

# **How does the use of Experiential Futures as Design Help Facilitate Difficult Conversations?**

by

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Submitted to OCAD University  
in partial fulfillment of the requirements for  
the degree of:

Master

in

**Strategic Foresight & Innovation**

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# 1.0 Abstract

This research project studies the intersection of design and futures to uncover how both practices amplify each other's potential to facilitate difficult conversations. This project is part horizon scan of current design and futures practices to better understand the professional landscape and part evocative autoethnographic study of my personal design practices throughout the last decade to evaluate a series of tools and frameworks could be useful to both fields by selecting those that intuitively made sense. Through my immersion into the field of futures and foresight as a professional designer, I wanted to first understand how designers and futurists are adopting each other's practices and at what level of maturity they are at with the adoption and integration of the shared knowledge. Both practices have similar goals, adoption barriers, and areas for malpractice. At the intersection of design and futures both disciplines seem diluted. On one side designers have little understanding of futures studies but great creative capacity to do design and run ethnographic research with humans. On the other side, futurists that have adopted design practices lack the rigorous understanding of design and the complexity of the process, and they therefore run shallow design sprints with unknown outcomes. Many futurists use design as a medium of delivery for experiential futures and scenarios that they have built when they could be leveraging design's ability to find problems/solutions, unearthing deep human insight from personas of the futures, and using scenarios as the starting point to understand problems and constraints that may emerge in the futures by mapping out context specific futures.



# Acknowledgements:

I would like to acknowledge that this work was done on the traditional territory of many nations including the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat peoples and is now home to many diverse First Nations, Inuit and Métis peoples. However, my spirit often returned to Mazahua territories in Mexico for inspiration and reminders.

I would like to thank my parents for having the foresight to teach me English and many other skills that have allowed me to get to this moment.

I would like to thank Helen Kerr for sitting patiently with me as I untangled this mess, for encouraging me to soften my words and reminding me to look in other places for the information that I thought I had. Most importantly, I would like to thank her for introducing me to the part of design that I am most passionate about. Foresight.

# Dedication:

To my parents,

To my brother and sister,

To my niece,

To Laura,

&

to Future Designers.

# Table Of Contents

1.0 Abstract.....	P.II
Aknowledgements.....	P.III
Dedication.....	P.IV
Table of Contents .....	P.V
List of Figures and Illustrations.....	P.VII
Title Page.....	P.10
2.0 Research Questions: .....	P.11
2.1 Methodology:.....	P.12
2.2 Data Collection and Synthesis:.....	P.14
2.3 Why Autoethnography:.....	P.18
2.4 How did I get here:.....	P.22
2.5 Literature review:.....	P.30
2.6 Immersion into the field with the help of a virus: COVID-19:.....	P.32
2.7 Reliability and Validity of this research work:.....	P.35
2.8 My own biases explored:.....	P.36
2.9 Listening to the founders of the field & the emerging leaders:.....	P.40
3.0 What is Design?.....	P.42
3.1 A short history of Design.....	P.46
3.2 What is Sensemaking?.....	P.51
3.3 What is Abductive thinking?.....	P.54
3.4 What is Synthesis?.....	P.57
3.5 The physical walls of the design studio:.....	P.62
3.6 What is the Goal of Design?.....	P.66

3.7 What is Good Design?.....	P.67
4.0 What is Future Studies?.....	P.71
4.1 Dator’s Laws of the future.....	P.73
4.2 The three “Laws” of futures by Joseph Voros.....	P.79
4.3 What is the goal of Futures?.....	P.81
5.0 What are difficult Conversations?.....	P.82
5.1 How has design failed to mediate difficult conversations?.....	P.85
5.2 How has futures failed to mediate difficult conversations?.....	P.89
5.3 How Has the Integration of Design and Futures Failed to Facilitate Diffi- cult Conversations Today? .....	P.92
5.4 How to actually integrate design and futures effectively:.....	P.94
5.5 The Transparency of the Design Studio:.....	P.95
5.6 Making Personas physical: .....	P.97
5.7 Design fiction and objects from the future: .....	P.99
5.8 Sacrificial Concepts & the Second Law of Futures by Dator.....	P.103
5.9 Why isn’t design alone the answer?.....	P.106
6.0 Critical Design & Speculative Design.....	P.115
6.1 Successful experiential futures that address “The Dithering” of our times: .....	P.118
6.2 Design in context - Local Futures in Context.....	P.129
7.0 Conclusion: .....	P.135
7.1 Next Steps: .....	P.136

8.0 Appendix: A - Literature Review.....	P.137
8.1 Appendix: B - Workshops attended.....	P.138
8.2 Appendix C: .....	P.139
9.0 References: .....	P.140



# List of Figures and Illustrations:

Figure 1.....	P.43
Figure 2.....	P.45
Figure 3.....	P.45
Figure 4.....	P.49
Figure 5.....	P.66
Figure 6.....	P.72
Figure 7.....	P.80
Figure 8.....	P.87
Figure 9.....	P.88
Figure10.....	P.91
Figure 11.....	P.105
Figure12.....	P.120
Figure 13.....	P.121
Figure 14.....	P.122
Figure 15 .....	P.123
Figure 16.....	P.124
Figure 17.....	P.125
Figure 18.....	P.126
Figure 19.....	P.127

# How does the use of Experiential Futures (XF) as Design Help Facilitate Difficult Conversations?



## 2.0 Research Questions

How does the use of Experiential Futures as Design help facilitate difficult conversations?

What is Design?

What is Futures?

How have Design and Futures failed to facilitate difficult conversations today?

How can design and futures facilitate difficult conversations about our collective futures?

How can designers and futurists amplify their practices by integrating knowledge from both fields?

## 2.1 Methodology

This research project is an evocative autoethnographic inquiry of my design practice for the last 10-15 years as best applied to the study of Futures, through immersion into the futures field as a novice participant in sprint type workshops and as a design expert simultaneously.

A literature review into design and futures was carried out to solidify knowledge and experience with the new knowledge gathered through my studies at OCADU. This allowed me to later contemplate frameworks and diagrams more critically based on empirical evidence from my experience as a designer and innovator.

Research through Design: As the world emerges from a pandemic event and things change in multiple domains, so does this project iteration after iteration. I decided to listen to a podcast by Richard Hayfield called FuturePod where the

founders of the field and emerging leaders share their experiences and knowledge working in the field of Futures and Foresight. In a way, I was Horizon Scanning the Horizon Scanners. (This was to make up for my lack of life experience in the futures field, in hopes of speeding up my development in the understanding of the passage of time.)

To successfully carry out this research project at the intersection of design and futurism, I had to create a balance in my knowledge between the two disciplines.

I joined organizations looking to democratize the futures like SOIF (School of International Futures), The APF (Association of Professional Futurists) and the UNESCO futures literacy Summit 2020 and many Speculative Design Chapters around the world among other design conferences.

## 2.2 Data Collection and Synthesis

Data collection methods were basic note taking of important themes that seemed to be repeating themselves in the meetings, and supported by the texts in the literature review. Patterns were established through a combination of Grounded Theory, Thematic Analysis (Braun & Clarke 2006) and making Thematic Networks. I adopted the designer's black book since my sketchbook practice is a sacred part of a good design process. The sketchbook allowed me to explore ideas and themes by mapping out pieces of data and drawing new ideas to create information and knowledge. Using my sketchbook as a sort of diary to keep track of my thoughts as the project developed, I adopted the method of 'theoretical memoing,' which Glasser describes as "The core stage of grounded theory methodology" (Glasser 1998) because it focuses on writing ideas and theories that the researcher is conceptualiz-

ing as the research goes on. “Memos are the theorizing write-up of ideas about substantive codes and their theoretically coded relationships as they emerge during coding, collecting and analysing data, and during memoing” (Glaser 1998).

Insights and patterns were observed and noted in my sketchbook and then later coded into sticky notes and externalized. By listening deeply to the informal conversations founders of the field were having in podcasts, through conversations that emerged at the end of workshops, and through live questions that other participants were making during video calls and/or fireside chats I extracted understanding. All participants’ insights were aggregated and anonymized for privacy when the insights were transferred to the synthesis wall, as my interest was in the difficult conversations that futurists and designers can have in a safe environment.

The insights that I continuously looked for were themes, ideas, methods, theories, tools, frameworks, case studies, books, authors and important figures in the fields of design and futures. All of these would served as the base for further research and exploration. For example: listening to Mexican futurist Jorge Camacho at World Foresight Summit 2020 led me to Ezio Manzini. Listening to Stuart Candy led me to discover Richard Slaughter, and so on. When more than one important figure mentioned a theme, it would be further studied and compared with other insights that emerged from the research. This would allow for “Serendipity Pattern” (Merton K 1949) to emerge on the synthesis wall.

The synthesis of the data was facilitated by using a “synthesis wall” like product designers use during design research, by externalizing the data and forcing interactions in a physical space. Using insight combination and the clustering of



elements on a physical wall makes the research tactile and less hierarchical — less like a software filing system — in order to make sense of the data as a whole and not as units. Pattern forming was done through passive absorption of information facilitated by the walls of the design studio in which I am writing this paper. I was swimming in my research, meditating on it, and allowing my brain to synthesize as naturally as possible.

## 2.3 Why Autoethnography?

Autoethnography was the fitting lens for this research project because autoethnography itself is an innovative approach that has been increasingly adopted in recent years. Self-awareness, reflexivity, and meditation often seem to be unattainable goals when living in Volatile, Uncertain, Complex, and Ambiguous (VUCA) times. It only seemed appropriate to use this research time to reflect on what parts of the design process are most beneficial to emerging futurists and to look at the futures field from the perspective of a beginner at strategic foresight searching for which tools and approaches will benefit future designers and futurists alike. As a designer and futurist, I seek to understand where I fit into the intersection of futures and design, and how I can assist, using this autoethnographic framework. Autoethnography, according to Marechal (2010), “is a form or method of research

that involves self-observation and reflexive investigation in the context of ethnographic field work and writing” (P.43).

