrow, which are part of short-term futures (Grand & Wiedmer, 2010), and a short film, which presents a story based on individuals’ relation with the prototypes in a fictional world.

Both, the video and the prototypes are used in workshops with clients, or other involved people, as means of communication. Designers use them in two different ways, as a form of representing the concept in a tangible manner, and as a mean of intervening, stimulating the discussion about the future (Hales, 2013).

2.2 Critical Design

Dunne (1999) coined the term Critical Design, which offers an alternative to how things are, unlike affirmative design, which reinforces how things are now. He argues that designers produce these proposals to make people reflect “on existing values, mores, and practices in a culture [thereby] provoking new ways of thinking about the object, its use, and the surrounding environment” (1999). It is a form of design influenced by *radical design* that is a design movement developed in Italy in the 60s and 70s, in which designers make independent design proposals as a critic of the existing state of affairs.

Independent designers make this kind of proposals working with other professionals through a systematic investigation that, in combination with other design actions, produce provocative artifacts exhibited in art and design galleries.

The results of this form of speculative design are “artifacts as an embodied critique or commentary on consumer culture [...] to challenge the audience’s preconceptions and expectations” (Dunne & Raby, 2013). These unusual artifacts use the language of design to ‘touch’ their audience, triggering discussions within the design and art community. Instead of the artifact itself, the value of the project resides in its ability to encourage people to question in an imaginative way.

2.3 Vision Concepts

In our previous studies, we described Vision Concepts as a type of probe¹ made by organizations, as part of specialized, non-commercial portfolios, which serve to explore new technologies and styling and communicate a possible, plausible, probable, and preferable future (Mejia, Hultink, Pasman & Stappers, 2016). More than just isolated design exercises; Vision Concepts are part of regular programs that “support the company’s strategic decision-making beyond the range of product development” (Keinonen & Takala, 2010). Vision Concepts are a ‘futures study’ technique, that helps companies to perceive, interpret and respond to change, thereby discovering opportunities and risks in the future, which helps them make decisions about the present.

As part of in-house interdisciplinary teams, which are part of large corporations, the designers, through a hands-on process, experiment with several sketches, prototypes, and

¹ Philips (2015) define -design- probes as a dedicated far-future research initiative to track “trends and developments that could ultimately evolve into mainstream issues and that could significantly impact lifestyles and business”. The probes generate insights from research in different areas.

narratives. These different media embody several ideas, making the ideas concrete and actionable (Mejia, Simonse & Hultink, 2016).

The outcomes of this form of speculative design are a prototype and other types of visualizations. The prototype, which is a high-resolution model, and the other visualizations (such as videos, pictures and diagrams) are "used by organizations to explore and present new ideas of the interplay between products and users in the future" (Mejia, Hultink, Pasman & Stappers, 2016). These elements together are showcased in commercial exhibitions to the media and the public at large. They stimulate conversations about the future within the company, and outside the company, communicate the company's future direction (Ibid) grabbing diverse people's attention.

To understand how these three speculative design techniques differ, we will start placing Design Fiction and Critical Design within the landscape of design research proposed by Sanders and Stappers. In the next section, we will describe Sanders' landscape, and we will place the two techniques there.

3. Speculative design within the landscape of design research

In her original landscape of design research, Sanders (2006) describes Critical Design as a place where "the designer is the expert who creates things to probe or provoke response" from their audience. Later, in 2014, Sanders and Stappers identified new forms of design and making activities, which differ with regards to their time-frames, such as Design Fiction and Critical Design. These activities, they argue, "can be used in the early phase of the design process for making sense of the future, as vehicles for collectively exploring, expressing and testing hypotheses about future ways of living" (Sanders & Stappers, 2014).

Figure 1 positions these types of design across (i) the different time-frames: the world as it is, the near future, and the speculative future; and (ii) the design intent: provoking, engaging and serving people.

Sanders and Stappers (2014) position Design Fiction mid-way between engaging and provoking, on the outside ring of the speculative future. Critical Design is located in the center of provoking, on the middle ring of near future.

In the next section, we will locate Vision Concepts within the landscape of design research, by comparing it to Design Fiction and Critical Design. We will look at their different time-frames and their design intent, among other dimensions, integrated into a POP model. This model, developed by Jaffe and Alford (2013), offers a simple way to collect, organize, and analyze the data of cases in a systematic way. POP stands for purpose, outcome, and process. The model was used in a previous study as a framework to develop and structure the Vision Concept technique.

