

Beyond Speculative Critical Design

Natalia Kritsali | MA in Service Design
Tutor: Sarah Pennigthon
Word Count: 9.264

June 2018

This dissertation is in the memory of my grandmother, Λουκία.

For you that you left while I was writing this piece, while I was doing the master that without you wouldn't be possible. I will always be grateful that you have sacrificed these past months everything for me to be here and pursuing my dream for designing a better world. . Thank you γιαγιά μου.

τόπος

topos | derives from the ancient greek world topos that was used to described not a place, but a common place.

ευτοπία

eu-topia | derives from the Greek world eu-topos, a good place.

ουτοπία

ou-topia | derives from the ancient greek world ou-topia meaning no place.

As Thomas More described 500 years ago when he first introduced the concept of utopia in the modern world, it is the combination of an eu-topia and ou-topia, the combination of a "place of perfection" and a place of "non-existence". In his work, Thomas More, depicted utopia as a self-sufficient island state.

But as the ancient Greek philosophers believed, topos which is the precondition for the realisation of the utopia, is a common place. In the modern global reality, the utopia cannot be an isolated self-sufficient island but needs to derive from the combination of the billions of different visions each individual has for a better world.

But what is a better world? for whom? how is the vision for a better world formed? and can we reach a common global vision for a modern utopia through design?

Contents

1. Introduction	9
2. In Search for a Utopia	
2.1 Utopianism	11
2.2 The Modern Utopia	11
3. Design in Transition	
3.1 Defining Design	15
3.2 Defining Design for the Future	16
4. Speculative Critical Design	
4.1 Framework of Practice	21
4.2 Elements of Practice	21
4.3 A Different Approach	23
5. Notes on the Current Practice	
5.1 An imagined future for who?	25
5.2 Which debate?	26
5.3 A dialogue with the Commercial World	28
5.4 Suggesting an SCD Methodology	29
6. Conclusive Perspectives	33

List of Illustrations

1. Visual Representation by the Author, of the Cone of Preferable Futures by both Dunne, Raby and Candy. p. 22
2. Visual Representation of a version of the Double Diamond, originally created by the Design Council, based on the Author's practice. p. 29
3. Visual Representation of a version of the Futurescone as a Screenshot of Reality p. 30
4. Visual Representation of a version of the SCD Methodology of the Author. p 31

Introduction

As I count just nine months in the Design World, coming from the world of social innovation and entrepreneurship, I strive to understand my role as a designer in creating a better world. This dissertation begins with the exploration of the notion of the better. I am trying to understand the constitution of the better world, the ideal utopia we all want to live in, how it is constructed, negotiated and realised in the present and the future. Influenced by my studio practice in the field of speculative critical design, in the next chapters I will analyse this emerging field in the discipline of design, the current practice and my views on which elements of the practice can be used for the creation of a better world. The primary assumption in which this dissertation is written is that we live in a world in transition, and as such, we need to approach design with a fresh open mind. With the learnings of the past, we, as designers, need to redefine the practice and design with the future in mind.

In the first chapter, I will explore the concept of utopia, the idea of a better world and modern social imaginaries. Through this chapter, I am trying to understand how visions are shaped and historically, what constitutes of the public and what sparkles progress in the modern context. In the second chapter, I will depict the current understanding and different approaches in the field of speculative critical design. Trying to answer the what speculative, critical design is, how is it done, by whom, where, when and for which purpose. In the third chapter, I will present the current criticism on speculative critical design. Following this criticism, in the last chapter, I will present my thoughts on the practice and the methodology I am currently testing to realise the purpose of this practice, illustrating the ways that speculative critical design can help in our quest for a better world and suggest possible ways that the practice can be enhanced to fulfil its purpose. In the Conclusive chapter, I will present a discussion on the core topics that this dissertation addresses.

This dissertation derives from my current research and practice within the MA in Service Design. My exploration began with the studio work, through discussions with practitioners and extensive research on contemporary literature about this topic. My goal is to explore which elements of speculative critical design can be used not only speculative projects but also in the mainstream design practice and understand the tools that we, designers have in our repository to realise a better world.

In Search for a Utopia

Utopianism

For thousand years, humans have dreamt of the ideal world. Ever since the ancient times, human beings were looking for ways to improve their lives and create the ideal state. From the philosophical work of ancient and Latin philosophers to contemporary philosophy, art and literature we can understand the ideas and conditions that shape the concept of the ideal state and how it evolved in time but also the fact that the ideal state that was much described never came to a realisation.

Five hundred years ago, Thomas More (1989) introduced the concept of the modern utopia, as a self-sufficient island in which social cohesion and equality are the pre-conditions of wellbeing and happiness. As Thomas More refers to his concept is "a truly little book, equally beneficial and entertaining, about the best kind of a republic and the new island of utopia". His wordplay suggests that the Utopia is the non-existing place that we dream to achieve but remains unachievable.

Historically, utopian thinking has served different purposes of use. In some forms utopias where guides as detailed descriptions of the possible ways of living, in other forms they served the purpose of criticism of the current state. Jacoby Russell (2007) in his work has separated two forms of utopianism:

1. a blueprint of utopia, which is a guided action plan to achieve the detailed described state
2. iconoclastic utopianism which describes the need for the utopia to live in our imagination, and serving the purpose of motivation and optimism in achieving a better world.

Despite the bad reputation of utopianism and its associate with totalitarian beliefs and systems, the iconoclastic utopianism can be a medium to explore and realise new and more imaginative ideas of the future. As Russell (2007) suggests, "the choice we have is not between reasonable proposals and an unreasonable utopianism. Utopian thinking does not undermine or discount real forms. Indeed, it is almost the opposite: practical reforms depend on the utopian dreaming". In the creative world, many practitioners, in the form of art, film and literature have addressed the concept of utopia, suggesting a form that correlates with Russel's iconoclastic utopianism rather than an actual blueprint of action. These practitioners have articulated the need for utopianism in a less tangible, but more successful way as Vivian Greene (2011) suggests.

The Modern Utopia

In the 21st century, utopian thinking has been replaced with the idea of the better world which is associated with progress. In her thesis, Daisy Ginsberg (2017) suggests that "better is a contemporary version of the idea of progress, the enlighten concept that invited humans to believe that our accumulating knowledge lifts us all, and we can shape our world towards a future state of imagined perfection. Since progress tells us that things are getting better, things should be better than they have ever been. But progress is not guaranteed." As John Gray (2004) wrote: "progress has become a myth we have to live by, it is an illusion with a future". In western economies, better

The vision of a better world in the western world is formed by what Jasanoff (2009) described as sociotechnical imaginaries.¹ As she defined them “sociotechnical imaginaries are collectively held, institutionally stabilised and publicly performed visions of desirable futures, animated by a shared understanding of forms of social life and social order, attainable through and supportive of advances in science and technology.” As Douglas (1982) wrote, “vibrant societies share common narratives of who they are, where they have come from, and where they are headed.” In modern societies, these narratives in the form of imaginaries co-exist, either in tension or a productive dialectical relationship (Jasanoff 2009). These imaginaries are being negotiated through media, politics and the market, to be realised. As Dunne and Raby (2014) illustrated, in modern societies imaginaries become reality every time money is exchanged. But, are these imaginaries enough for the creation of a better world? Is technological and scientific progress just what we need and what will define our future? And for whom is this better world? Who’s better world it is? What happens when we do not think about the western world but a global better world?

It is argued that what constitutes the better world remains an issue of debate and we need to talk about multiple modernities to understand and realise the idea of a better world (Taylor 2004).² In “Making Future” the authors in a fictional communication with Silicon Valley’s designer, address them with the following “ You live in a place where my future is imagined and rolled out from, rolled over to my boned, over my home, my hills, my islands. I wonder what you imagine my home looks like. [...] But what do you know? What of my home affects your thoughts, your imaginings, your designs for the future? What does the future mean to you?” suggesting that companies and innovation are leading the progress, but how this progress of a better world is negotiated? For who is better and who decided remains an open debate.