Something that really stood out for me is that autoethnography is different from traditional ethnography “in that it embraces and foregrounds the researchers’s subjectivity rather than repressing it.” (Chang H 2008) Design is also a process where the researcher’s subjectivity can be very useful when applied to a design problem. This gives rise to the uniqueness of the design solutions that will emerge based on the team’s unique configuration of actors and the design problem at hand. (Kolko 2010)

As a researcher, becoming the research subject would allow me to generate more empathy for research subjects in the future. This is also very similar to designers empathizing with their research subjects (users) to dig up deep human insights into their woes by listening

to their stories. Patricia Moore, an American industrial designer, gerontologist and author, named by the Industrial Designers Society of America as one of The Most Notable Industrial Designers in the history of the field, went to great lengths trying to empathize with 85-year-olds. Collaborating with a makeup artist and specialists in prosthetics for actors who played older characters, they disguised Patricia as an 85-year-old. "She even went as far as to simulate the physical limitations that some older people experienced, wrapping her legs tightly in Ace bandages with support stockings over top to limit her movement, she wore gloves over her younger looking hands, introduced aspects to cause her to hunch over while she walked with a cane, and even filled her ears with wax to suppress her hearing. The young empath was fully committed to see life through the eyes of the elderly." (Joyner 2019)

“In embracing personal thoughts, feelings, stories, and observations as a way of understanding the social context they are studying, auto-ethnographers are also shedding light on their total interaction with the setting by making every emotion and thought visible to the reader.” (Chang H 2008) In this particular case the setting is the field of futures and foresight at the intersection of design: speculative design, design fiction, Critical Design, Service design, Product design and Design for Social Innovation as described by Manzini in the book *Design, When Everybody Designs*. I have been an active participant in the “fourth wave of innovation towards a new civilization: Distributed Fabrication” (Manzini 2015) as a 3D printing expert and maker of objects from the future for the past decade, such as a 3D printed scalable pollen collector for different sized plants, so I am well positioned to carry out this research endeavor of total immersion into the field of futures.

## 2.4 How did I get here?

I came to OCADU to become a better designer; I had become siloed in my professional experience and needed an upgrade on current design practices. I was also trapped in a country that doesn't support innovation projects and my skills were not being put to work. I had started to do more work evangelizing the power of design rather than doing design itself. I constantly found myself trying to convince the client or organization why they needed to embrace design at all levels of their organization. It is hard to explain to someone that they need to design something before they stumble upon it and are forced to deal with it, usually without a plan. Once they are immersed in the complexity of the problem, they want to hire someone to fix a big mess — at which point the problem becomes overwhelming for them and they usually desist or let someone else take the lead.

This had me thinking that industrial designers were doomed to be sketch monkeys at companies that only produce garbage plastic products or screens for mindless consumption in the attention economy — unless I could find a way to explain to the average person that everything is designed (rather poorly), everything can be redesigned, and everything could be designed better entirely, and therefore a designer can be a tremendous ally in any kind of project.

With the word innovation losing its meaning, designers struggle to find pleasure in their work when they are selling tiered releases and aesthetic differentiation rather than engaging in real innovation. Newness does not necessarily equal innovation because something innovative is more than looking at what they did over there and then doing the same thing over here, similar to the concept of 'Used/Borrowed Futures' — A future purchased or borrowed from

others are usually ideas and images that have been either consciously or unconsciously adopted but have been constructed by others (used or borrowed). (Inayatullah 2008). Something innovative is imagining new ways of doing something that have never been imagined before and are so simple that the adoption happens exponentially, and with fewer barriers to surmount. Innovation is context specific and thus very effective. My perception is that everything else is “Innovation-Speak.” The Innovation Delusion by Lee Vinsel and Andrew L. Russel offers an explanation of this mentality:

“The distinction has to do with the way we talk about change—specifically, innovation. There is actual innovation, the profitable combination of new or existing knowledge, resources, and/or technologies. The Austrian economist Joseph Schumpeter argued that innovation is the motive force of economic change, capitalism, and indeed history itself. But genuine innovation is quite



distinct from innovation-speak, a breathless dialect of word salad that trumpets the importance of innovation while turning that term into an overused buzzword. As we will see, the world we actually inhabit, including the technologies we use and need, is a very different place from the world described to us by marketing departments and CEOs—replete with the technologies they've convinced us to buy and rely on. [...]"

Further down they offer a description of what they see as the opposite of innovation, which is very relevant to Design and Futures today: "In some ways, maintenance is the opposite of innovation. It is the practice of keeping daily life going, caring for the people and things that matter most to us, and ensuring that we preserve and sustain the inheritance of our collective pasts. It's the overlooked, undercompensated work that keeps our roads safe, our companies productive, and our lives happy and secure." (Vinsel and Russell 2020)

This concept of relationality and interconnectedness over constant innovation shares DNA with leading ecofeminist scholar Donna Haraway's idea of "learning to stay with the trouble" as a method to navigate the disasters that human-centred design have created. She writes "Learning to stay with the trouble of living and dying together on a damaged earth will prove more conducive to the kind of thinking that would provide the means to building of more livable futures." (Haraway 2016)

During my first formal training in Strategic Foresight by Helen Kerr and Zan Chandler in the Foresight Studio at OCADU, I became enamored with Experiential Futures. I saw a practice that led to a transformational idea. What if policy makers were able to spend at least two weeks living in the same conditions as the people they are designing policy for? Hopefully the immersion will allow decision makers to un-

derstand the consequences of their decisions by experiencing them first hand, which could lead to a shift in worldview. This is how a designer gains empathy and understanding of their user — by total immersion into their lives.

Designers are trained to understand people, experiences, feelings, and situations; this allows them to attempt to design an experience. Futurists are trying to deliver an experience to an audience for a purpose, whether it is persuasion or provocation. I saw the opportunity for both practices to learn from each other by sharing the designer's process with emerging futurists. This effervescent mix is still emergent as designers and futurists try to align themselves into a crystalline structure.

However, the COVID-19 pandemic hit and research with human participants was greatly limited. I pivoted from creating experiential futures, XF a practice which “involves de-

signing and staging interventions that exploit the continuum of human experience, the full array of sensory and semiotic vectors, in order to enable a different and deeper engagement in thought and discussion about one or more futures, than has traditionally been possible through textual and statistical means of representing scenarios". (Candy, 2010, p. 3) to looking at a designer's process and critically examining what skills the futurist would benefit from. Is it the creative freedom in combination with the ability of the designer to empathize with their subjects? Or is the ability to physically create the future with their hands more important? Is it the futurist's ability to understand the past and the passage of time that helped them point to possible and probable futures? Is the "design sprint" — "a unique five-day Google Venture process used to solve critical issues through prototyping and brainstorming with customers" (Keijzer-Broers & Reuver 2016) — being used as a tool to remind people of

their creativity, rather than a co-design method for idea generation? Is there a relationship between how well design is integrated into an organization, its design maturity and its futures literacy?

I hope that through this deep dive into design and futures, humans remember their creative capacities and allow themselves to be more creative and expressive in everything they do. If we can unite and listen to the planet, our “spaceship earth” (Fuller 1963), and listen deeply to human and more-than-human subjects, we can design better futures for all of us. It is through the intersection of design and future thinking that difficult conversations about the state of our human-centered worldview are facilitated and a Planetary Centered Design based in the flourishing of all earth’s systems can gain traction.

## 2.5 Literature review

Having recently been launched into the futures field it was important to start this project with a thorough literature review on design principles and emerging methodologies to solidify my knowledge and experiences throughout the past 15 years of design practice. This would allow me to look at the futures field for patterns appearing in design practices and the democratization of the future alike. The similarities in the fields are clear in the adoption of design practices that are currently popular like Generative design research workshops, “an approach to bring the people we serve through design directly into the design process in order to ensure that we can meet their needs and dreams for the future” (Sanders & Stappers 2018) A typical “Google Sprints” fits into this category. However, some designers question the reliability and validity of designing this way because the speed at which it is

carried out does not allow for much depth into the problem.

A lateral literature review was also carried out investigating futurists, objects from the future, Diegetic Prototypes, Speculative Design, Critical Design, Design Fiction, and running workshops from the future. This was an area of extreme curiosity for me, and I wanted to spend some time looking at what people think of Speculative Design. I especially wanted to sit and contemplate what I think Speculative Design is and how we should use it in a way that is beneficial to the human condition.

(See appendix A)

## 2.6 Immersion into the field with the help of a virus: COVID-19

As a designer I am comfortable not knowing the answer to something and diving into it until I have enough knowledge to attempt my best educated guess. Futurist Joseph Voros would call this state “conscious incompetence”. (Voros 2021)

Diving into the futures field was facilitated in part due to COVID-19 and the transition to digital platforms that we experienced during the first lockdown of 2020. The emergence of multiple organizations streaming their knowledge out to the internet captivated me as the lifelong learner that I am, and so I started attending many futurist talks, and “design better” Zoom talks. I started participating in as many of the workshops being run by organizations either driving innovation or democratiz-



ing the future by increasing futures literacy as much as I could. “The concept of ‘futures literacies’ is a promising one. It refers to the development of citizens’ capacities for envisaging, evaluating and acting in relation to a range of possible futures, in the context of a world characterised by complexity, uncertainty and cultural Diversity.” (Miller 2007)

I believe that in order to design a jacket I must first experience what it feels like to be cold. Naturally embracing co-design practices, I became a participant in the democratization of futures studies, attending virtual workshops on Miro and Zoom hosted by the UNESCO futures group. This allowed me to really empathize with participants of a “design sprint” type workshop before I attempted to redesign the tools and creative spaces of the design community any further. Becoming the participant in the workshop allowed me to become the student and look at these practices first hand.

On the other side I became a participant in Facebook's Design for Good Service Design Jam, a generative workshop that I signed up for before COVID-19 sent us all home. I attended the workshop with the hat of a mentor and really tried to use my experience as a designer to help push the design sprint as far forward as possible, being comfortable in ambiguity, and trying to help create an awareness of systems laid down before the systems we were trying to develop. It became a playing field where I could put into practice my creativity and really get to see at what level of design maturity these workshops were at in comparison to the workshops run in the futures field.

## 2.7 Reliability and Validity of this research work

According to Carolyn Ellis, “autoethnography intends to open up conversations rather than close them,” and by sharing my experience of design and the immersion into the futures field I seek to open up conversations with designers, futurists, and humans interested in reclaiming their creative power and arming themselves with the design skills necessary to reach out for preferred futures.

The questions that come up during this research are intended as future research areas and questions to elicit a reader response.

## 2.8 My own biases explored

I am a Mexican Industrial Designer who studied design in the United States and Foresight in Canada.

Metaphorically speaking, my journey has been similar to that of the monarch butterfly on their journey north.

I was raised by a lake in a semi-rural area of Mexico in Mazahua Indigenous territories, and I have grown close to nature and to Indigenous wisdom. I have seen first hand the kind of devastation humans can do in the name of progress and innovation, and I have seen the wonders of rewilding urban areas and supporting local communities with better visions of the futures and the benefits of living less destructively on this earth. I believe that one of the biggest challenges humans face today is our greed, the hungry ghost that lives inside us all. We have forgotten that our brothers and sisters live down the river from us and so

we must not take more than half of anything to allow for regeneration and equitable distribution.