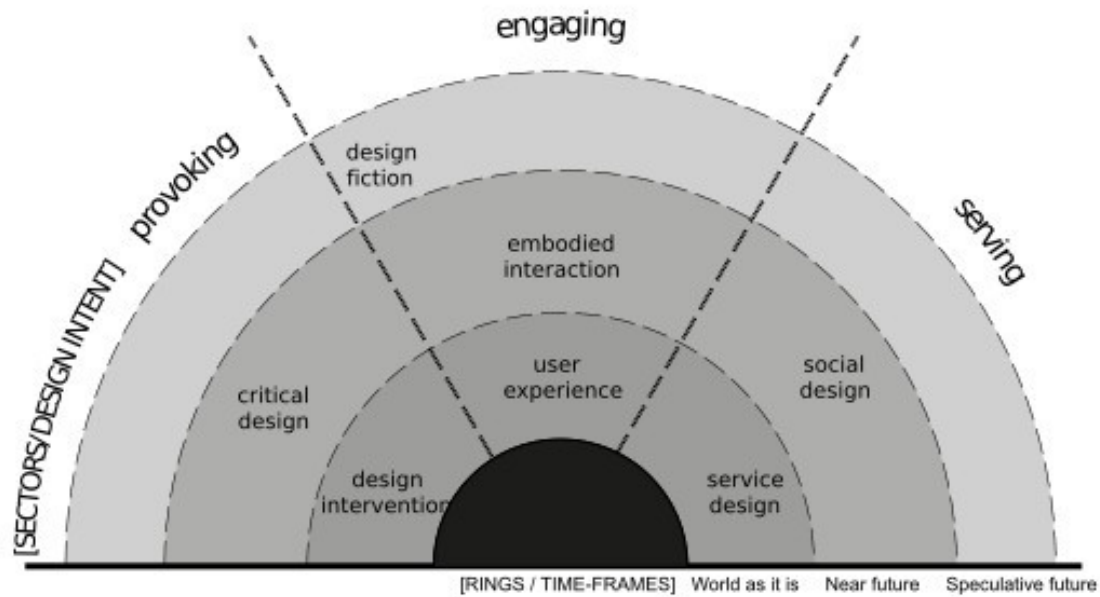


Figure 1. The new techniques to design and making based on time-frames and design intent. In the inner ring, the world as it is, in the middle ring, the near future (e.g. the next generation), and in the outer ring, the speculative future (long-term). From left to right: design as a way to provoke, engage, or serve. Source: Sanders and Stappers (2014).

4. Prototypical examples of speculative design forms

Through a multiple-case analysis, we positioned the speculative design techniques Vision Concepts, Design Fiction, and Critical Design in the design research landscape. The multiple-case analysis involves an examination of diverse subjects based on a set of criteria, which “enables the researcher to explore differences within and between cases” (Yin, 2003) with the aim to replicate findings across cases.

As a first step, data from several existing speculative design projects was collected using various sources: web pages, press releases, specialized magazines and blogs (some including interviews with the designers), and books that refer to these projects. The resulting collection was then narrowed down to six illustrative examples, two for each technique, based on the degree in which the case represented the respective technique as well as on the amount, type, and quality of information available. Table 1 presents an overview of the six examples selected.

Table 1 Overview of the six examples of speculative design

Vision Concept

Mercedes-Benz F 015 Luxury in Motion by
Daimler AG, 2015



The F015 Luxury in Motion is a self-driving concept car designed for the City of the Future 2030+. The concept car is part of the "F series research vehicles", which are part of the portfolio "Mercedes-Benz Concept Vehicles—the Shape of the Future" (Daimler, 2015). As a research vehicle, it formulates the question how to enable people to do what they want or need to do?

Bio-digester kitchen island, part of the Microbial
Home by Philips, 2011



"The bio-digester hub is designed as a kitchen island, which includes a chopping surface with vegetable waste grinder, a gas cooking range, a glass tank that shows energy reserves and glass elements showing pressure, volume and readiness of compost sludge" (Philips, 2015). The project asks questions about the viability of biological processes in our home and places of work.