It is equally important when we try to analyse how social imaginaries are being shaped in modern societies, mostly in Western societies, to acknowledge and take into account the effect for science fiction in the formation of our dreams. As Paolo Gardini (2018) wrote: “the overwhelming power of the visual imagery of sci-fi films or literature is unavoidable, polluting our ability to build virgin future design realities. From touch screens to augmented eyewear and self-driving cars, it is easy to see that some current design products are projections drawn from hundreds of Hollywood scripts and their catchy futuristic aesthetics.

1 Critical literature on the construction and need for imaginaries can be found in the work of Charles Taylor and Benedict Anderson. Taylor provides the theoretical background in which social imaginaries, as he describes them, are being formed and understood in our societies. Imaginaries are the ways people imagine their existence, how they fit together in society, interact and their expectations. Taylor argues that imaginaries should come before of what technology can or will do. In Anderson’s work, imaginaries are what hold together nations and societies.

2 Charles Taylor (2014) provides an understanding of the idea of multiple realities and the construction of visions based on different cultures other than the Western one. Taylor in his work experimented with the ideas of multiple modernities, on the way non-western cultures have been modernised and the social imageries that exist in this cultures. Arjun Appadurai (1990) used the idea of imaginaries to devolve the notion of universal homogenous modernity. The way societies have developed and are looking into the future is crucial to understand how the SCD can be framed and theoretically be established with tools and methodologies that Western and Non-Western cultures can use to facilitate the conversation about the future.

Today's design is thus a child of yesterday's sci-fi. An archive of stereotypes mostly assembled from a Western perspective, it is not only derivative but dangerous." His argument, can be summarised in the extensive role that science fiction has in the way we perceive reality and the future, and it is a dangerous trap that we can fall into, as the future described in science fiction is rarely the better world we want and often establishes a belief that the future is inevitable

In a world that Silicon Valley and science fiction, have so much impact in our perception of the future, the need to have a collective vision is more urgent than ever. Dunne and Raby wrote " it is hard to say what today's are; it seems they have been downgraded to hopes - hope that we will not allow ourselves to become extinct, hope that we can feed the starving, hope that there will be room for us in this tiny planet-. There are no more visions". Their perspective is reinforced by Russell Jabocoy argument that we have run out of political ideas and the world no longer harbours any utopian visions. An idea that is also supported by Rutger Bergman who argues that human beings no longer feel the urge to have a vision for the future, although a vision is needed. A vision, that right now is being served by socio-technical imaginaries, but those do not provide an answer to all the questions that illustrate the vision for the future.

“We can only get to a future with a future by design”

- Tony Fry, 2012

Design in Transition

Design practice is being used as a medium to realise the still non-existent. As designers, we are designing products, services, interactions, buildings and experiences that do not exist yet or function in the real world to respond to our needs, wants and demands. It is thus inherited in the design practice the idea of the future. Understanding design and the designed with this perspective, the world we live in is being designed, and thus our responsibility as designers is growing as the demands for a better world grow. As Tony Fry (2012) argued, there is an indivisible relation between the formation of the world, of man fabrication and the humanity itself.

It is true, that to live in a better world, whatever that means, we need to design this world and create a shared vision that will lead us to it. Design's potential and capability to do so is without question. However, at the same time, design has been a significant part of the problem itself. If we see for example the environmental issues that we are facing, the planet's renewable resources are being used at a rate of 25% faster than they can be renewed and at the same time designers design more products that see the market that are using our finite resources.

In the previous chapter, I strived to understand the importance of having a vision for the world, either in the form of a utopia or a dream, or a social imaginary that is collectively held. In the following chapter, I intend to explore what design is, what is our role as designers and how design can support building a collective vision and the ways designers are already experimenting with the future. Accordingly, in this dissertation I choose to focus on the practice that is referred in the bibliography as Critical Design, not suggesting that it is the only design practice able to provide a solution but because I believe that the rational and elements of the practice as well as the criticality itself are essential components of the future of design.

Defining Design

It is well argued that design practice need to change concerning its ethics, culture, process and scope.¹ As the world is in a transition, design is as well. The current design practice focuses on moving from serving the market and consumerism to understanding the implications of the designed and serve the humans and non-humans of our world (Fry, 2009). This discussion is being hosted in universities, academia, design researchers and design publications while design philosophers argue that although there are a few discussions about the agency of change, mainstream design practice has not changed. Having said that, in the following paragraphs I would first attempt to define design as the current practice but also summarise the discussion about transition in the design world.

"Design is the human power of conceiving, planning, and making products that serve human beings in the accomplishment of any individual or collective purpose" (Buchanan, 1992) It is a practice, that focuses on creating the non-existent, the solution to a problem and transforming existing situations to preferred ones. Hebert Simon (1998), argued that design is concerned with the artificial, how things might be and not with the natural or how things are in the present.

1 The need to change the way we practice design and the term Transitions Design, as a discipline or Design in Transition was well elaborated in an ongoing discussion hosted in the Design Philosophy Papers. The main argument of the discussion is that as the world is changing around us, design needs to change to create a more sustainable and livable world (Fry 2009)

According to the above definitions, we can clearly understand that design is not limited to the professional practice of design but as Tony Fry (2012) stated, all human beings are designers. There are those who have turned design into professional practice and can be identified as such, but every practise or action has a design in it. To extend this thinking, Manzini (2015) defined design as "the natural human ability to adopt a design approach, which results from the combination of critical sense, creativity and practical sense". From the above definition, it is clear that not only designers design. Manzini explains the use of the term design in three different circumstances: diffuse design, expert design and co-design. Expert design can be summarised as the current professional design practice whereas diffuse design, as defined above, is the ability and actions of every human being and co-design can be understood as a design process that included a variety of disciplines and stakeholders including the expert designer.

Scholar Clive Dilnot (2015) argues that since design opens and closes opportunities through its imbrication of good and services into the economy, he argues that we need to understand its action and consequences as fundamentally political. Design's role in developing powerful capabilities to negotiate our material, nature, political and social entangles. They remind us that design's greatest possibility, its primary responsibility, is the reduction of suffering and the maximisations of potential.

Defining Design for the Future

The practice that describes the current thinking of designing for the future is Critical Design. The roots of critical design, as explored in the academic literature, can be located in the work of Radical Architecture design as practised by the Superstudio in the 1960's and 1970's. Thirty years later, Dunne (1999) coined the term Critical Design; "Critical design uses designed artefacts as an embodies critique or commentary on consumer culture. Both the designer artefact (and subsequent use) and the process of designing such an artefact cause reflection on existing values, mores and practices in culture. A critical design will often challenge its audience preconceptions and expectations thereby provoking new ways of thinking about the object, its use and the surrounding environment." In the following years, Dunne and Raby (2014) defined Critical Design as " a practice that uses speculative design proposals to challenge narrow assumptions, preconditions and gives about the role product play in everyday life. It is more of an attitude than anything else, a position rather than a method. It is opposite to affirmative design: design that reinforces the status quo".

Although, in academic literature, the above references are most commonly used theoretically to establish the practice in time, critical design, maybe not as in the form of Dunne and Raby and other current practitioners, but as a means to imagine different possible futures have started long before Radical Design. Anna-Marie Willi's article in Design Philosophy Papers (2014) brings some light of design work, that was later characterised as Design Fiction, that was realised in a future time, providing a different function of Critical Design projects and outcomes. These imagined worlds have been realised in the decades to come by corporates. An example of this work was exhibited in New York World Fair in 1939. Norman Bel geode's Futurama 3, a vision soaring tower blocks and freeways, seen and desired by millions who visited the Fair, and materially realised in the US a few decades later (Barbrook 2007).

The discipline of critical design, which began as a radical approach to architecture design and developed through the lenses of product and interaction design matches with the values and characteristics of adversarial design, design fiction, design for debate, lucid design, radical design, discursive design, anti-design, conceptual design and experiential design.

Adversarial design, as defined by Carl DiSalvo, " is a type of political design, a theoretical informed construct for understanding, describing and analysis a range of objects and practises that brings to the fore the agonistic qualities of the work across a multitude of movements and genders. Though designedly means and forms, adversarial design evokes and engages political issues".