Personally I have experienced the impatience of organizations wanting immediate results without considering many possibilities, if any at all. The desperate need for immediate return on investment has designers working on dangerous and underdeveloped ideas. For example, if one social media app develops a successful product, it seems many other competitors develop the same offering regardless of fit, just because it was successful over there. This can lead to a standardization of everything, and standardization is not conducive to a world where many worlds can exist.

I have seen startups and SME's throw their designer under the bus when the going gets tough and take advantage of the designer's time and willingness to solve problems, always asking for more and demanding to charge less.

In my experience, It has been very difficult, if not impossible, to secure funds for the research part of the design process. Clients and organizations have failed to understand the value of what they are purchasing. They want answers, no ambiguity allowed, and definitely no wasting time on company money. (“Just design something amazing.” - Every Client)

Most organizations I have worked with have a fear of the future, thinking that it is a waste of time to think so long ahead when there are needs and bills that the organization is worried about every quarter. Being immersed in the problems, it becomes hard for them to see the big picture. Organizations are unaware that what they are working on may become obsolete faster than they realize.

I have seen companies and clients dream of innovation but be unprepared to face transformational change. Not knowing the real cost

of inaction, the cost of futures and design thinking seems expensive at first. Solving the wrong problem is usually far more expensive and time consuming, which highlights the needs for problem framing within organizations and better synthesis.

## 2.9 Listening to the founders of the field & the emerging leaders

Similarly to the way design is passed down from master to mentor, I took the apprentice lens and stepped into the foresight world by listening to a podcast with the founders of the field and the emerging leaders. A sort of “History of Foresight” would allow me to begin following their work and become acquainted with the type of futures work that is done out in the field today versus the kind of work that has been done in the past.

Strategic Foresight deals with the passage of time, and therefore it takes a lifelong practice to develop robust methods of “good foresight.” It was my intent to learn as much as possible from the experiences of people that took a lifetime to cultivate. This deep dive would result in further research of terms, names, books and projects that had been carried out by futurists before me.



# PRIMER

## 3.0 What is Design?

Merriam Webster Dictionary describes Design as “to create, fashion, execute, or construct according to plan.”

For many people Design is a beautiful artifact, a colourful pattern or an arrangement of elements on a page or screen — “for most of us design is invisible, until it fails” (Mau 2004). But design is everywhere; everything that is human-made has been designed either consciously or unconsciously: tools, clothes, weapons, vehicles, roads, houses, cities, economies — even warfare can be designed in the form of a strategy or steps towards an objective which could include a provocation. All the examples above take a level of planning and executing.

My favorite definition of design, which is as old as I am, is that “at its most basic level, design can be described as an event that begins with an existing state and through some

process produces a more desirable state” (Doblin 1987) as depicted by the SPS model.

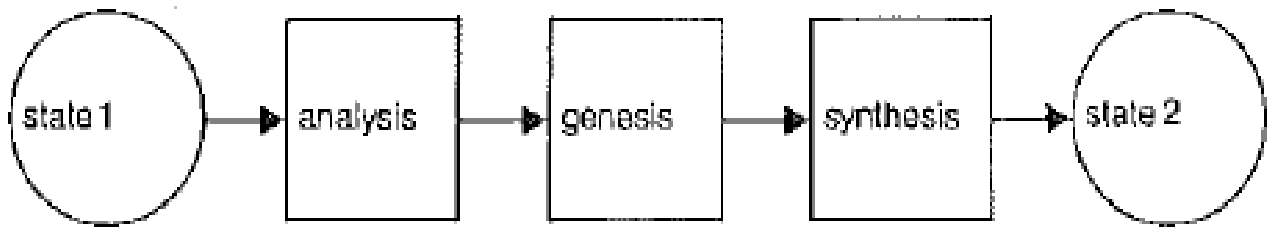


(Figure 1) SPS model (Doblin 1987).

According to Doblin, based on what we observe and sense, we can choose to do something (Action) that changes state 1 into state 2. This might seem like magic, but it is quite simple. Take for example your daily activity of dressing up to leave your house. You have the initial state, which may or may not include you wearing clothes to begin with. Then by going through your clothing options (Process) you select your favorite flower shirt (Senses) and try it on in front of the mirror (Feedback). Success! You have designed your outfit for the day. You have gone from a state of no clothes to a state of wearing your favorite shirt. This process could end here or it could go on forever because design is never “done”. If we introduce a new constraint into the design process, an iteration of the design state must be carried out in order to achieve the desired state and for the

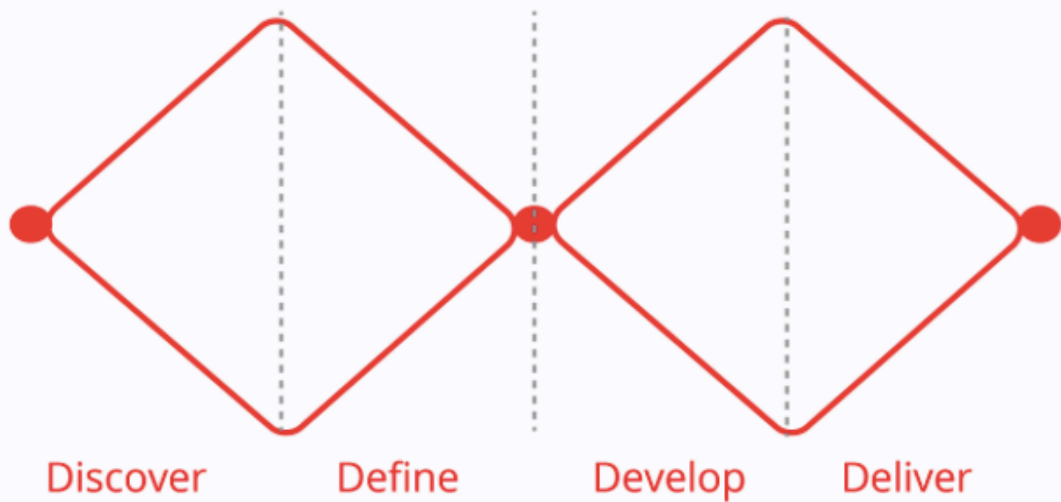
design to be fit for purpose. If the weather is rainy outside, you might have to change your shirt or wear another protective layer. If your purpose is to go to a fancy event then perhaps you should wear something completely different. In a nutshell this is the design process, an iterative chain reaction of propositions and revisions that is searching for an optimum state depending on the variables known to the designer about the context of the problem. These activities are commonly referred to as the Analysis and Synthesis stages of Design.

Doblin goes on to explain how the design process can be broken down further into three steps: Analysis, Genesis, and Synthesis (Doblin 1987). Another classic pedagogic tool, the “Double Diamond,” is used to explain the complex process of design in a reductive way to facilitate understanding of the complexity of the process of design. It breaks the process into four stages: Discover, Define, Develop and Deliver.



(Figure 2) SPS model (Doblin 1987).

### The 'Double Diamond' design Process Model



(Figure 3) Diagram of the design process by Design Council)

## 3.1 A short history of Design

For years Industrial Design focused on making things better: cars, chairs, hand tools, etc. What “better” meant was to design for efficiency, making things easier to produce, lighter, faster, stronger, and most importantly, cheaper. As technology and society developed out of the industrial era, humans added more complexity to the things they were making and design became more focused on problem solving and adding value to people’s lives than on engineering-driven optimization.

Centring human needs in the design process eventually led to Human Centered Design — “An approach that puts human needs, capabilities, and behavior first then designs to accommodate those needs, capabilities and ways of behaving” (Norman 2013) Human-centered design has shown that we can gain deep insight by observing human behaviour and moving from

symptomatic treatment to resolving a core issue. Design and designers are invaluable to a better future because their problem solving skills can be applied to tackling the complexity of the situations in which we currently find ourselves.

As design has grown in maturity through trial and error, it has moved from form giving, solving simple problems like how to squeeze a lemon, to dealing with problems like how do we sell preserved lemonade concentrate? How do we distribute it effectively from our facility? How do we source our bio-stock? How do we go from lemon juice to Product or Service?

“Most of the time, we live our lives within these invisible systems, blissfully unaware of the artificial life, the intensely designed infrastructures that support them.” (Mau 2004)

As humans add more complexity to the things they are designing like technologies, communities, envi-

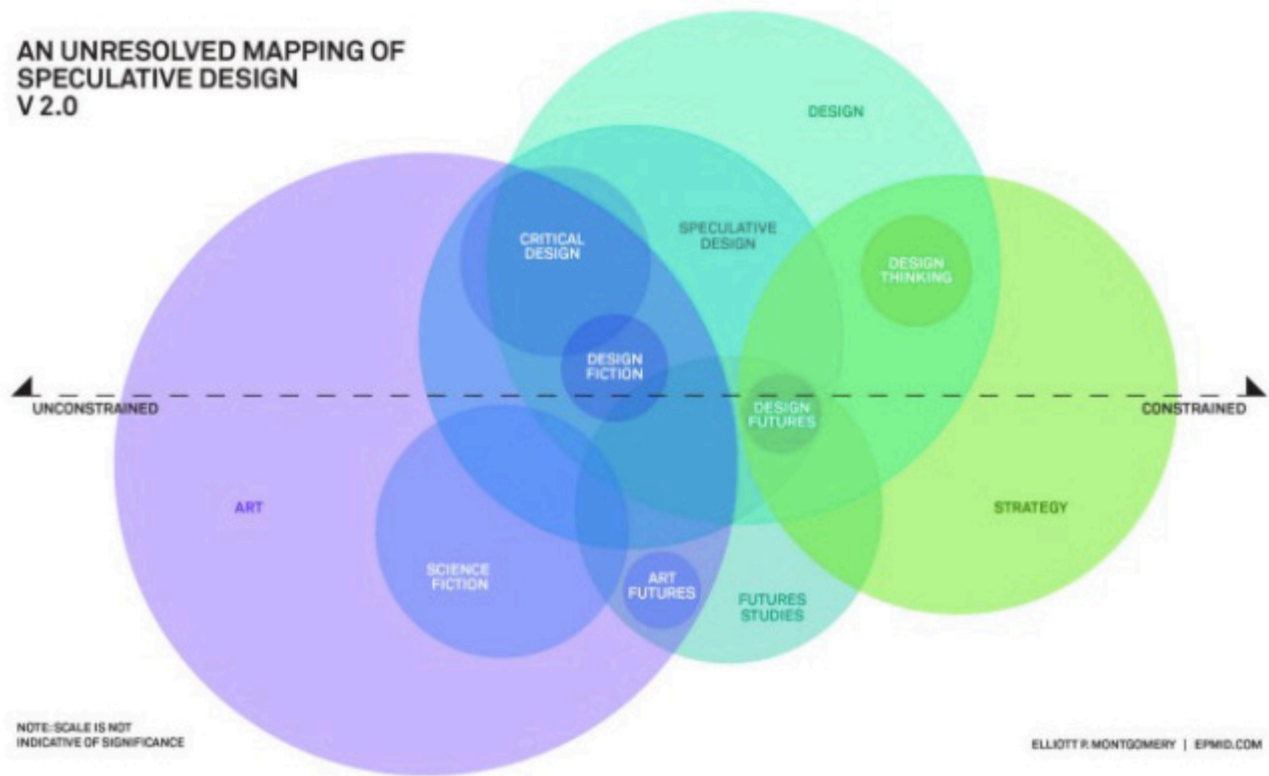
ronments and all sorts of systems, the things they are designing will increase in complexity so much that the role of design will have to evolve again and again. As we integrate A.I. into our lives and our systems begin to be managed by a million computers talking to each other, the level of complexity will lead to further evolutions of design to cope with “the mess.” This is perhaps why design has exploded like a star into a million new and growing disciplines that focus specifically on a single aspect of Design: Graphic Design, Product Design, and Service Design being the older star systems with new moons orbiting them like Critical Design, Design Fiction, Speculative Design, Design Science, Sustainable Design, Transition Design, etc.