Design Fiction

Helios: Pilot, Quick Start Guide by Near Future
Laboratory, 2015



"The Quick Start Guide of Amazon Helios: Pilot is a 14-page z-fold document from the near future" (Girardin, 2015). The document presents an introductory guide of a fictional self-driving car. The project asks questions like how does the car

Song of the Machine, a Lab Project by Superflux,
2011



The project proposes an alternative remedy for visually impaired people. A special virus would be injected to introduce new genes into their nerve cells. "The patient would then wear a headset that records and interprets the visual scene and

pick up groceries?, and how do you activate and lock the “Child Safe Mode” for your teenage son to take to football practice?

sends coded pulses of light to the retina. As a single pulse of light can generate a single action potential, the information encoded from the visual scene can be much more in tune with the neural song expected by the visual cortex” (Pavlus, 2011). The project asks questions like what if we could change our view of the world with the flick of a switch?, and how might you choose to ‘compose’ your vision of the world?

Critical Design

Digicars, part of the United Micro Kingdoms by Dunne & Raby, 2013



Respiratory Dog, from the series Life Support, by Revital Cohen, 2008



Digicar is an electric self-drive car, which is the main form of transport for digitarians, a -fictional- society that is organized entirely by market forces. According to Dunne and Raby (2013) “digicar has evolved from being a vehicle for navigating space and time, to being an interface for navigating tariffs and markets”. The project formulates questions about the way that products, services and systems are made and used.

Respiratory Dog is a project that “proposes using animals bred commercially for [...] entertainment as companions and providers of external organ replacement. The use of [...] retired working dogs, as life support ‘devices’ for [...] respiratory patients offers an alternative to inhumane medical technologies” (Cohen, and van Balen, 2008). The device that is connected to the dog, consists of “a working harness that uses the dog's rapid breath rate to pump a bellows and push air into a patient's lungs”, and a treadmill that includes the lure. The project asks questions like could animals be transformed into medical devices?, and could humans become parasites and live off another organism's bodily functions?

We positioned each technique into the design research landscape of Sanders and Stappers, by integrating the dimensions used to construct this landscape (the different time-frames, the design intent, and the role of the designer and of the others) into the POP model mentioned in the previous section.

Some relevant dimensions were then defined within each category of the POP model (see Table 2), as:

Table 2 Dimensions within each category of the purpose, outcome, and process

POP model	Parts	Notion	Source
Purpose	Motive	Describes the general perspective in applying a technique.	The authors
	Design intent	Reflects the mechanism used to achieve the intended goal	Sanders and Stappers (2014)
	Venue	A place where the prototype is shown	The authors
	Main audience	The group of people targeted by the project	Sanders and Stappers (2014)
Outcome	Main manifestation	The form selected by the designer to share the concept	Sanders and Stappers (2014)
	Other manifestations	Additional mediums to support the sharing process	(Mejia, Hultink, Pasman & Stappers, 2016)
Process	Approach	The driver behind the project	
	Type of team	The team that develops the project	
	Role of the designer	The role of the designers who are part of the team	(Mejia, Simonse & Hultink, 2016)
	Role of others	The role of other people that are part of the team	

These dimensions were subsequently categorized into a few discrete values. For example, “Time-frame” was classified as “World as it is”, “Near future” and “Speculative future”. Each of the six cases was then coded on all dimensions, resulting in a table of comparison (Table 3).

5. Results

Table 3 Comparison between six different examples of speculative design. POP stands for purpose, outcome, and process.