Bruce and Stephanie Thard (2015) has suggested that "the primary intent of the discursive designer is to encourage user's reflections upon, or engagements with, a particular discourse the goal is to affect the intellect. As distinct from objects of art, architecture, and graphics, which can all be agents of discourse, products have particular qualities that offer unique communicative advantages".

The practice of speculative and critical design is also associated with Design Fiction. According to Julian Bleeker (2012), "Design Fiction is making things that tell stories, it is like science fiction in that the stories bring into certain focus matters-of-concern, such as how is lived, questioning ow technology is used and its implications, speculating about the course of events". The practice is indeed associated with critical design but is better seen as a method rather than a practice itself as Malpass (2017) suggested. Design Fiction combines design, art and science fiction making it possible to imagine different futures. In doing so, it uses prototypes and storytelling. These prototypes are what Kirby (2010) described as Diegetic Prototypes, "Diegetic Prototypes depict future technologies in terms of news, viability and benevolence to large publics". The prototypes are being called diegesis as this technology exists only in the fictional world, but it is grounded in scientific evidence of the present. Design Fiction is regularly used in speculative design."

All these different fields of design, as Jame Auger (2012) pointed out, all of the above have some similarities and a common goal. These similarities are the design of ideas, objects, services and experiences in the form of interaction that does not aim to be commercialised or as affirmative design suggest, reinforce the status quo, but they aim to provide the space for the public and potential stakeholders to discuss, debate and create alternative desires for the future. Their aim is to both pose questions about the future but also critique the presence and inspire action. This designer consists of tangible objects and interactions that engage the audience, and make real an unreality. This designs, also, are often located in exhibitions, are commissioned to serve the purpose of research through design and are being discussed within academia and design practitioners.

Moreover, Auger (2012), described Speculative Design as "a space for dreaming, challenging and debating - and critically, through the use of designed artefacts as its media, it is internet to appeal to a brand and diverse audience, from experts working in related fields such as designers, engineers and scientists, to consumers and users of technological products". He argues that the term Speculative Design is more appropriated to describe this emerging field as it suggests a relationship between here and now and the design concept rather than terms such as design fiction, probes, discursive or critical that act to dislocate the object from everyday life, exposing their fictional or critical nature.

The discipline of critical design, which began as a radical approach to architecture design and developed through the lenses of product and interaction design matches with the values and characteristics of adversarial design, design fiction, design for debate, lucid design, radical design, discursive design, anti-design, conceptual design and experiential design.

Adversarial design, as defined by Carl DiSalvo,¹ is a type of political design, a theoretical informed construct for understanding, describing and analysis a range of objects and practises that brings to the fore the agonistic qualities of the work across a multitude of movements and genders. Though designedly means and forms, adversarial design evokes and engages political issues¹.

Bruce and Stephanie Thard (2015) has suggested that “the primary intent of the discursive designer is to encourage user’s reflections upon, or engagements with, a particular discourse the goal is to affect the intellect. As distinct from objects of art, architecture, and graphics, which can all be agents of discourse, products have particular qualities that offer unique communicative advantages”.

The practice of speculative and critical design is also associated with Design Fiction. According to Julian Bleeker (2012), “Design Fiction is making things that tell stories, it is like science fiction in that the stories bring into certain focus matters-of-concern, such as how is lived, questioning ow technology is used and its implications, speculating about the course of events”. The practice is indeed associated with critical design but is better seen as a method rather than a practice itself as Malpass (2017) suggested. Design Fiction combines design, art and science fiction¹ making it possible to imagine different futures. In doing so, it uses prototypes and storytelling. These prototypes are what Kirby (2010) described as Diegetic Prototypes, “Diegetic Prototypes depict future technologies in terms of news, viability and benevolence to large publics”. The prototypes are being called diegesis as this technology exists only in the fictional world, but it is grounded in scientific evidence of the present. Design Fiction is regularly used in speculative design.”

All these different fields of design, as Jame Auger (2012) pointed out, all of the above have some similarities and a common goal. These similarities are the design of ideas, objects, services and experiences in the form of interaction that does not aim to be commercialised or as affirmative design suggest, reinforce the status quo, but they aim to provide the space for the public and potential stakeholders to discuss, debate and create alternative desires for the future. Their aim is to both pose questions about the future but also critique the presence and inspire action. This designer consists of tangible objects and interactions that engage the audience, and make real an unreality. This designs, also, are often located in exhibitions, are commissioned to serve the purpose of research through design and are being discussed within academia and design practitioners.

¹ The difference between Design Fiction and Science Fiction is that Science fiction, in the form that is presented: film, art, literature, temporarily suspends reality whereas Design Fiction is played out in reality.

Moreover, Auger (2012), described Speculative Design as “a space for dreaming, challenging and debating - and critically, through the use of designed artefacts as its media, it is internet to appeal to a brand and diverse audience, from experts working in related fields such as designers, engineers and scientists, to consumers and users of technological products”. He argues that the term Speculative Design is more appropriated to describe this emerging field as it suggests a relationship between here and now and the design concept rather than terms such as design fiction, probes, discursive or critical that act to dislocate the object from everyday life, exposing their fictional or critical nature.

For the purpose of my dissertation, I will refer to this field as Speculative Critical Design, defined it both from Dunne and Raby’s purpose to explore and redefine our relationship with technology but also taking into consideration DiSalvo’s political nature of design. I believe that Speculative Critical Design not only can offer space for discussion around alternative futures based on the use of emerging technology but also a space to discuss the construction of our society and the public as a whole. Following Malpass (2017) attempt to provide a definition and differentiate speculative and critical design, I believe that the union of the two as a field of research in my dissertation can provide meaningful insights. According to Malpass (2017), speculative design a specific form of critical design that focuses on socioscientific and sociotechnical concerns and their implications in the future. Whereas critical design focuses on science and technology and its potential applications and implications on the present. I choose to define the field of my research as Speculative Critical Design based on my understanding that the future is not unrelated of the present, and one cannot examine future conditions without realising the impact and the relation with the present. Thus I am choosing the world Speculative, that reflects on exploring the future which at large is related with sociotechnical concerns, critical as it brings to question present and future themes of everyday life and design, as I am interested in exploring this practice not in the form of conceptual art but on its function in the real world.

That said the purpose of the following chapters, is to understand the current practice and identify the elements of it that can be adopted as thinking but also in practical use by mainstream design practice to realise the better world, based on the belief that design is a political and social agent.

“The world here and now is
but one of the undefinable
number of possible worlds
- past, present and future

- Zygmunt Bauman, 2000

Speculative Critical Design

Framework of Practice

As described above, SCD uses design techniques to provoke debate. In doing so, there are some elements that the design work has that support its core function. Dunne and Raby (2014), in their book *Speculative Everything*, provide a concrete framework for the practice. According to them, the design brief begins with a specific area of science or technology and the issues that might arise if this science moves from the labs into our everyday lives. These issues are being analysed in the sphere of possible futures and embodied in the physical objects that sparkle design. Dunne and Raby's work, as of many speculative designers use as a foundation of their practice the diagram of the possible futures and examine everything that lays between this scope (Figure 1).

The theoretical background in which SCD lays is based not on the belief that the future is neither fixed or a single unavoidable one. Extending this belief, the above framework provides an understanding of the future, divided on the likability of its realisation, the broader lines shape the possible futures, which are all the different scenarios that have even a small change to be realised. The plausible future is the space of foresight and planning; it is the space in which companies and organisations make plans of future alternatives to prepare for them and then probable future is the most likely to happen with our current understanding. In Dunne and Raby's work, the preferable future lays between the plausible and the possible, and it what is described as the better future. The use of this framework is to allow the designer to explore all possible futures that might exist, not just the probable or the preferable and use them as tools to better understand the present and allow people to discuss of the preferable future. It is important to underline that this framework is not an attempt to predict the future, but it is using design to open up all sorts of possibilities that can be discussed, debated and used to define the preferable future collectively.