(See next page for image of Elliot P. Montgomerys diagram of design disciplines at the intersection of futures and science fiction.

According to Kolko, “Designers, as



AN UNRESOLVED MAPPING OF  
SPECULATIVE DESIGN  
V 2.0



Montgomery's proposed overlapping of design and future practices © Elliott P. Montgomery

(Figure 4) An unresolved map of speculative design V.20 by Elliot P. Montgomery  
Source: <https://uxdesign.cc/stealing-from-the-future-with-speculative-design-e769059b6689>

well as those who research and describe the process of design, continually describe design as a way of organizing complexity or finding clarity in chaos” (Kolko 2010). Chaos and ambiguity seem to cause the average person a lot of stress and anxiety; in comparison many designers love the complex nature of the problem and will spend time untangling the mess willingly. In a world that is on fire, it is the designer’s duty is to help make sense of the whirlwind of information and break it down into more digestible pieces. What Nick Foster from X and the Near Future Laboratory call “Solution Entropy” (Foster 2020)

Paola Antonelli - advocates for Designers’ new role for the future as:

“Society’s new pragmatic intellectuals changing from form givers to fundamental interpreters of an extraordinarily dynamic reality” - (Antonelli 2008)

**“Society’s new pragmatic intellectuals changing from form givers to fundamental interpreters of an extraordinarily dynamic reality” -**

(Antonelli 2008)

## 3.2 What is Sensemaking?

Sensemaking is defined as “a motivated, continuous effort to understand connections (which can be among people, places, and events) in order to anticipate their trajectories and act effectively.” (Klein, Moon, and Hoffman 2006)

For the designer the motivation to make sense of things comes from the desire to change from state 1 into a desired state, the designed state. In order to fully understand the starting point, designers will immerse themselves into their ethnographic research looking at human behaviour, with the desire to understand a human being before designing for them. The designer is aware that the human subject knows the problem better than they do, so together they can find an adequate design solution for the problem they are trying to solve. What Paola Antonelli is urging designers to do is to become active partici-

pants in the sensemaking of our chaotic world. The next evolution of design is to act like modern day shamans and guides to understanding and explaining complexity, breaking it down into more manageable pieces. Jeff Veen, founder of Adaptive Path, has noted that “Good designers can create normalcy out of chaos.” (Veen 2000),

The designer’s willingness to dance with complexity is why design is future-ready. Designers are accomplished sensemakers and know how to map out complexities and attempt to make sense of them to others. Through Synthesis, they make connections between seemingly unrelated pieces of data and discover new things or new problems. Sensemaking is a natural part in the Discovery stage of the design process that Doblin and the “Double Diamond” attempt to describe by simplifying the design process into a two-dimensional drawing. Peter Hayward Host of FuturePod says that “The Foresight work is not just

the horizon scanning, it's also the sensemaking," a clear example of the similarities between design and futures.

## 3.3 What is Abductive thinking?

Abduction (Peirce 1988b) is described as a third type of logic apart from deduction and induction.

“Unlike deduction or induction, abduction allows for the creation of new knowledge and insight.” (Kolko 2011 p24 ). Abduction has been popularized by Roger Martin and also perhaps because “It is a common complaint that no coherent picture emerges from Pierce’s writing on abduction” (Douven 2017). Today it is “to some degree a rationalisation of why the magic of design actually works” (Kolko 2010). It is a hypothesis-driven form of reasoning; Abduction gives us the idea of: “Best working Hypothesis” (Peirce 1988b).

For the designer, this is the preferred type of thinking and the springboard to creativity; abductive thinking is taking ideas for a joy ride. Instead of refuting the validity of an

idea immediately, a designer will entertain an idea (even if it's a bad idea) by using their imagination to explore the What if? of any situation. The designer immerses themselves in a new environment, and with the flexibility of dreams the designer can explore the idea and play with it in the safety of their mind. What would a toothbrush look like on the International Space Station? What would it look like in a submarine? The designer can then quickly travel to the International Space Station via their imagination and pretend they are brushing their teeth in a space suit. The needs of that specific context and the limitations of the situation allow the designer to make educated guesses. "Best Working Hypothesis". (Pierce 1970)

If this is true for design, it is also true for futures. Futurists gather signals of change to create trends; these trends are then extrapolated into the future to explore how they might behave. The futurist uses signals of change as evidence for their

abduction, making their extrapolation a “best working hypothesis” about the possible futures.

“Embracing the richness that is you” is an idea that is coming out of cognitive psychology and it is linked to the idea that “we don’t see things as they are, we see them as we are.” (Anais Nin 1961). In this case the designer’s individual experience and biases are embraced as valuable or insightful and allow for unique connections to be made. By making a connection between what you know and what you see emerge from the data collection, “The richness of your experience allows you to do that abduction” (Kolko 2010).



## 3.4 What is Synthesis?

Synthesis is a process of making meaning; it is not unique to design, so it has been studied broadly by other disciplines. “Design Synthesis is an abductive sensemaking process of manipulating, organizing, pruning and filtering data in an effort to produce information and knowledge” (Kolko 2010).

Design synthesis is often described as a magical process, because the designer usually does the design work in the privacy of the studio and only presents the magical looking stuff for others to see. To the untrained professional the process can just seem like madness at first. To make sense of all the information and ideas the designer has gathered, they are externalized onto the synthesis wall where we can be immersed in them and present them to other people so their insights can also join the conversations. This way the information can be combined

in different ways and from different points of view. This allows for happy accidents to happen more often. “Ohh no! We dropped chocolate in the peanut butter!” All of a sudden a new magical thing is created, seemingly out of nowhere. “Synthesis, then is about creating a quantity of newness where each new idea is individually unique.” (Kolko 2010 p27.) The walls of the design studio have facilitated this through passive absorption of information. Kolko describes synthesis “ as the most critical part in the creative process of design” (Kolko 2011) because “Design is the act of problem solving ... Design synthesis is the process of problem understanding” (Kolko 2011)

“Synthesis allows for multiple hypotheses, ideas, themes, patterns or trends to be mapped and diagrammed, and consumed and explored. It is a process of judging, yet it celebrates the cultural nuances that form the judgement.” (Kolko 2011)

Jim Wicks, vice president and director of Motorola's Consumer Experience Design group, explains that "design is always about synthesis—synthesis of market needs, technology trends, and business needs." (Wicks 2008) Design is a knowledge industry, and by combining facts and insights designers can create new knowledge. If this is true for design then futures might be synthesis across all STEEPV categories: Foresight takes signals across STEEPV categories: Social, Technological, Ecological, Economical, Political, Value Systems to find signals of change in these areas and identify patterns or trends. With the trends the futurist can abduct a best working hypothesis of where these trends are heading. The futurist then further abducts or extrapolates what a future might look like based on what we see today. This way the futurist creates information and knowledge of future worlds, but because the future cannot be predicted with any accuracy, these insights may or not turn out to be

right. If we can identify the needs of stakeholders across all STEEPV categories, we can have difficult conversations about them and with them. Foresight amplifies design's ability to make more accurate design decisions for tomorrow by providing a wide range of lenses from which to view the world today, and the future world we prefer. Design amplifies foresight's ability to humanize future needs, and provides the necessary toolkit to make images of the future tangible and actionable.

“Riel Miller, another leading figure in the field, is UNESCO's ‘Head of Futures Literacy’. He emphasizes that futures literacies (what we might also refer to more broadly as the capacity for ‘anticipatory agency’) depends not simply on access to knowledge and education (Miller 2018): these are necessary but not sufficient resources for citizens seeking to make informed choices about the types of future they wish to pursue. Also vital, according to Miller, is the capacity to access and

to build 'evocative stories' about the future that can motivate and mobilise, rendering potential futures tangible – not as outcome predictions, but as creative building blocks in the envisioning process (Miller 2007).”

This is where designers come into the futures field as expert storytellers, rendering images of the futures for people to see other possible worlds. Designers have the tools and creativity to help seed images of possible, and preferable futures. However, designers need to immerse themselves into non-Hollywood images of the futures and synthesize alongside professional futurists, to dig up behavioral insights from the future.

## 3.5 The physical walls of the design studio

The walls of a design studio are a great way to break the hierarchical arrangement of research that is produced in computer filing. The idea is to get out of your laptop. “Your goal is to produce an external, tactile, collaborative, and highly visual representation of all of the research.” (Kolko 2014)

When Kolko talks about design leadership and how to boost creativity, he references being the first to create an artifact to start a conversation. Kevin McDonald at Argo Design, “An artifact gives us a framework in order to exchange ideas. An artifact is a negotiation” The physical wall of the studio can be a place for these interactions to happen. “The whole point is not to be right” (Kolko 2010) but to start conversations by kickstarting the design cycle, generating as many ideas as

possible, and externalizing the data so that abductions can be made easily between different projects or seemingly unrelated pieces of data. “More importantly, you’ll have integrated the interview contents into your worldview, and you’ll think about the problem space differently. The transcription process, and the subsequent synthesis process, is how you make sense of data.” (Kolko 2014)

Designers get comfortable showing their work and receiving critiques, and this creates a feedback loop of information that the designer can use to carry out revisions, rendering design a continuous activity. Sometimes this process is hard, especially for junior designers who have not learned to separate themselves from their work. When a critique is not good, they start to feel that their work is not good, and worse, they feel they are not good. Instead of giving up, some designers will stay determined to get better at their craft and this will motivate them to

get better at what they do. Designers know how to stay with the trouble. (Haraway 2016)

A similar thing seems to be happening with futures and scenarios specifically, where junior foresight practitioners look around at other people's work and start to feel that their work is better and start to feel competitive. The reality is that all scenarios are good to explore because of their uniqueness of origin. This way futurists can team up and create many futures together, building from each other. Like design projects. Futures should expand outwards on a wall and, in this way, become prototypes.