	Vision concept		Design fiction		Critical design	
	Mercedes-Benz F 015 Luxury in Motion	Bio-digester kitchen island	Helios: Pilot, Quick Start Guide	Song of the Machine	Digicars	Respirator y Dog
Time-frame	Speculative future	Speculative future	Near future	Near future	Speculative future	Near future
Motive	Business-oriented	Business-oriented	Non business-oriented	Non business-oriented	Non business-oriented	Non business-oriented
Design intent	Engage	Engage & provoke	Engage & provoke	Engage & provoke	Provoke	Provoke
P Venue	Consumer exhibition	Design exhibition	Website	Museum/ gallery	Museum/ gallery	Design exhibition
Main audience	Media, car enthusiast, and general public	Media, design community, and general public	Media and design -research-community	Media and design -research-community	Media and design & art community	Media and design & art community
O Main manifestation	Fully working prototype	Non-working prototypes	Fully working prototype	Video	Scale models	Non-working prototypes
O Other manifestations	Pictures, diagrams, videos, and texts	Pictures, diagrams, videos, and texts		Non-working prototypes	Pictures, diagrams, videos, and texts	Pictures, a diagram, and a text
Approach	Business-driven	Business-driven	Research-driven	Research-driven	Research-driven	Research-driven
Type of team	In-house special design team	In-house special design team	Independent design team	Independent design team	Independent design team	Independent design team
P Role of the designer	Leader and team-member	Leader and team-member	Leader and team-member	Leader and team-member	Leader and team-member	Leader
Role of others	Multidisciplinary team	Team with external advisors	Multidisciplinary team	Multidisciplinary team	Multidisciplinary team	Team with external advisors
Source	Mercedes-Benz R&D (2015); Daimler (2015); Mercedes-Benz (2015); Mercedes-Benz (2015b)	Communications, Philips Design (2011); Philips (2013); Philips (2015)	Near Future Laboratory (2015); Near Future Laboratory (2015b); Girardin (2015)	Song of the Machine (2011); Song of the Machine (2011b); Pavlus (2011); Raford (2012)	The United Micro Kingdoms (2013); Dunne and Raby, (2013); Dunne and Raby (2013b); Rossi (2013)	Cohen and van Balen (2008); Darlaston (2011); Bates (2011); Etherington (2009)

Table 2 shows the comparison of the six prototypical examples of speculative design.

5.1. Purpose

When it comes to motive, there is a clear distinction between the two Vision Concept examples and the Design Fiction and Critical Design examples. Vision Concepts are currently primarily developed within large companies, since their present form requires considerable resources in terms of budget, people, and time. As they are primarily used in a business environment, this implies that the knowledge and exposure gained through a Vision Concept should directly benefit the company's competitive position. In the case of the Mercedes-Benz F 015 Luxury in Motion, for instance, Daimler's main intent is to show its leading position in regards to self-driven cars, building its brand image in relation to this significant business trend. According to Dieter Zetsche, head of Mercedes-Benz Cars, the company is sharing this experimental vehicle to stimulates the dialog about autonomous cars. Daimler claims that their Concept Cars feature innovative technology that enter into a dialog with customers, inspiring the market and helping them sound out customer interest (Mercedes-Benz, 2015).

Design Fiction and Critical Design, on the other hand, are mainly applied within the context of a design research lab, a design agency, or even created by an individual designer. These contexts are usually unable to free up the amount of resources that a Vision Concept requires. Moreover, when applying these design techniques, their main motive is not to make money, but to generate awareness, raise concerns or challenge values about (the use of) new, emerging, and future technologies, products and services. That difference in motive is apparent, for instance, in the Song of the Machine case. In that case, Superflux, a collaborative design practice, and Dr. Denegaar, an optogenetics researcher at Newcastle University, collaborated with the intention to design for the 'imminently probable'. They sought to explore the design possibilities and near-future implications of emerging technologies on people, culture, and the environment. At the core of this discussion was "a conscious awareness of the substantial difference between this hybrid optoelectronic system and the 'closed' technology of bionic implants" (Song Of The Machine, 2011b).

The 'design intent' dimension shows a similar, though less strict distinction. Vision Concepts are designed to engage the general public about the brand and the innovative and future-oriented character of the company. As a consequence, exposure to the outside world (which will be discussed in more detail later) is directed completely towards communicating this positive image, using design primarily as an aesthetic tool to attract attention and polish the message.

Design Fiction and Critical Design, however, both use design as an instrument to challenge and provoke, resulting in representations that are usually less polished and sometimes even uncomfortable to experience. Although Design Fiction mostly tries to at least wrap its provoking message into an engaging video or appearance, as with both Helios and Song of the Machine, Critical Design typically uses a more confrontational and direct approach. The

Respiratory Dog case, for instance, presents the somewhat unusual prospect of a retired greyhound acting as a human prosthesis in the form of a piece of art.