Within the soon of the possible future, the alternatives designed as outcomes of the SCD work can be categorised as follows:

1. Utopian Designs that suggest better alternatives to how the world ought to be. These critical scenarios depict the ideal world
2. Dystopian or Dark Design: the use of not preferable futures to stimulate emotions and challenge the audience to connect and take a position on the future described.
3. Heterotopian Designs which as Ginsberg (2017) suggests are critical imaginaries. As she defines them, they are "world-building exercises. They do not determine what is better but serve to remind us that alternatives are possible. Hopeful and troublesome, they reclaim agency in the present".

Elements of Practice

The object of the SCD work which is a designed artefact, in full form but not in function. The purpose of the object is to create an emotional and logical experience for the audience and Maze, and Restrom (2007) described to encourage the audience to think critically about the theme of the design work. In the literature, the form of the object is what differentiates SCD from art and other disciplines. Since it makes the issue discussed tangible and engaging (Malpass, 2017).

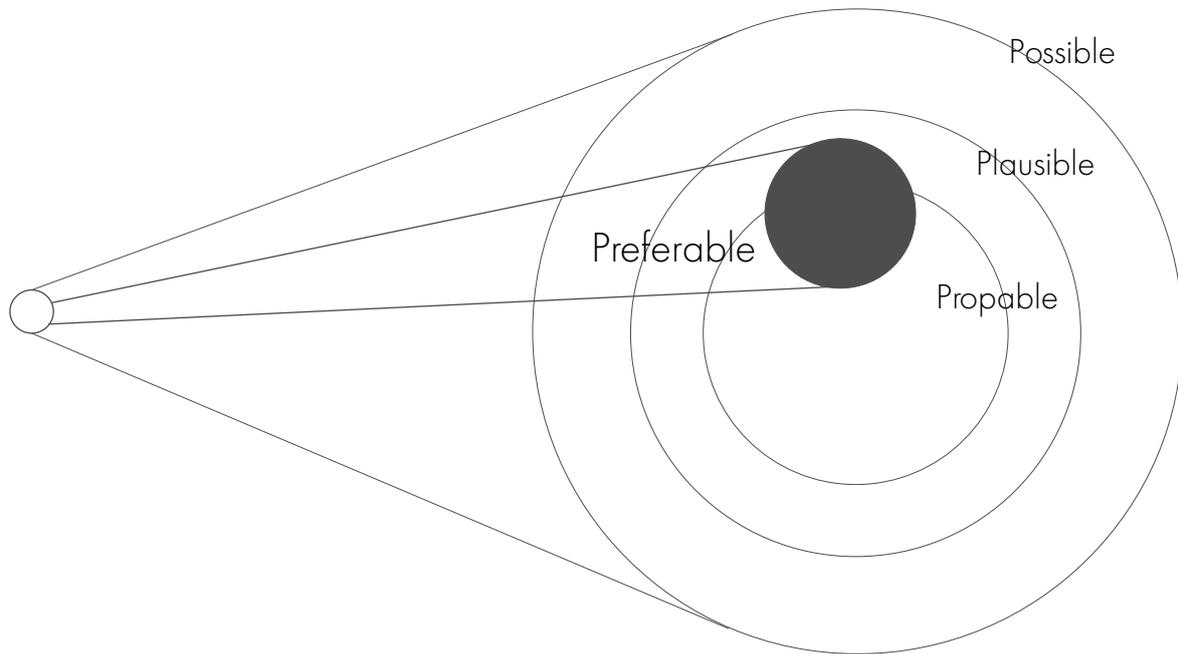


Figure 1: Natalia Kritsali, Futurescone, June 2018.
 Visual Representation by the Author, of the Cone of Preferable Futures by both Dunne, Raby and Candy.

Some essential characteristics of the object of the SCD work are its interactive, communicative and investigative nature (Dunne, 1999). Interactive in a sense that the object interacts with the audience and based on the interaction the object sparkles the reaction and critical thinking of the audience. Communicative since it does not serve a function other than provoking debate and establishing a dialogue with main issues of the theme explored and investigative since through the object the designer explores and researches the particular topic and captures the reaction of the audience. The reaction and discussion around the object have the potential to provide insights over the theme of the work (Malpass, 2017).¹

Another vital element of SCD, is the context in which these objects exist: the scenario. The scenery is being built by the designer and sets the setting in which the questions of the design theme arise. "A scenario is a created, plausible function about what might or could happen. The timescale can vary from a few months to many decades ahead. Scenarios are not meant to be predictions of the future; they are a means to project likely future circumstances, in order to reflect on these and inform action to be taken" (Willi, 2014) These scenarios are the medium to accomplish the very purpose of SCD, which is to engage the audience into a discussion about the future.

¹ This tactic is grounded in an understanding that the user audiences naturally understand the world through material form and through interaction with object (Malpass, 2017)

Jame Auger (2012), in his PhD, summarised some essential attributes of SCD work. He underlined the importance of the space in which the object is located in relation to the audience it attracts. An attribute that James Gibson (1979) has also underlined as crucial in the designer's work, "the designer must consider the environment and content in which the speculative products or services should exist." Additionally, the form of the object needs to be familiar to engage the public but at the same time not too familiar so it can provoke. Equally important is the information provided by the designers in the form of the narrative and story that accompanies the object. These attributes of SCD work are essential to creating what DiSalvo (2009) described as the 'constitution of the publics, which is no other than the engaged public around the object and the discussion that will be enabled by it, which is the goal of SCD.

A Different Approach

The New York-based agency is offering a different perspective on SCD, Extrapolation Factory; The agency was built with the goal to democratise and contextualise future studies. The foundation of their practice is based on the belief that envisioning tools should be available to anyone. "We believe the practice of actively envision and modelling our collective futures applies to everyone, and that emerging array of futures - visioning tools should be made available" (Montgomery and Woebken, 2017). As such, a core element of their work is workshops in which groups of participants can experiment with the expert techniques appropriated from futurists. "through our Exploration Factory events participants transform their abstract vision into concrete artefacts that functions tangible representations of these ideas." From their work, we understand that the core elements of practice are physical objects that form immersive experience and enable an emotional connection. They use a dialogical approach both in constructing and presenting possible future with the idea of experimenting with these futures throughout the process. Their workshop focuses on participants engagement and thus form a collaboration - driven practice that facilitates community engagement. The objects of the future are being then contextualised and presented in the present.

The methodology that the Extrapolation Factory suggests borrows elements from forecasting and SCD. It is a four steps process, starting with analysing and borrowing forecasts created by experts, which the participants of the workshop can subjectively choose and transform into the future narrative they want to present. These future are being analysed through five lenses that resemble a PESTE analysis. The analysis forms the story that leads to the production of the future physical objects. These objects are then being contextualised and offered to the audience in a real setting.

Notes on the Current Practice

In the following paragraphs allow me to summarise the critique of SCD practice that's already been one by scholars like Tokenwise (2014), Prado (2014), Malpass (2015), Maze and Redstrom (2007) and extending it with some observations of my own. This critique is not to be taken as a negative approach to speculative design, as I believe in the potential the practice has, but as a dialogue that can bring the practice forward, and a starting point of my own practice to explore alternatives that respond to the following issues.

An imagined future for who?

Going through exhibitions and publications of speculative design projects, it is hard not to realise the lack of diversity and the privileged approach. The majority of the projects, as Luiza Prado (2014) commented, is being focused on the privileges that we will lose in the future, described a dystopian future that for some is and has been the reality. She argues that " [SCD projects] clearly reflect the fear of losing first world privileges - gastronomical, civil or cultural - in a bleak, dystopia future abound, while practitioners seem to be blissfully unaware of realities. Extending this belief, Cameron Tonkenwise (2015) wrote that "morally repugnant that the worst things white people can imagine happening to them in some dystopian future are conditions they already impose on non-white people". It is clear that the topics that commonly arise in speculative design projects, the effects of technology, the future of artificial food and the organisation of societies lack the diversity that such a practise could have and would benefit the world (Tonkiwise, 2014). The lack of diversity in SCD is also evident in the aesthetics of the design. "The visual discourse of SCD also seems interestingly devoid of people of colour, who rarely make an appearance in the clean, perfectly squared, aseptic world imagine by these designers - researchers" (Prado, 2014).