“The synthesis wall is complexity. It's hard. And it will feel hard, tedious, and time consuming. But the results that pop out the other side of synthesis are the elegant truths of innovation, grounded in their humanity and beautiful in their simplicity.” (Kolko 2014)

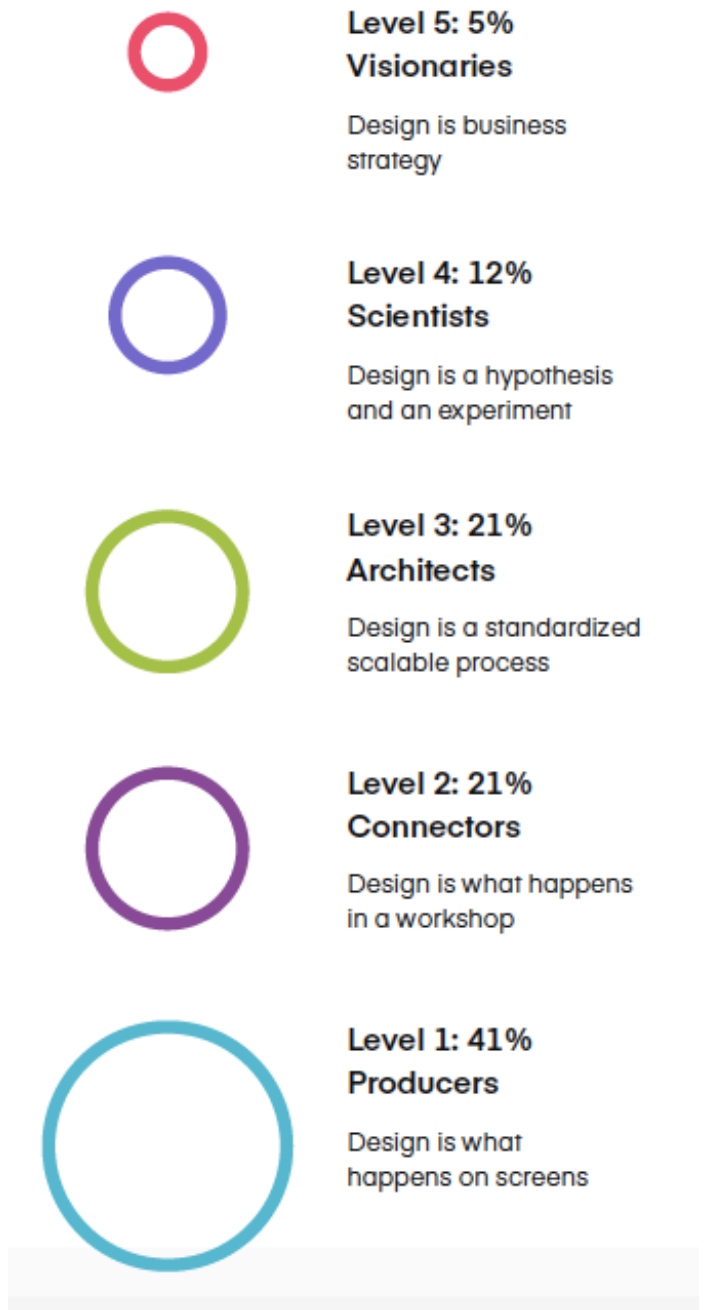


Futures are obviously complex in nature and designers offer a way to make sense of complexity by treating it like a design problem and drawing it, quite literally, as the writing on the wall. In the visualization of complexity, we can leverage the power of design as a valuable futures tool rather than using design as simply a method of delivery for futures work.

## 3.6 What is the Goal of Design?

During the award ceremony for IDEA 2014 (International Design Excellence Awards), where I received a bronze prize for a sailboat design, I heard a speaker say that “Design is about improving the human condition.” This resonated so strongly with me that it solidified my commitment to design and to improving the human condition by designing for good. This means solving real problems for real people.

For Dieter Rams the goal of design is to make things better. His famous quote “Less but better” asks us to look at the quality of our designs and simplify them; instead of making a complex multi-tool, we should make one tool that is simply superior by design.



(Figure 5) Design Maturity model proposed by InVision The New Design Frontier. (2020)

## 3.7 What is Good Design?

Dieter Rams, a renowned industrial designer who worked for Braun in the 1970's and is famous for his iconic household products, developed 10 commandments for good design. I have personally experienced the power of these principles of good design. Last time I applied them religiously I won two design awards: Red dot design Concept Award 2014 and IDEA'14 (International Design Excellence Awards).

### **Dieter Rams' 10 Principles of good design: (1976)**

#### **Good Design Is innovative**

- The possibilities for innovation are not, by any means, exhausted. Technological development is always offering new opportunities for innovative design. But innovative design always develops in tandem with innovative technology, and can never be an end in itself.

## **Good Design Makes a product useful**

- A product is bought to be used. It has to satisfy certain criteria, not only functional, but also psychological and aesthetic. Good design emphasises the usefulness of a product whilst disregarding anything that could possibly detract from it.

## **Good Design Is aesthetic**

- The aesthetic quality of a product is integral to its usefulness because products we use every day affect our person and our well-being. But only well-executed objects can be beautiful.

## **Good Design Makes a product understandable**

- It clarifies the products structure. Better still, it can make the product talk. At best, it is self-explanatory.

## **Good Design Is unobtrusive**

- Products fulfilling a purpose are like tools. They are neither decorative objects nor works of art.

Their design should therefore be both neutral and restrained, to leave room for the users self-expression.

**Good Design Is honest** - It does not make a product more innovative, powerful or valuable than it really is. It does not attempt to manipulate the consumer with promises that cannot be kept.

**Good Design Is long-lasting** - It avoids being fashionable and therefore never appears antiquated. Unlike fashionable design, it lasts many years - even in today's throwaway society.

**Good Design Is thorough down to the last detail** - Nothing must be arbitrary or left to chance. Care and accuracy in the design process show respect towards the consumer.

**Good Design Is environmentally friendly** - Design makes an important contribution to the preservation of the environ-

ment. It conserves resources and minimises physical and visual pollution throughout the lifecycle of the product.

## **Good Design Involves as little design as possible -**

Less, but better - because it concentrates on the essential aspects, and the products are not burdened with non-essentials. Back to purity, back to simplicity.

(Rams ) Less, but Better 2014

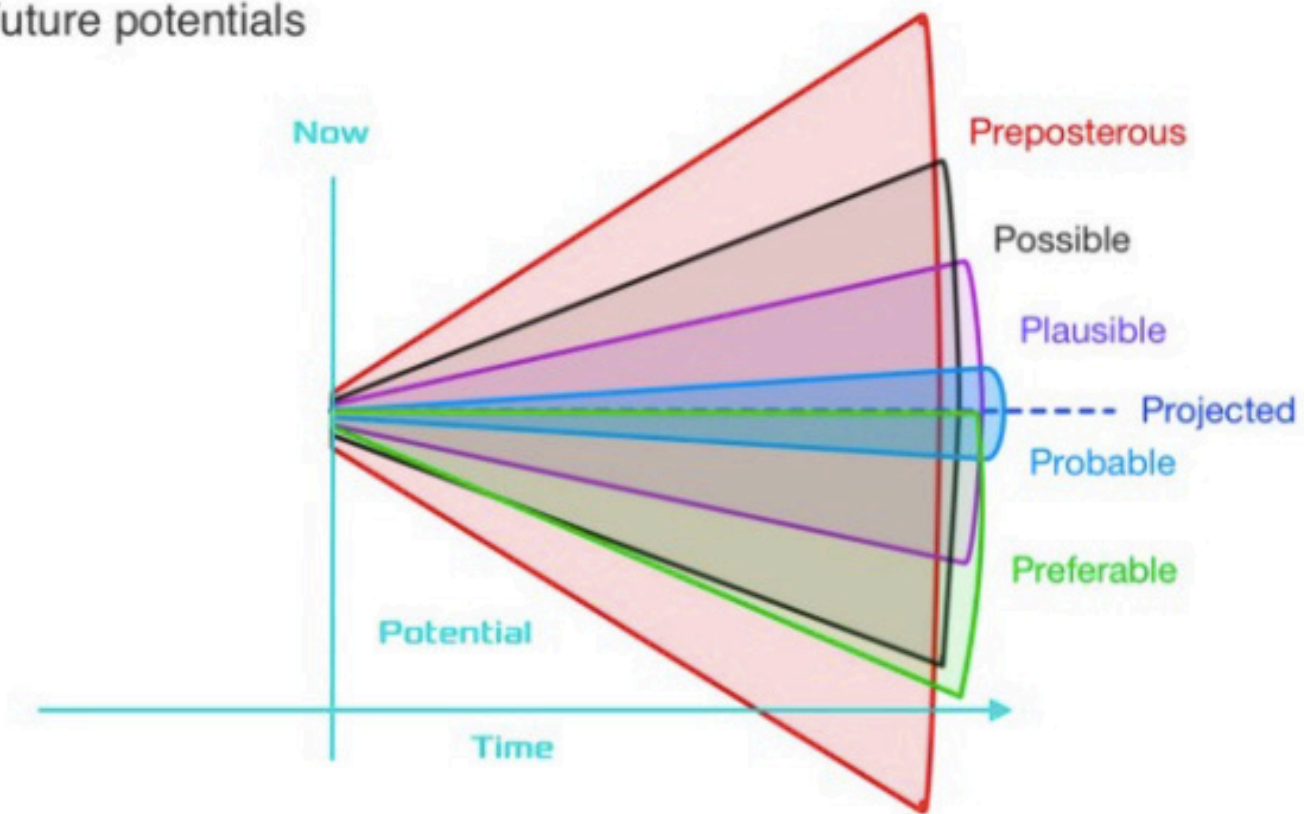
## 4.0 What is Future Studies?

For starters, Future Studies is NOT about predicting the future. It is about studying the future. Foresight or forward vision is a human's natural ability to think about the future to inform decisions today. Frank Spencer of Kedge's The Futures School defines strategic foresight as "a decades old discipline that allows us to create functional views of alternative futures and possibilities. Through this process, organizations are better prepared for potential threats and can capitalize on hidden opportunities" (Spencer 2017)

Jim Dator, one of the founders of the field of Future Studies says "The future" cannot be "predicted" because "the future" does not exist." Futures studies does not--or should not--pretend to predict "the future." It studies ideas about the future--what I usually call "images of the future" (Dator 2002). Throughout his studies, he has discovered that most

images of the future manifest in one of four categories: Growth, Collapse, Disciplined, and Transformation. With these four images in mind, one can extrapolate four very different worlds.