The differences in motive and design intent also lead to differences in the 'main audience' that is targeted as well as the venue that is used to present the results. Vision Concepts are generally aimed at large audiences and are therefore typically showcased at big commercial events, to generate as much attention and exposure as possible. This is why the Philips Bio-digester Kitchen Island was displayed in a large design gallery during the yearly Dutch Design Week. Interestingly enough, the Mercedes Benz F 015 did not make its world premiere at a motor-show, but at the International Consumer Electronics Show in Las Vegas, thereby emphasising its electronic innovativeness rather than the typical car characteristics, like styling and horsepower.

Design Fiction and Critical Design are more targeted to a smaller group of specialized people, usually within the design research and art community. These are communities with a lively discourse that expresses itself through blogs, magazines, and (scholarly) events. As a consequence, both techniques require less promotional efforts, but their results are also less apparent to the general public.

5.2. Outcomes

Essential to all three techniques are the manifestations they use to communicate their results to the outside world. Overall, a difference was identified, going from very detailed, full-scale prototypes in Vision Concepts, that leave little to the imagination, to open-ended probes in Critical Design, that provoke the audience to actively create their own impressions. Since Vision Concepts are aimed at large and diverse audiences, they typically use a variety of rich visualizations with different levels of detail and fidelity. In the case of the Mercedes-Benz F 015 Luxury in Motion project, its main manifestation is a fully working prototype, a car that can actually be driven and experienced. In addition, a host of other manifestations, such as glossy pictures, diagrams, videos, and texts were created and distributed as press kits for maximum exposure. In the Philips case, the displayed prototypes were non-functional, but full-scale and highly detailed.

Design Fiction's main manifestation is typically a video, as in the Song of the Machine case. Because of its visual richness and inherent narrative structure, a video provides designers with the opportunity to merge the richness of today's everyday life with the possibilities of the near future in a believable and compelling way. Another example of how Design Fiction seeks to blend the future with the present is the Quick Start Guide produced in the Helios case, which was rather conventional in its representation (though not in its content). The Near Future Laboratory, which designed the Quick Start Guide, started with a broad spectrum of questions that guided them into a discussion about generic interactions with a fictitious car, with detailed definitions of these interactions but without the definition of the

actual product or its technical requirements. Creating the guide was thus considered more of an exercise that provided room for conversations about the topic, rather than an end in itself.

While Vision Concepts and, to a lesser extent, Design Fiction generally are aimed at presenting a 'comprehensive' picture, Critical Design intentionally leaves blank spaces which need to be filled in by the audience. In the Digicar case, for example, the outcomes were presented by means of small-scale models, which were supplemented by "sparing quantities of supporting material [which] evoke a society by themselves" (Moore, 2013). Again, the models used here were intended as vehicle for speculation about potential scenarios of transportation in an imaginary country.

5.3. Process

All six cases are clearly design-led projects, in which design is used as the main instrument to achieve the desired goal. When it comes to the role of the (individual) designer, though, there appears to be a clear distinction between Vision Concepts, driven from a strategic and business-oriented perspective, and Design Fiction and Critical Design, which use a non-commercial and research-oriented view.

Vision Concepts are typically created by an in-house design team within a company context, in which the resulting outcomes should primarily reflect the image and values of the brand rather than those of the designer.

By contrast, Design Fiction and Critical Design especially seem to be much more driven from a designer's personal stance and opinions. In the cases of the Digicars and the Respiratory Dog, for instance, the names of the designers are explicitly stated; the designers who created the Mercedes Benz F 015 Luxury in Motion and the Philips Bio-digester Kitchen Island remain anonymous.

6. Discussion

The diagram below presents the location of Vision Concepts, Design Fiction, and Critical Design, as making activities, within the landscape of design research as proposed by Sanders and Stappers. The three speculative design techniques we compared encompass the three different time-frames. They use fictional time-frames as a mechanism to unlock the imagination, gain a fresh perspective on reality, and to escape from the constraints imposed by the market. While the speculative future opens possibilities, designers establish a distinct area of interest, as a scope for the project, which guarantees that they remain focused during the exploration and the discussion.