The lack of diversity in most of the SCD work is also evident in the famous cone diagram of possibles futures, depicting the present as a single dot. One dot as if we have agreed what constitutes the present and most importantly we all live the same reality. The fact that the present is being visualised as a single dot means that the possible futures are being perceived as alternatives of the current single present, that means of a single group of people that this present is a reality. The issue with the preferable future, thus, in some cases is not our limited imaginations of alternatives but that many of us are in very different places with very different sets of future (Tokenwise, 2014). To extend Tokenwise argument, I believe that there are visions for the future, like the Western Vision or the California Ideology, visions of nations and corporates or non profit organisations but in order to create a better world we need to negotiate through design all these different visions and provide the tools to underrepresented communities, nations, formal or informal group of people so that they can form their vision for the future. Moreover, to increase diversity in SCD more perspectives on the present reality should be taken into account. From a personal discussion with designers such as Elliot Montgomery (2018) and Michael Mogensen (2018), discussion the issue of diversity in SCD, we came to the conclusion that in order to increase diversity, we need to have diverse voices in academia that reflect on the different present realities, allow different perspectives in design education, look into the methodologies and ways other cultures are using to look into the future and combine a practice, that through language is being offered to other cultures, people and communities.

There are some examples of practice that diversity is being addressed like the work of the Superflux agency, the Extrapolation Factory, Global Futures Lab and other designers.¹ Taking, for example, the work of Global Future Lab and designer Paolo Gardini offer a new approach to diversity within academia. The Global Future Lab hosts students from different countries which are invited to reflect on their environments, traditions and beliefs, and to envision futures respectful of their cultural needs and coherent with their distinct idea of progress (Gardini, 2018). The Global Futures Lab, has the vision to explore possible future that respects different cultures are not waiting for Western technology to be adapted, as Ramesh Srinivasan, in *Whose Global Village? Illustrated: the Western present and future might not be the ideal for the whole world, and we can wait for technology to be adapted but we need to think if we technology to be adapted and in extension what future we want to have in different cultures, communities and nations.*

Another project that addresses a different future, other than the Western vision is "Saudi Arabia Futures". In this project four designers and four artists were coupled up and using texts and literature of Saudi Arabia philosophers on visions for the future, they developed scenarios that were presented and provide an answer to what is the future of Saudi Arabia.² The goal of the project, which was not succeeded, was to use the outcomes produced of the collaboration between a designer and an artist to inspire the citizens of Saudi Arabia and enable them to think of other possibilities for the future than the given one. The project failed to meet this goal because the documentary produced was showed more in international conferences and museums, within the design and art community rather than the targeted audience which was the citizen's of Saudi Arabia (Mogensen, 2017).

Which Debate?

It is true that most of the speculative design objects are placed in exhibition rooms, presented in conferences for design professionals and are being discussed in design publications. A fact that is narrowing the potential audience of these projects and undermining the value and impact the projects can have. It is true that currently speculative design is either a form of design purely for designs within the space of academia or is being considered as art by the public with a few exceptions I will present later on.

"[The] lack of engagement with discourse beyond the art and design how within the practice designers are for the most part talking to themselves and peers and often fail to engage the root problems and rather elaborately project fictional consequence. [...] more and more the danger is that critical practice becomes overly self-reflexive and introverted, sustained, practised and exchanged in a close community. By operating, in this way, its usefulness as part of a larger disciplinary project is undermined " (Malpass, 2017). The above critique summaries a valid point, the SCD practice is often introverted and self-referential (Gardini, 2018) and the audience of the practice are designers themselves.

1 further references on diversity in the work of SCD can be provided but the writings of Tatianna Toutikian, Jonh thackara (2013), Pierce (2015), Ausari (2015), Oliveira (2014). The work of practitioners such as revival Cohen, Nelly Beuttayan, Hiromi Ozaki, Paolo Cardini.

2 Comments from a personal Interview with Michael Mogensen, one of the designers working on the Saudi Arabia Projects. Mogensen mentioned that he felt that the project was not successful since the project was present more within the international design community rather than the citizens and thus he will continue working on the publicity and presentation of the project in Saudi Arabia.

When Dunne and Raby (2014) coined the term Critical Design and later Speculative Design, they envisioned these projects being placed in the public, to democratise the decisions for the future and suggest that consumer need to understand and use the power that they have. Even though most projects are being located in galleries, there are some examples of projects that manage to break through and being exposed in public, engaging communities that else wise wouldn't be engaged.

An example of the above is Natalia Jeremijenko's project, Feral Dogs. This project transforms toy dogs into an agent of environmental concerns. The toy dogs are being hacked and contain environmental sensors that react in specific ways to environmental contaminants. It is a project of particular interest as these dogs were free in the streets of the Bronx, New York engaging with their presence in the local community. By doing this, it engaged the citizens of Bronx with the implications of technology and their actions in the environment. As Malpass (2017) pointed out, here SCD moves beyond speculation and proposition to serve socially responsive agendas through a form of creative activism." The realisation of the above project required the collaboration between the designer and scientists of environmental studies among others, which brings me to another point on SCD.

The audience of SCD work cannot solely be the public, but the designer in order to be adequate to the purpose of the project needs to engage the stakeholders and those who contribute to the culture that is being critiqued (Koskinen et al. 2011). To reinforce this, Tokinwise (2014), argues that "if the designer is sitting alongside the scientific researcher, sketching moral or even immoral implications, then the scientific research expert is the audience."

Another project that shows the potential of co-design, the collaboration between disciplines and scientific professions and the engagement with the public by location the designed object in the real world, is the Energy and Co-Designing Communities (ECDC) project developed as a collaboration between the departments of sociology and the Interaction Design Research Studio at Goldsmiths, University of London. The project combines methods of co-design and ethnography challenging the boundaries between ethnographic research and speculation. In 2014, ECDC distributed the Energy babbles devices to 30 homes in the United Kingdom. This objects, are designed to prove debate within communities by exploring various dimensions of energy use. The project, except provoking debate, has another function; through this debate, done by involving citizens, explores possible ways in which the UK can reduce its energy consumption. The project was funded by the Research Councils UK Energy Programme and has a measurable goal: to support the effort to reduce energy consumption by 80% before 2050.

From this project, it is evident the potential of SCD when designers collaborate with other practices and actively involving citizens and also the idea of having a measurable common goal and functionality. The potential of this active dialogue between SCD and social sciences was captured by Hunt (2011); the more SCD design differentiates its practice from conceptual art and place objects in the real-world, the higher its potential. The problem remains, as long as SCD is framed in the space of galleries, he argues.

An additional example of participation in designing futures in the 99c Future Store, a project directed by the Extrapolation Factory. In the project, a group of participants was asked to create narratives and physical objects of the future that will be placed among other objects in a 99c store. These objects laid between objects that were being sold in the store and customers were able to buy them. Placing these objects in the present, in a real store and enabling natural interactions with the customers, enabled to observe these interactions and gain many insights. One of the learnings of these project is that engaging communities in SCD and future thinking can provide real benefits in the present through opening new pathways of problem - solving and discussion (Montgomery, 2018)

A dialogue with the Commercial World

Another aspect of SCD that has been critiqued is its relationship with the commercial world. Based on the analysis provided on the first chapter, it is true that companies and technological innovation lead and shape the future; thus the engagement of companies as the audience and co-designers of SCD is essential to realise the purpose of the work. Daisy Ginsberg, suggests that “speculative design can be a critical technique; it is also used to explore, predict and promote technological futures for commercial purposes, helping to make possible futures become available ones” (Ginsberg, 2017). Design Fiction in the form of speculative design, though, can be commercialised and used by companies to pull reality into the direction of imagined futures. Although the theoretical background in which it has been build described a practice that is disconnected from the market there are some examples in which SCD methodologies have been used for commercial purposes.

The work of Space 10, a future living lab with a mission to design a better and more sustainable world, is an example of the above. In the framework Space 10 has developed, the core elements of their work are experimentation and co-creation, using design and their physical space in Copenhagen as mediums to engage with the public and co-design sustainable products for the future. Their work begins by exploring directions and emerging potentials. Their work is being developed by collaborating with a global network of experts while they test ideas and solutions in a non - commercial environment. Their goal is through storytelling to engage the public in discussions about the projects created and then inspire IKEA with the outputs of the discussions that will inform IKEA's current product design.