## Future potentials



Based on Joseph Voros' adaptation of the futures cone model (Hancock and Bezold, 1994).

(Figure 6) A Taxonomy of Futures also referred to as Future Cone.

Source: <https://uxdesign.cc/stealing-from-the-future-with-speculative-design-e769059b6689>



## 4.1 Dator's Laws of the future

I. "The future" cannot be "predicted" because "the future" does not exist.

Futures studies does not--or should not--pretend to predict "the future." It studies ideas about the future-- what I usually call "**images of the future**"--which each individual (and group) has (often holding several conflicting images at one time). These images often serve as the basis for actions in the present. Individual and group images of the futures are often highly volatile, changing according to changing events or perceptions. They often change over one's life. Different groups often have very differing images of the future. Men's images may differ from women's. Western images may differ from nonwestern images, and so on.

"IA. "The future" cannot be "predicted," but "**alternative futures**" can,

**and should be “forecast.”**

Thus, one of the main tasks of futures studies is to identify and examine the major alternative futures that exist at any given time and place.

IB. “The future” cannot be “predicted,” but **“preferred futures” can and should be envisioned, invented, implemented, continuously evaluated, revised, and re-envisioned.**

Thus the major task of futures studies is to facilitate individuals and groups in formulating, implementing, and re-envisioning their preferred futures.

1C. To be useful, **futures studies needs to precede, and then be linked to strategic planning, and thence to administration.**

The identification of the major alternative futures and the envisioning and creation of preferred futures then guides subsequent strategic

planning activities, which in turn determine day-to-day decision-making by an organization's administrators.

However, the process of alternative futures forecasting and preferred futures envisioning is **continuously ongoing** and changing. The purpose of any futures exercise is to create a guiding vision, not a "final solution" or a limiting blueprint. It is proper, especially in an environment of rapid technological, and hence social and environmental, change for visions of the futures change as new opportunities and problems present themselves.

## **II. Any useful idea about the futures should appear to be ridiculous.**

IIA. Because new technologies permit new behaviors and values, challenging old beliefs and values which are based on prior technologies, much that will be characteristic of

the futures is initially novel and challenging. It typically seems at first obscene, impossible, stupid, “science fiction”, ridiculous. And then it becomes familiar and eventually “normal.”

IIB. Thus, what is popularly, or even professionally, considered to be “the most likely future” is often one of the least likely futures.

IIC. If futurists expect to be useful, they should expect to be ridiculed and for their ideas initially to be rejected. Some of their ideas may deserve ridicule and rejection, but even their useful ideas about the futures may also be ridiculed.

IID. Thus, decision-makers, and the general public, if they wish useful information about the future, should expect it to be unconventional and often shocking, offensive, and seemingly ridiculous. Futurists, however, have the additional burden of making the initially-ridiculous idea plausible and actionable by marshaling

appropriate evidence and weaving alternative scenarios of its possible developments.

### **III. “We shape our tools and thereafter our tools shape us.”**

Understanding this statement by the Canadian futurist and philosopher of media, Marshall McLuhan provides the starting point of a useful theory of social change. Technological change is the basis of social and environmental change. Understanding how this works, in specific social contexts, is the key to understanding what can be understood of the varieties of alternative futures before us, and our options and limitations for our preferred futures.

Though technology is the basis, once certain values, processes, and institutions have been enabled by technologies, they begin to have a life of their own. Population size and distribution, environmental modifications, economic theories and behaviors, cultural beliefs and practic-

es, political structures and decisions, and individual choices and actions all play significant roles in creating futures. However, our option in relation to these factors is best captured by the metaphor, “surfing the tsunamis of change.”

In addition, (1) the identification and analysis of long wave, cyclical forces and (2) the movement of “generations” through their life cycles (age-cohort analysis) are two other theories and methods useful in forecasting, envisioning, and creating the futures.

I thought it was important to also include the three laws of futures by Joseph Voros (2001), not just because they share similarities with Dator’s laws but because they are emerging from a different place in the world. Dator being in Hawaii and Voros in Australia it shows how the seed of Foresight has taken root in many places.

## 4.2 The three “Laws” of futures by Joseph Voros

1.- The future is not predetermined.

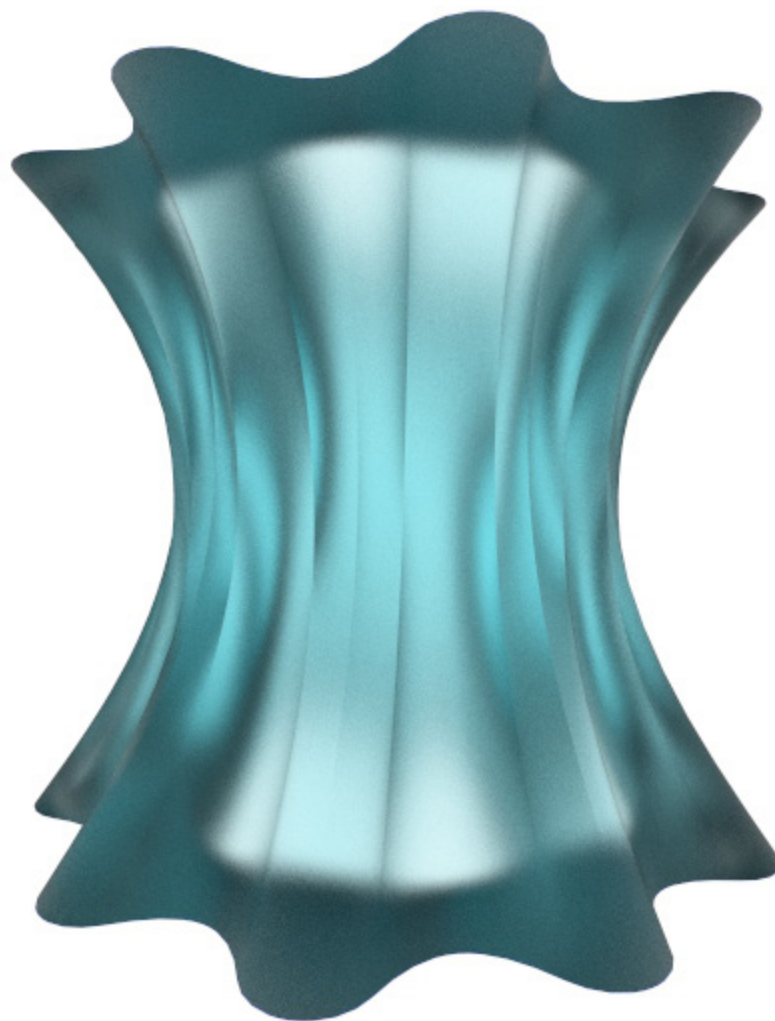
2.- The future is not predictable.

**3.- Future outcomes can be influenced by our choices in the present.**

(Voros 2001)

More importantly, Voro's third rule is most applicable to designers and all the stakeholders of this planet because it is hopeful that we can do better. Anyone familiar with the “Time Traveller” narrative knows that when people go back in ‘time’ and change a small thing, like accidentally stepping on a snail, it results in a massive alteration of the future. Chaos theory best explained by the ‘butterfly effect’ perhaps, but the point is designers have the opportunity to do something today that radically changes the futures.

Design should aim to become more conscious of its implications and less accidental. It should study the future consequences of our actions even if they seem inconsequential or commonplace.



(Figure 7) Authors rendition of the futures cone expanding from the ground up. Abducted from our visualization of lab work with Pradillo Macias (2020) and Inayatullah's Future Triangle. (2002)



## 4.3 What is the goal of Futures?

It studies situations that have not happened yet using a systematic and evidence-based approach by projecting trends and drivers of change out into the futures and imagining what things would be like in different scenarios. It deals with possibilities and direction of movement by extrapolating from trends and signals seen today to try to be better prepared for tomorrow.

## 5.0 What are difficult Conversations?

“A difficult conversation is any situation where the needs/wants, opinions or perceptions of the involved parties are diverse, with their feelings and emotions running strong. Usually the reason behind such strong feelings and emotions is that they have a lot at stake and they dread the consequences such as a conflict.” - Cleverism.com

This definition of difficult conversations highlights some key words and themes, including how wants and needs are important to stakeholders of a situation. Opposing worldviews erode the quality of the conversations because strong feelings and emotions can filter our judgement. Conflict avoidance can lead to the avoidance of difficult conversations altogether, leaving the issue unresolved and festering.

Take for example the concept of ‘personhood’ and consider where

these boundaries should end.

Should chimpanzees be granted legal personhood rights because science has realized that some animals possess a sense of self awareness? Should Distributed Cognitive systems and mind-bot collectives be granted legal personhood rights? Should a Corporation be granted legal personhood rights?

“In almost all modern political and legal systems, rights, responsibilities, and privileges are all predicated on the concept of the individual. In U.S. law, there are two categories of persons: natural persons (a category reserved exclusively for human beings) and legal persons (primarily organizations, such as corporations or unions). The history of personhood, both natural and legal, has been marked by dramatic expansion. This expansion has always met resistance. For natural beings, from wives to slaves to children, the attainment of personhood has been the way to escape being defined as property. For artificial entities like

corporations, personhood has been a way to extend the benefits of collective property and power, while still protecting personal property.” (Handl 2011)

Very quickly we included humans, animals/nature, business, law and technology in the conversation. Every stakeholder has a different set of needs and wants; with money and business at stake emotions can run strong. More importantly we are dealing with peoples’ lives.

## 5.1 How has design failed to mediate difficult conversations?

Design has failed to mediate difficult conversations mostly because of the invisibility effect that design creates when it removes problems from our sight. Take for example a garbage can designed to be emptied into a garbage truck to be taken away. For the human user the problem of trash is solved, transferred to someone else far away to deal with. “Far away” is the landfill and the problem is far from solved. Poor design has created new problems far away from our sights that over time we forget to address because it is not in our clear line of vision. But garbage is flooding out of cities and into the ocean, creating problems for all beings, humans included, along the way.

Instead of using design to improve the human condition, we have used design to strategically keep things

away from our sights. While we have achieved comfort, the design solution is neither sustainable nor regenerative in any way. This problem is greatly amplified when we try to make design scalable; the problems themselves become overscaled and much harder to solve.

Design has failed to mediate stakeholder selection by only being able to bring the voice of the customer to the executive table. On rare occasions when design has advocated for the voice of factory workers, or those along the supply chain, design has failed to bring to the table the voice of the forest and the creatures that live there. Design has failed to mediate these conversations because it lacks the commanding power of business and money. Designers are hired to generate value, not to talk about the political implications of the thing they are designing. However, I believe it is our job as designers to show people what they are not seeing. Designers are equipped with the skills to make

a video or an infographic that shows the difficult conversations that we are not having.