Based on our findings, we suggest to reposition Design Fiction and Critical Design. Design Fiction should be moved from the speculative future to the near future in response to its interest in mundane short-term speculations. It is now located in the central quadrant just in the middle of Embodied Interaction and Critical Design, mediating between technology and

its impact. Design Fiction is also mid-way between engaging and provoking, producing videos and other types of visualizations that both attract and challenge design research and art communities. Critical Design can cover a wider variety of times, ranging from alternative presents to speculative futures. It is clearly in the provoking area, making unpleasant proposals presented as rough prototypes and other type of visualizations to trigger reactions.

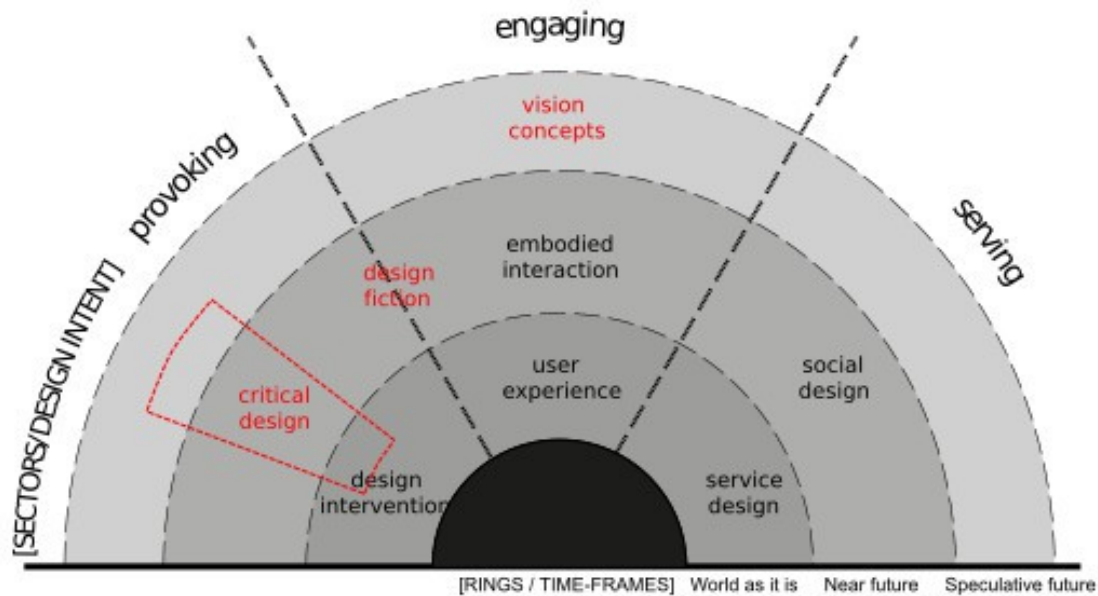


Figure 2 The spot of Vision Concepts, Design Fiction, and Critical Design within the landscape of design across time scales.

Vision Concepts would be positioned on the outside layer of speculative future, while concentrating on a particular domain. These two characteristics are consistent with their business-oriented approach, taking into account the type of business and the market dynamics, as well as the domain in regards to its strategic direction, e.g. fifteen years into the future for automakers within the domain of private mobility solutions.

The design intent of Vision Concepts is to engage the public at large in commercial shows through refined visualizations that convey positive images that benefit the business. Overall, we found that while the three techniques are all future-oriented and design-led, they clearly differ in terms of intention and character. Because of its business context, Vision Concepts is mainly oriented on generating strategic value for a company. As a consequence, its perspective on the future tends to be on the safe side, resulting in outcomes that are mostly in line with the brand and mainly presented and discussed within the limited scope of the domain in which the company operates. Critical Design and Design Fiction, on the other hand, are not bound by commercial restrictions and are thus able to generate scenarios that are more challenging and disruptive, addressing certain issues from different viewpoints (social, cultural, technological, environmental, or economical) other than a commercial one.

This freedom also enables designers to actively facilitate and engage in the discussion that should result from their work.

Unlike design as a problem-solving strategy, where the design process has a (commercial) product as the end result, in speculative design, designers make prototypes and other visualizations as means (of communication). The end goal, then, is to engage and (or) provoke a discussion about a well-bounded domain. To do this, designers explore the future to develop a set of neat ideas: a concept. The concept is deployed in a narrative for a certain audience and shared through different manifestations, combining prototypes and other type of visualizations. The chosen audience depends on the domain and the purpose, and is divided into three: the media, the specialized public, and the general public.