Additionally, other companies like Microsoft, Telefonica, Mercedes and Philips have an interest in the application of SCD in commercial innovation. Philips has developed a methodology to approach the future, divided in short-, medium- and long-term. Following this categorisation the have developed three frameworks, Horizon 1, Horizon 2 and Horizon 3 based on the timescale. Horizon 3, which lies in the long-term future, is about radical innovation and transformation. In this framework, critical design might have commercial application in its ability to provoke debate and test societal expectations (Gardien 2006). Within this framework, deliverables range from scenarios and narratives to the creation of experiences and prototypes. Moreover, Philips has developed the concept of Design Probes; it is a framework for ‘far-future’ research to facilitate trends analysis and developments in the future that have a significant business impact. The probes generate insights for the future in the following areas: politics, economics, culture, environment and technology.

Suggesting an SCD Methodology

Deriving from this research and my practice at the MA in Service Design, RCA I have come to reflect on SCD methods and tactics and design a methodology that suits my practice and belief. The following methodology is not to be considered as finalised but more as an ongoing reflection on my practice. The methodology is a combination of elements of SCD as described above, based on the work of Dunne and Raby and the Extrapolation Factory, with business and market research methodologies, and frameworks that Phillips and Space 10 use and the Double Diamond methodology for research and prototyping (Figure 2).

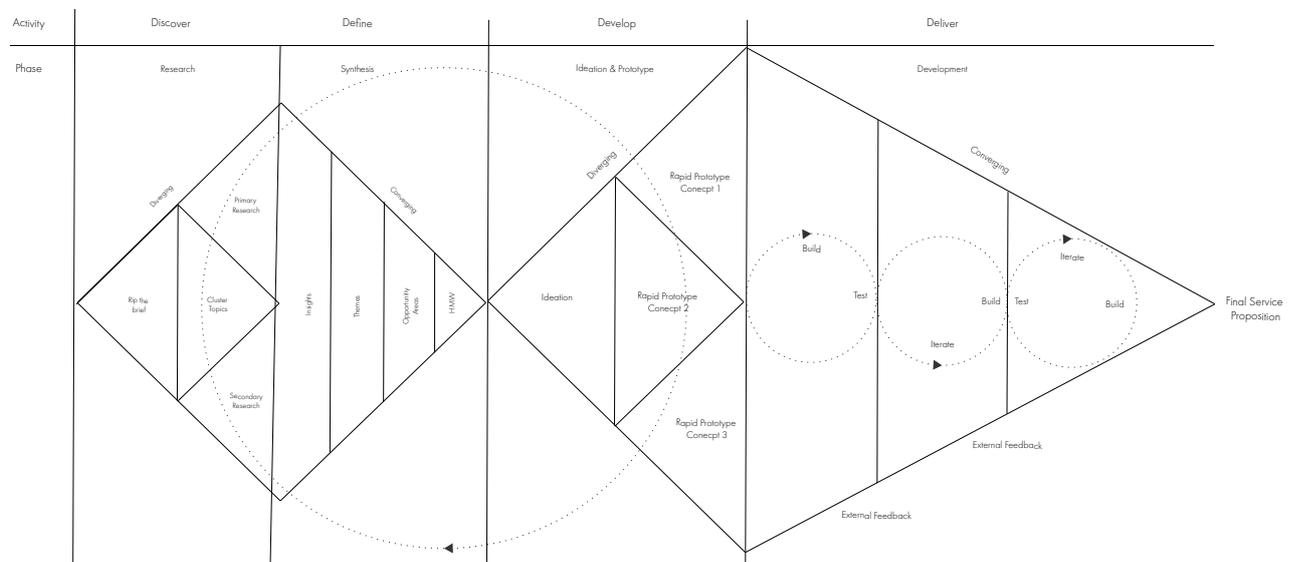


Figure 2: Natalia Kritsali, Redefined Double Diamonds, June 2018.

Visual Representation of a version of the Double Diamond, originally created by the Design Council, based on the Author's practice. This version of the Double Diamond illustrates the continuous presearch process through the design process, as various loops of research - prototype - external engagement and feedback that leads to additional research and iterations.

The core assumption in which this methodology is based is that using design as a tool for research in which the public, in the form of active participants, can be engaged and develop an ongoing open dialogue. For my practice, it is essential to have a clear goal of the output and a way to measure the success of the outcome by setting KPI of the project, whether this is the length and depth of the research, the realisation of the project and the strategic outputs for future policy and product design.

Following a redefined double diamond methodology for research, in which big and small data research is being analysed, as secondary and primary research inputs, the first goal is to identify the trends and signals that define the future in the screenshot of reality that is being explored (Figure 3). With a narrow focus on the issue examined and I found particularly helpful the use of the Future Wheel to understand the consequences of this signal in the future. These consequences for the different possible future than inform my scenario, using the definition and function that Willi (2014) suggested, meaning the use of a scenario not as a prediction of the future but as a plausible scenario from which we can create narratives and stories to gain insights.

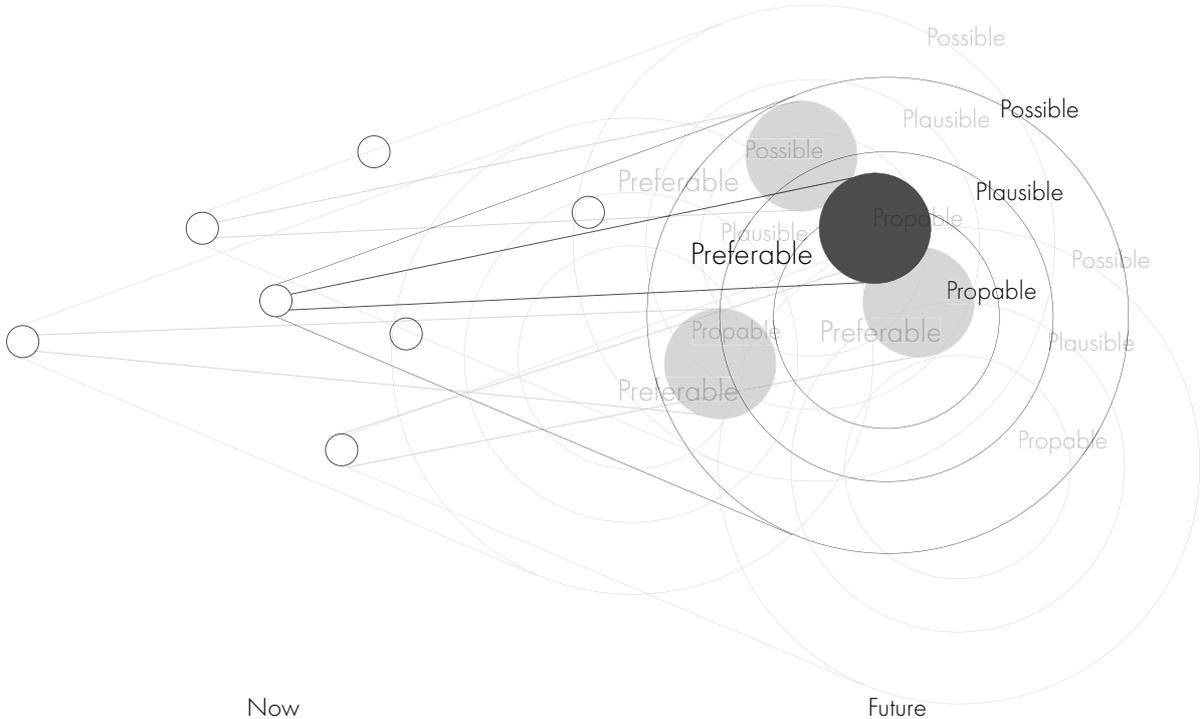


Figure 3: Natalia Kritsali, Screenshot of Reality, June 2018.
 Visual Representation of a version of the Futurescone as a Screenshot of Reality, based on the Author's practice. This version of the Futurescone visualise the assumptions that reality is not a single dot but each individuals or group of people has its own understanding of reality.