A great example of this is a Speculative Design fiction piece produced in Amsterdam by Federica Marrella, Ellen McCarthy, Alejandra Niño, and James Ric-Hansen That proposes a future in which our only alternative to deal with plastic pollution is to eat it. They produced diegetic prototypes such as food made from plastic and a digestive aid that is swallowed in pill form. They ask us if this is the future that we want? When we explore the solution they propose multiple alternatives and resources to help improve waste management behaviour today. They have used curiosity as a motivator to action instead of the guilt-inducing paralysis that sometimes comes from the magnitude of the problem we are trying to shed light on. This project has been selected to exhibit at Milan Design Week 2020, with Isola Design District. The level of curiosity sparked by this project at



(Figure 8) With Permission: Plasticfull Diegetic Prototypes on display.. <https://ellenmcc.com/plasticful-foods>



Hogeschool was so much that one of the prototypes was actually stolen from the cafeteria where they were on display. They saw this desirability as a good Key Performance Indicator. Dator's first and second Laws in action. + Voros's Third law of Futures.



(Figure 9) With Permission: Plasticfull Di-  
egetic Prototypes on display.. <https://ellen-mcc.com/plasticful-foods>



## 5.2 How has futures failed to mediate difficult conversations?

Big Corporations used foresight to position oil companies at the top of the food chain despite the impending doom of ecosystem collapse due to climate change caused by those practices.

Corporate foresight has been used more for profit than for averting catastrophe. The conversations have happened behind closed doors and mostly by experts. There was little participation of human or animal needs to consider. More often than not the foresight reports are not made accessible to the public.

FuturePod conversations with futurists expose that “Corporate futures are impatient, they do not want to ask questions, or do much work, they just want answers.” It is a common trend in the foresight commu-

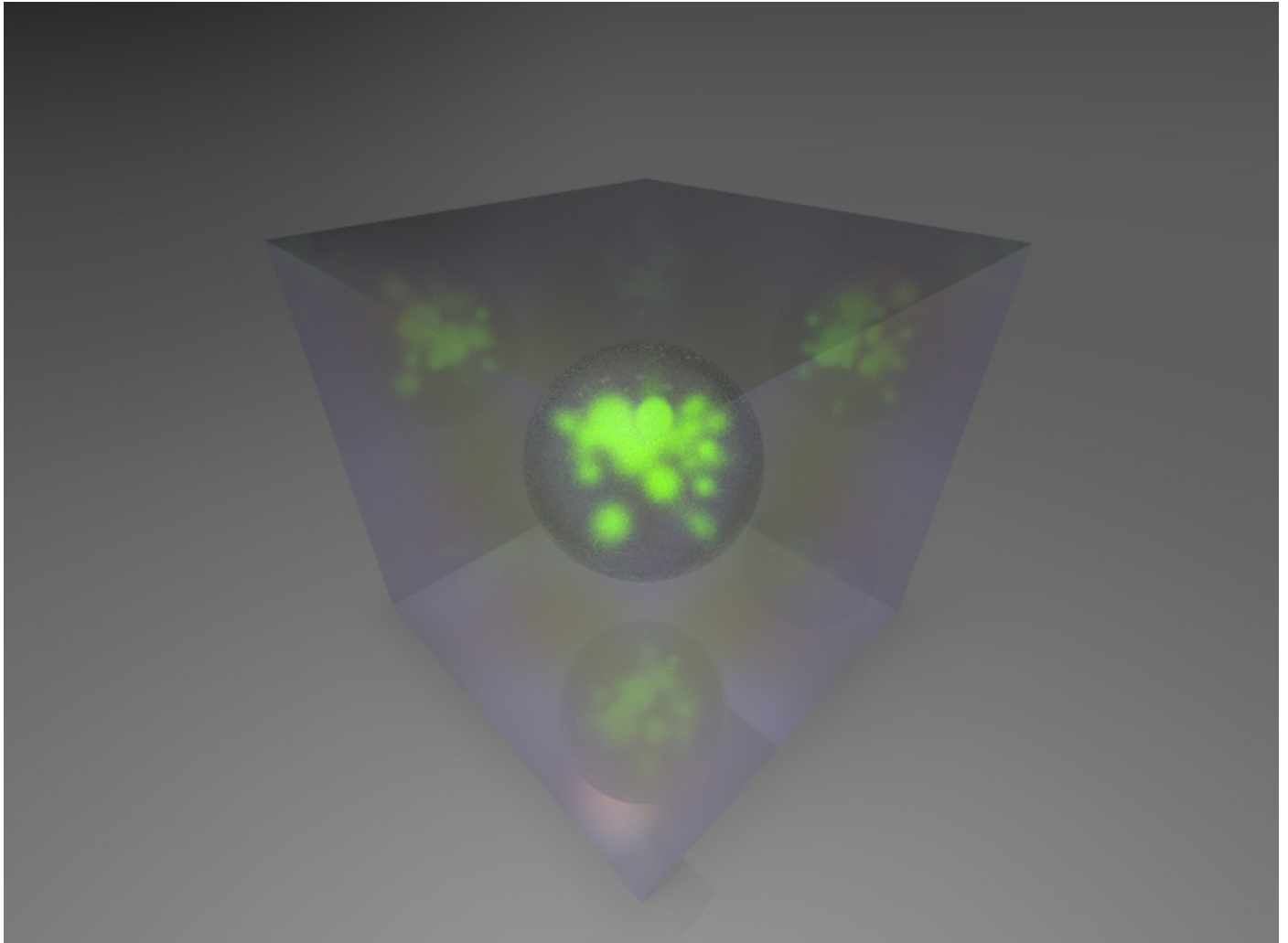
nity to start Futures schools because there is little work in futures that is not created by the futurist themselves.

Some futurists feel that Futures is dying before its birth into the world because even if the futurist create a incredibly good foresight report, most people have no idea what to do with it or how to use its full capacity.

“The future is too important to leave it experts” Is a feeling that emerges from podcasts and from organizations looking to democratize future studies. It follows the idea that while foresight documents are incredibly rich and full of data and analysis, they seem to become ‘shelfware’ very quickly because their lack of use has them abandoned on a shelf or in a database gathering digital dust.

Experiential futures seek to externalize the research and analysis in a way that the recipient of that future

is completely immersed in a future world in order to experience first hand what this future world could look like.



(Figure 10) Author's render of a future world under examination.

## 5.3 How Has the Integration of Design and Futures Failed to Facilitate Difficult Conversations Today?

The intersection of design and futures is a pixelated image that has not finished loading yet. As the image comes into view there are designers with a little bit of futures knowledge on one side; there are Futurists with very little design knowledge on the other side; and there is also a mixture of newcomers to the field from other disciplines that have little design background and shallow understanding of futures. It almost seems like the intersection of design and futures has become diluted. However, there is an immense learning opportunity to collaborate and become multidisciplinary together. So instead of the metaphor being “dilution,” perhaps at the intersection of design and futures, a chemical reaction is

underway. It is in flux right now, and that is why it appears blurry. It is an ongoing experiment according to the first law of futures by Dator.

What is emerging is a global community of Futurists and Designers that share the common goal of making tomorrow better by proposing ideas in a way that is more public, visible and reaches a broader audience. This in turn engages all the interested parties in a dialogue with a plurality of voices to have these difficult conversations that would not have been happening otherwise.

Design and futures are becoming a sort of ‘Holobient’ in the vein of how Haraway (2016) describes a multi-species organism. Using the example of a squid that needed to be infected with a particular strain of bacteria at a certain point in its life cycle in order to properly manage bacteria later on, Haraway describes an entity that is actually a complex system where one species cannot exist without the other.

## 5.4 How to actually integrate design and futures effectively

Design should not be approached as a static process to problem solve; this oversimplification of the design process leads to the idea that design can be applied like a cookie-cutter process to solve everything. Throughout my research I have seen that design is an adaptive and responsive tool. In best practice, the problem chooses the method, and every problem will require specific tools and equipment (methods) to solve it. The designer's sensemaking ability to sit with the problem allows them choose which tools seem to be most appropriate for the task at hand. The design process needs to be designed to fit the needs. With that in mind, futurists would benefit from adopting the following practices that are common amongst designers and design studios into futures studies and the field of Foresight.

## 5.5 The Transparency of the Design Studio

By employing the physical walls of the design studio and making the data tangible, new connections can be made via these forced interactions. Futurists can share their findings with their teams in real time, and the possibility of quickening the process of having difficult conversations is increased. Consider the studio walls as a cousin to graffiti walls, a place to expand the imagination via colour arrangement and image placement, a space to be provocative and spark conversation. Kolko sees the design studio as central to the act of sensemaking:

“Possibly the most useful function of a room filled with externalized data is that it enables forced comparisons of information and team dialogue to occur - Two critical and often overlooked tools in the designer’s toolbox, both of which are

essential to the act of sensemaking”  
(Kolko 2014)

Passive absorption of information  
Passive absorption can happen as detailed above; passive absorption of information is a different form of knowledge absorption that happens organically as the design project emerges from the depths of research and design iterations. A wall full of data communicates with us passively, or for example some organizations have screens in the hallways displaying current projects the company is working on at the time. Enabling the people in the organization to interact with the current projects is a very good way to keep team members involved and informed about what is happening on other parts of the project/organization, and this may lead to possible connections between seemingly unrelated pieces of data.



## 5.6 Making Personas physical

Usually when a team of designers does an exploration of a design problem they will select a few stakeholders and from their research create a two-dimensional representation of them on paper with a few words and stats, perhaps including an image. In my personal experience, teams that are not used to working with imaginary stakeholders have a hard time empathizing with their personas because they are often not referenced enough. But making personas is more than finding some information on the internet to create an approximation of a human being. For the exercise of persona making to have real value, the personas must be brought to life in the real world via a physical representation, and the artifact must be engaged with and referenced on a regular basis in the decision-making process. Like a regular human being, their thoughts or opinions

might change or evolve, so the personas have to be constantly updated. Personas could be as simple as a postcard with a few quotes from the research to make a low resolution persona, or they could be as advanced as a 3D cardboard cutout that works day and night with us in the studio as we passively absorb information about them. We might even have imaginary conversations if we stay too late in the studio. Having the artifacts around reminds us to not leave anyone behind, and it becomes harder to throw someone under the bus when they are sitting in the room with us. If we can find collaborators to co-create with us, their visits to the design studio are valuable, but when the design studio visits the life of this human being, deep human insights will emerge. The purpose of this exercise is to understand how people live.