For our future research on Vision Concepts as a speculative design technique, we will further explore what it can learn from Design Fiction and Critical Design. By looking at the ways in which these techniques with limited resources challenge the existing status quo, our aim is to bring Vision Concepts from the current niche of large enterprises to the much larger domain of small and medium-sized enterprises (SMEs). An interesting direction could be the collaboration between a design studio and an SME, in which the design studio uses Vision Concepts as a speculative design technique, to explore, communicate, and discuss the SME's preferable futures. We are currently developing a Vision Concepts toolkit, which we will soon evaluate with several SMEs.

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6. References

- Auger, J. (2012). Why robot?: speculative design, the domestication of technology and the considered future (Doctoral dissertation, Royal College of Art).
- Bates, A. (2011). Revital Cohen's scientific design. Retrieved from <http://www.iconeye.com/design/news/item/9214-revital-cohen-s-scientific-design>
- Berlitz, S. and Huhn, W. (2005). Lighting innovations in Concept Cars, Proc. SPIE 5663, Photonics in the Automobile, 21, doi:10.1117/12.583156
- Bleecker, (2009). Design Fiction: A Short Essay. Available at: <http://nearfuturelaboratory.com/2009/03/17/design-fiction-a-short-essay-on-design-science-factand-fiction/>.
- Cohen, R., and van Balen, T. (2008). Life support [Webpage]. Retrieved from <http://www.cohenvanbalen.com/work/life-support#>
- Communications, Philips Design (2011). Philips launches 'Microbial Home' new forward looking design concepts [Press release]. Retrieved from http://www.newscenter.philips.com/main/design/news/press/2011/Philips_launches%20_Microbial_Home_new_forward_looking_design_concepts.wpd#.VgLLuY-q%E2%80%A6
- Daimler (2015). Innovations for the mobility of the future. Retrieved from: <http://www.daimler.com/technology-and-innovation/insights-into-research-and-development>

- Daimler (2015). Mercedes-Benz Concept Vehicles – The Shape of the Future. Retrieved from: <http://www.daimler.com/dccom/0-5-1280234-1-1280303-1-0-0-1302140-0-0-135-0-0-0-0-0-0-0.html>
- Darlaston, K. (2011). Synthetic engineering: dreams and doubts [eMagazine]. Retrieved from <http://www.realtimearts.net/article/issue103/10326>
- Dunne, A. (1999). Hertzian tales: electronic products, aesthetic experience and critical design. London: The Royal College of Art computer related design research studio.
- Dunne, A., and Raby, F. (2013). Speculative everything: design, fiction, and social dreaming. MIT Press.
- Dunne, A., and Raby, F. (2013b). UMK [Webpage]. Retrieved from <http://www.dunneandraby.co.uk/content/projects/666/0>
- Etherington, R. (2009). Design Indaba videos: Revital Cohen [Format description]. Retrieved from <http://www.dezeen.com/2009/03/11/design-indaba-videos-revital-cohen/>
- Girardin, F. (2015). Our Approach of Design Fiction [Blog]. Retrieved from <http://blog.nearfuturelaboratory.com/2015/07/28/our-approach-of-design-fiction/>
- Girardin, F. (2015). The World of Self-Driving Cars — Medium [Blog]. Retrieved from <https://medium.com/@girardin/the-world-of-self-driving-cars-b1f7ade18931>
- Grand, S., and Wiedmer, M. (2010). Design fiction: a method toolbox for design research in a complex world. In proceedings of the DRS 2010 conference: Design and Complexity.
- Hales, D. (2013). Design fictions an introduction and provisional taxonomy. *Digital Creativity*, 24(1), 1-10.
- Keinonen, T. K., and Takala, R. (2010). Product Concept Design: a Review of the Conceptual Design of Products in Industry.
- Lindley, J., and Potts, R. (2014). A machine learning: an example of HCI prototyping with design fiction. In *Proceedings of the 8th Nordic Conference on Human-Computer Interaction: Fun, Fast, Foundational* (pp. 1081-1084). ACM.
- Mejia, J.R., Hultink, E. J., Pasman, G., and Stappers P.J., 2016. Concept Cars as a Futures Technique. *Proceedings of the International Conference on Product Development Management* (not public yet).
- Mejia, J.R., Simonse, L., and Hultink, E. J., 2016. Design of Vision Concepts to explore the future: nature, context and design technique. *Journal of Creativity and Innovation Management*.
- Mercedes-Benz (2015). Design Process F 015 Luxury in Motion by Mercedes-Benz [Video]. Retrieved from: <https://www.youtube.com/watch?v=R8BwEmeSREk>
- Mercedes-Benz (2015). Mercedes-Benz TV: World premiere of the Mercedes-Benz F 015 Luxury in Motion research vehicle [Video]. Retrieved from <https://www.youtube.com/watch?v=DYTV4d-Gn0s>
- Mercedes-Benz Cars Research and Development Communications Centre (2015). World premiere of the Mercedes-Benz F 015: Luxury in Motion at the CES. Retrieved from: <http://media.daimler.com/dcmedia/0-921-1775416-1-1778134-1-0-1-0-0-1-12639-1549054-0-1-0-0-0-0.html?TS=1430124188873#>
- Mollon, M., and Gentes, A. (2014) The Rhetoric of Design for Debate: triggering conversation with an “uncanny enough” artifact. *Proceedings DRS 2014*. Retrieved from: <http://www.drs2014.org/media/655218/0411-file1.pdf>
- Near Future Laboratory (2015). Home, Products, Helios Quick Start Guide [Webpage]. Retrieved from <http://nearfuturelaboratory.myshopify.com/products/helios-pilot-quick-start-guide>