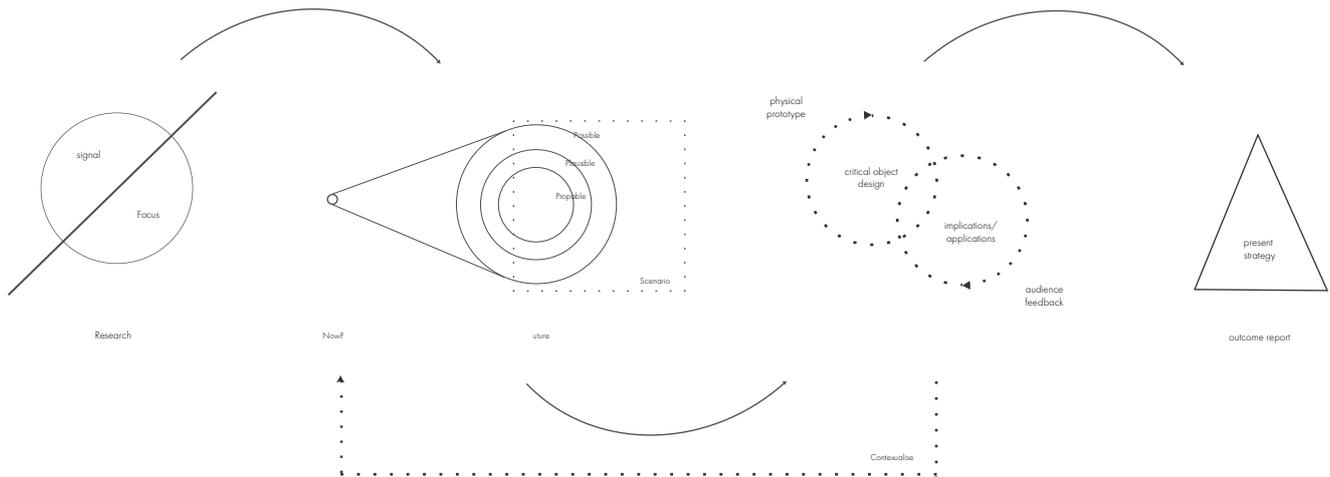


Figure 4: Natalia Kritsali, Screenshot of Reality, June 2018.

Visual Representation of a version of the SCD Methodology of the Author.

The core elements of the methodology is the use of research to understand the future and the focus of the project, the idea of contextualising the object and the implications/ application in the present and aiming for strategic outcomes that inform our current actions. .

While this scenario informs and sets the setting of the physical object or interactive experience created, I strive to involve different stakeholders in the creation and exploration of this object. Using space and technological mediums to communicate this object, my goal in my SCD practice is to understand the implications of my object and scenario in the present as well as in the future. The assumption here is that our present actions are creating the future and thus each plausible future is related to the present. An essential element of this methodology is, therefore, contextualising both the object and its applications and implications in the present (Figure 4).

The main argument of this dissertation, as well as this methodology, is that this approach cannot only be used in speculative projects but also in mainstream design projects as a means to research and reflect on the implications of the current design in the future.

“Design makes futures.
What designers make be-
comes the futures we in-
habit.”

- Cameron Tonkinwise, 2015

Conclusive Perspectives

The difference between a utopia from the eutopia, in my understanding, is that a utopia is a place where the ideal state is achieved, and no forces are destabilising it, whether in reality the balance of the world can only be achieved temporarily and every day there needs to be a force driving things to a better state. It is interesting that we place utopias or dreams, hopes, visions in the future as if the future is a temporary period existing somewhere beyond the present. My argument is based on the belief that a utopia is possible only in terms of a eutopia where people understand the impact of the choices and shape by them the future every day is what corresponds with the role I feel I have as a designer.

Following the above belief, progress in the form of innovation that defines the utopian dreams of our society is not either positive or negative. Progress and innovation alone are not the single factors that determine the world, but our choices are as citizens, consumers and in a higher level as designers, policymakers, companies or politicians, that illustrate the utility and directions of progress and innovation are the ones that define the state of the future. Being able to envision alternatives of the future, and make realistic the applications and implications of the innovations we make, and taking into consideration the paradox that the better world holds: there is not a single better that fits us all, is one possible way to address the complexity and realisation of the eutopia.

I would agree with Manzini's (2015) position that Transition Design should not be a discipline but the process and transformation of the mainstream design practice due to the changing world of the present. With this belief has a significant role in conceptualising fighting out how our world will look like and which future we want to live in. As illustrated in the first chapter, the future is not fixed, and it is not unrelated with the present, and thus mainstream design practice should include a critical perspective on the design outcome in relation with its position in the social and environmental present and future.

Tonkinwise (2015) criticised the world "we" in Dunne and Raby's work. However, I want to extend this question in the design world, who are "we" as designers and what is our responsibility towards the "you" that "we" are designing for? Using SCD to imagine different futures, we need to apply the same criticality in the design profession and expand the boundaries in the design profession to include the other "we" that we are a part of. The rest of the world. Move from treating human beings as research objects to treating he as co-designers.

Designers have the tools and thinking to facilitate the discussions of the better, but most importantly SCD offers the foundation to help people imagine different worlds and believe that there are alternatives. As Dunne and Raby (2014) argued, there are no longer visions and dreams, but just hopes. "hope that we will not allow ourselves to become extinct, hope that we can feed the starving, hope that there will room for us all on this tiny planet ... We do not know how to fix the planet and ensure our survival. We are just hopeful" (Dunne and Raby 2014). We as designers, we as a part of the world need to believe that dreams can exist and can be realised and enable people to dream of the better.

SCD has the potential not only to provoke debate for the future but to provide outcomes for the present. To do so, we need to involve the stakeholders and decisions makers of the topics examined and use the mediums we have resourcefully to generate impact. We can use speculative design and diegetic prototypes, to lift the conversations on plausible future that for some parts of the world are

a reality. The dystopian future designs on the signal that food will not be available in the quantities it is now, is an immersive example of projects that can lead the conversation on designing solutions for communities that are facing the issue in the present.

As a designer, I believe that we can benefit from opening up the practice to other disciplines and establish collaborations combining SCD, participatory design and design for social impact. Grounding the projects to the present and aim for implementable strategic outcomes. To do so, we need to approach SCD with criticality and establish a new framework for the practice. As Maze and Redstrom (2007) underlined only if we formally approach the redefine of SCD and have serious intervention from the designer community, SCD practice will be taken seriously and will have an impact in the world. To extend the need to redefine SCD practice, I will agree with Bulman and Wiendmer (2008) who argued that critical design is a form of Socially Responsive Design, positioning critical design as a practice that acts as a synthesiser for change in societal concerns and as such, I believe that we, as designers, need to target and measure the effectiveness of our work in relations with the societal concerns our work discuss.

Having said that, I believe that there is a place and need for SCD and similar practices to shift the focus of design from serving the market to serving the humans and non-humans of the planet. Critically found in SCD should be applied to mainstream design as a whole and with the criticality design professionals transform the mainstream practice of design. As Tony Fry (2012) wrote "notwithstanding its economic function, design in total has never been less important as a means of affirmative change that is now - at the very time it needs to be more important as an agent contributing to change. [...] Design can be one of the key movers of this change. However, for this to happen the very foundation of design and designing has to be transformed concerning how designers think about design and designing, how they design and the character and consequence of what is brought into design being".

A designer must have a grasp on the specifics of the future. Digital designer and design writer, Peter Merholz (2008) writes that 'design is an inherently futurist activity — planning and sketching things that don't yet exist.' Following this belief, we as designers when designing we need to consider the designed based on our ideals and its relation to the world it will live in. Dunne and Raby in their work quoted philosopher Susan Neiman, and I could not agree more with what she argues about ideas and ideals: "It is often said that if something is conceptual, it is only an idea, but that is missing the point. It is only an idea that it is important. New ideas are exactly what we need today. Conceptual designs are not only ideas but also ideals [...] Ideals are not measured by whether they conform reality; reality is judged by whether it lives up to ideals."

As my final thoughts, with this dissertation, I want to urge the design community to think of the ideals that constitute our practice, our here and now in the world and the impact of our designs in the presence and future. As Victor Margolin (2007), wrote:

“Paradoxically, designers united as a professional class could be inordinately powerful and yet their voices in the various fora where social policies and plans are discussed and debated are rarely present. While the world has heard many calls for social change, few have come from designers themselves, in part because the design community has not produced its arguments about what kinds of change it would like to see. Notwithstanding the discursive and practical potential to address this issue, the worldwide design community has yet to generate profession-wide visions of how its energies might be harnessed for social ends.”

This research, is the beginning of my exploration on how to develop into a designer and citizen that critically observes the world and translates these observations into my work, always keeping in mind that whatever it is that I am designing, once it is realised it has an impact on our future, and I want to strive to make the impact of every piece of my work positive. I may not have been able to answer what constitutes a better world and how we can achieve a better for everyone, but I believe that I have gained a better understanding of the tools I have to use to explore and experiment of a possible better world in every design work I am doing.

Bibliography

Anderson, Benedict. *Imagined Communities*. London: Verso, 1983.

Appadurai, Arjun, 'Disjuncture and Difference in the Global Cultural Economy', 2002, quoted in Jasanoff Sheila and Sang-Hyun Kim, *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*. (Chicago: University Press of Chicago, 2015).

Auger, James, *Why Robots?*, PhD diss. (London: Royal College of Art, 2012).

Barbrook, Richard. *Imaginary Futures: From Thinking Machines to the Global Village*. London: Pluto Press, 2007.

Bauman, Zygmunt. *Liquid Modernity*. Cambridge, UK: Polity Books, 2000.

Bleecker, Julian, 'Design Fiction, A short essay on Design, Science, Fact and Fiction'' (online), Available at: <http://blog.nearfuturelaboratory.com/2009/03/17/design-fiction-a-short-essay-on-design-science-fact-and-fiction/>, quoted in James Auger, *Why Robots?*, PhD diss. (London: Royal College of Art, 2012).

Buchanan, Richard, 'Wicked Problems in Design Thinking', *Design Issues* 8 (2009), no. 2: 5-215.

Dilnot, Clive. *Acting in Regard to History*. London: Bloomsbury Academic, 2015.

DiSalvo, Carl. *Adversarial Design*. Cambridge, MA: MIT Press, 2010.

DiSalvo, Carl, 'Design and the Construction of the Publics', *Design Studies* 25 (2009), no. 1: 48 -63.

Douglas, Mary, 'Essays in the Sociology of Perception', 1982, quoted in Jasanoff Sheila and Sang-Hyun Kim, *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*. (Chicago: University Press of Chicago, 2015).

Dunne, Athnony. *Herzian Tales: Electronic Products, Aesthetic Experience and Critical Design*. London: Royal College of Art Computer Related Design research Publications, 1998.

Dunne, Anthony and Fiona Raby. *Speculative Everything: Design, Fiction and Social Dreaming*. Cambridge, MA: MIT Press, 2014.

Ehn, Nilson and Topyaard. *Making Futures*. Cambridge, MA: MIT Press, 2014.

Fry, Tony. *Design as Politics*. Oxford: Berg, 2011.

Fry, Tony. *Design Futuring*. Oxford: Berg, 2009.

Fry, Tony. *Becoming Human by Design*. Oxford: Berg, 2012.

Gardien, Paul. 'Breathing Life into Delivcate Ideas' quoted in Malpass, Matt. *Critical Design in Context: History, Theory and Practices*. New (York: Bloomsbury Academic, 2017).

Gardini, Paolo, "The Global Futures Lab' Available at <http://www.core77.com/posts/73713/The-Global-Futures-Lab> [Accessed June 2018]

Ginsberg, Daisy, Better, PhD diss. (London: Royal College of Art, 2017).

Gray, John, 'An illusion with a future', 2014, quoted in Ginsberg Daisy, Better, PhD diss. (London: Royal College of Art, 2017).

- Greene, Vivian, 'Utopia/ Dystopia', *American Art* Vol. 25 (2011), No. 2.: 2-7
- Kerridge, Tobie. *Does Speculative Design Contribute to the Engagement of Science and Technology*. Lugano, Switzerland: Multiple Pathways: Swiss Design Network Symposium, 2009.
- Kerridge, Tobie. *Designing Debate: The Entanglement of Speculative Design and Upstream Engagement*, PhD diss. (London: Goldsmiths, University of London, 2015).
- Kirby, David, 'The Future is Now: Diegetic Prototypes and the Role of Popular Films in Generating Real-World Technological Development'. *Social Studies of Science* 40 (2010), no. 1: 41 -70.
- Koskinen, Ilpo Kalevi , Johan Redström, John Zimmerman, Stephan Wensveen, and Thomas Binder. *Design Research Through Practice. From the Lab, Field, and Showroom*. London: Morgan Kaufman, 2011.
- Malpass, Matt. *Contextualising Critical Design: Towards a Taxonomy of Critical practice in Product Design*, PhD diss. (Nottingham: Trent University, 2012).
- Malpass, Matt. *Critical Design in Context: History, Theory and Practices*. New York: Bloomsbury Academic, 2017.
- Manzini, Ezio. *Design, When Everybody Designs: An introduction to Design for Social Innovation*. Cambridge, MA: MIT Press, 2015.
- Manzini, Ezio, ' Design in the transition phase: a new design culture for the emerging design', *Design Philosophy Papers* 13 (2015), vol 1: 57 - 62.
- Margolin, Victor, 'Design, the Future and the Human Spirit', *Design Issues* 23 (2007): 4- 15.
- Maze, Ramia and Johan Redstrom. *Difficult Forms: Critical Practices in Design and Research*. Hong Kong: IASDR, 2007.
- Merholz, Peter 'Designing Futures' . Adaptive Path [Blog], (2008) <http://adaptivepath.org/ideas/designing-futures/> [Accessed June 2018]
- Montgomery, Elliot and Chris Woebken. *Extrapolation factory Operator's Manual*. New York: 2018.
- More, Thomas. *Utopia*. Cambridge: Cambridge University Press, 1998.
- Philips. *Philips Design probes: Visions of the Future*. Available at: <https://www.90yearsofdesignphilips.com/> [Accessed in May 2018]
- Prado, Luisa and Perdo Oliveira. *Questioning the critical in speculative and critical design*. Available at <https://medium.com/a-parede/questioning-the-critical-in-speculative-critical-design-5a355cac2ca4/> [Accessed in June 2018]
- Russel, Jacoby. *Picture Imperfect: utopian thought for an anti-utopian age*. New York: Columbia University Press, 2007.
- Russel, Jacoby. *The end of Utopias: Politics And Culture In An Age Of Apathy*. New York : Basic Books, 2000.
- Taylor, Charles. *Modern Social Imaginaries*. NC: Duke University Press, 2004.
- Tonkinwise, Cameron, 'Design in Transition - from and to what?', *Design Philosophy Papers* 13 (2015), vol 1: 85 - 92.
- Tonkinwise, Cameron, 'How We Intend to Future: Review of Anthony Dunne and Fiona Raby, *Speculative Everything: Design, Fiction, and Social Dreaming*', *Design Philosophy Papers* 12 (2014), vol 2: 169 - 187.

Tharp, Bruce and Stephanie Thrap, 'What is Discursive Design'. Available at <http://www.core77.com/posts/41991/What-is-Discursive-Design> [Accessed June 2018]

Willis, Anna - Marie. 'Designing Back from the Future', Design Philosophy Papers 12 (2014), vol 2: 151 - 160.

Author interview with Daisy Ginsberg, Speculative Designer, March 2018.

Author interview with Elliot Montgomery, Speculative Designer, May 2018.

Author Interview with Michael Mogensen, Speculative Designer, May 2018.

Author Interview with Isabel Prado, Isabel, Speculative Designer, May 2018.

<https://space10.io/approach/> [Accessed June 2018]