- Near Future Laboratory (2015b). Pilote Quick Start Guide by Near Future Laboratory [Webpage]. Retrieved from <http://qsg.nearfuturelaboratory.com/>
- Near Future Laboratory (2015c). Clarify Today, Design Tomorrow. Our Approach of Design Fiction [Blog]. Retrieved from <http://blog.nearfuturelaboratory.com/2015/07/28/our-approach-of-design-fiction/>
- The United Micro Kingdoms (2013). [Webpage]. Retrieved from <http://www.unitedmicrokingdoms.org/>
- Ny, J., and Thott, N. (2005). Incorporating the future. Retrieved from <http://lup.lub.lu.se/luur/download?func=downloadFile&recordId=1344978&fileId=2434132>
- Pavlus, J. (2011). What if a virus could let blind people see in infrared? [Digital Magazine]. Retrieved from <http://www.fastcodesign.com/1663998/what-if-a-virus-could-let-blind-people-see-in-infrared>
- Philips (2013). Microbial Home [Video]. Retrieved from <http://youtu.be/dM0WYdkKlu8>
- Philips (2015). Philips Design. Retrieved from: <http://www.design.philips.com/>
- Raford, N. (2012). Three Good Examples of Design Fiction [Blog]. Retrieved from <http://noahraford.com/?p=1349>
- Rossi, C. (2013). United Micro Kingdoms: A Design Fiction [Webpage]. Retrieved from http://www.domusweb.it/en/design/2013/06/28/united_micro_kingdomsdesignfiction.html
- Sanders, E. B. N., and Stappers, P. J., (2014). Probes, toolkits and prototypes: three approaches to making in codesigning. *CoDesign*, 10(1), 5-14.
- Sanders, E. B. N., and Stappers, P. J., (2008). "Co-creation and the New Landscapes of Design." *CoDesign* 4 (1): 5-18.
- Sanders, E.B. N., (2006). Design research in 2006. *Design research quarterly*, 1 (1), 1-8.
- Sterling, Bruce. (n.d.). "Futurism : Design Fiction for Media Philosophers." Accessed January 2013. Available at <http://www.egs.edu/faculty/brucesterling/lectures/>.
- Styhre, A., Backman, M., and Börjesson, S. (2005). The Gendered Machine: Concept Car Development at Volvo Car Corporation. *Gender, Work & Organization*, 12(6), 551-571.
- Song of the Machine (2011). [Webpage]. Retrieved from <http://superflux.in/work/song-machine>
- Song of the Machine (2011b). [Webpage]. Retrieved from <http://superflux.in/blog/song-of-the-machine-in-depth>
- Yin, R. K. (2003). Case study research: Design and methods (3rd Ed.). Thousand Oaks, CA: Sage.

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