## 5.7 Design fiction and objects from the future

If foresight work is not just the scanning of the horizon but the Sense making then the designer must make sense of the scenarios further. Scenarios generated from the foresight work are the starting point for designers because they set the design constraints for that future, and design constraints make up the boundaries of what this world needs. Opportunity for innovation lies in the space between the constraints. Understanding the problems and needs of the futures might help us prepare better strategies for what might come over the horizon. When creating objects of the future, one must have a clear idea of future problems, which is why persona immersion into the future life of a human is a very important part of the process. Here is where insights emerge, from real human behaviour.

Designers need to embrace the time traveller metaphor and get comfortable travelling to different worlds and doing their ethnographic work (the discovery part of the design process) in the future. Nick Foster, founder of the The Near Future Laboratory, suggests that when we create images of the future, we should focus on “Background Talent” and “Transition images of the future” He asks us to stop looking at the heroes in the story and start focusing on the regular people that live in those futures. He asks us to abduct what their lives would be like in what he calls “The Future Mundane”. A glossy image of the future is difficult to act on because there are no “Transitions States” and the in-between worlds are needed more than glossy images of the futures. Futures that are too separate from today are useless if we cannot show how to get there effectively So immersion into the future world and carrying out the ethnographic work is the deliverable? Almost.

Designers need to act like future archaeologists or what Damien Lutz calls “Future Thieving”; stealing from the future with speculative design. This way the job of the future thief is to bring back images of the future and ‘Diegetic Prototypes.’ Lutz explains that “Diegetic artifacts are narrative-based, suggesting by their form and function the nature of their imagined future world, while still leaving room for the audience to fill in the gaps with their imagination.” (Lutz 2020) The future designer needs to act as a time traveller by bringing details about this Future Person’s context-specific life back to the present day, manipulating space and time in order to change the future.

“Designing for tomorrow is like having a time machine that takes you to alternate futures. You’ll be tempted to visit the Utopias, but only a devoted Future Thief will visit the Dystopias we need to steal from to prevent dark-trend-infested products enabling the end of the world.

The path of an artifact assassin is not easy, however — you'll have to disassemble something a fellow designer might create in the near future, or perhaps it will be something created by your older self!" (Lutz 2020) It may be important for designers to try harder to prevent negative consequences. A designer that discovers something dangerous should go to great lengths to stop dangerous ideas, to patent and shelve them to prevent misuse if necessary.

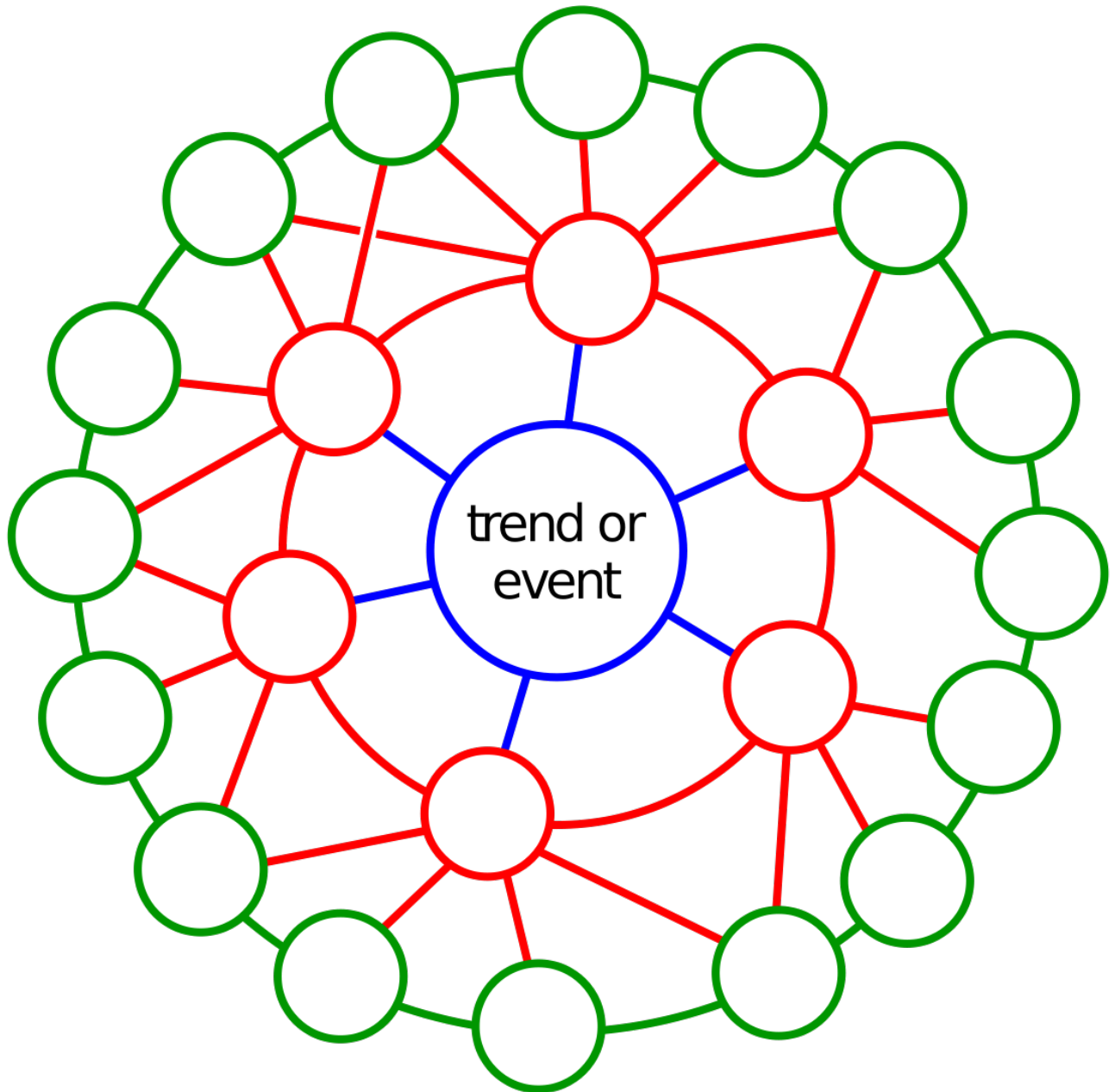
## 5.8 Sacrificial Concepts & the Second Law of Futures by Dator

Sacrificial concepts, which are early, exploratory, and extreme in nature, are not necessarily intended to be real, but they are “wacky-crazy” enough to stretch the headspace that our colleagues are working in and show all the space available for creativity, which is in accordance with Dator’s second law of futures. These sacrificial concepts are shown and torn apart, usually with comedy and laughter, and this helps designers and workshop participants push the boundaries of possibilities because that first sacrificial concept gives the team permission to think differently. To speak up about that idea might seem “too crazy,” but as the collaboration between participants deepens, it might start to seem conservative. Innovation happens in between these conversations with the participants.

An example of how to facilitate the creation of a sacrificial concept is to ask the question, How might we make it evil? (answer the question first, and then flip outcomes to develop strategies that prevent misuse of your design)

A fantastic tool that could also be used at this stage of the process is to map the implications of your designs onto a futures wheel originally proposed by futurist Jerome Glenn in 1972 as a way to identify second order consequences of trends and events. “The Futures Wheel is a way of organizing thinking and questioning about the future – a kind of structured brainstorming.” (Jerome C. Glenn (1994) The Futures Wheel, figure 11. See Appendix C. for Benckendorff’s list of strengths and weaknesses.





(Figure 11) The Futures Wheel by Jerome C. Glenn (1994)

## 5.9 Why isn't design alone the answer?

### Playing a differentiation game:

In the introduction to the book “Wicked Problems: Problems Worth Solving” Jon Kolko designer, partner at Modernist studio and founder of the Austin Center for Design, says large companies are not working on wicked problems because they have become distracted by ‘differentiation,’ which replaces innovation with incremental changes throughout a product’s life that focus on simple aesthetic changes to maximize the quarterly profits demanded by stockholders of fortune 500 companies.

“This idea of constant but meaningless change drives a machine of consumption, where advertisers pressure those with purchasing power into unnecessary upgrades through a fear of being left behind.”

(Kolko 2012). *Wicked Problems: A Handbook and a Call to action*. The word innovation has lost its meaning; it seems we have developed a type of bad innovation practice that creates more problems than it sets out to solve.

Take for example Mt. Everest. It used to be a monumental task to get up there, so tough that many lost their lives attempting to climb and descend the mountain. Today with the innovations in clothing for extreme weather and lightweight camping equipment, mountain climbing is accessible to many more people. What this has created is traffic up and down Mt. Everest — so much, that now camping gear litters the mountain from abandoned equipment during the expedition.

“What Goes Up Must Come Down” Both governments and nongovernmental organizations (NGOs) have attempted—and are attempting—to clean up the mess on Mount Everest. In 2019, the Nepali govern-

ment launched a campaign to clear 10,000 kilograms (22,000 pounds) of trash from the mountain. They also started a deposit initiative, which has been running since 2014. Anyone visiting Mount Everest has to pay a \$4,000 deposit, and the money is refunded if the person returns with eight kilograms (18 pounds) of garbage—the average amount that a single person produces during the climb.” - National Geographic

While it is impressive that a lot more people can get to the top (with the proper gear and training, maybe even us) it is more impressive to see the damage to ecosystems and communities that innovation can achieve. This highlights the importance of studying real people to target real problems.

Two years prior to Kolko's book being published, at the end of an ABC 7:30 report on December 31st 2010, Australian television futurist and foresight grandfather Richard Slaughter is asked the question “In

your opinion what are the top three things that we need to be proactive about to make the world a better place. What would they be? To which Richard Slaughter answers:

“ Top three... I guess I would like to see the advertising industry dignified... in a dignified retreat. I believe we have been subject to a kind of psychic assault over the last several decades. Telling us things that are actually not very helpful, that we need to buy more, consume more, that our identity is tied up with what we have instead of who we are. I think that has just been a huge miss direction [and] we actually need to shift to not what can I have but what can I be. That is just a more productive area. Secondly as I said we need to shift off the growth path... we need to understand that growth made a complete sense over the centuries that humanity was getting started getting established, learning how to live on this planet, we have now reached the point where we have to reign that

growth in or at least make it less destructive... Third thing I would like to see is a shift in worldview. There is the self-centered worldview, the egocentric worldview, socially centered worldview, but we actually need to move to a global worldview, an earth centered worldview.” – (Slaughter, 2010)

We can easily find similarities between the arguments made by Kolko and Slaughter — that companies and organizations have been telling us an erroneous story via design practices like graphic design in the advertising industry. These stories have reached the mainstream and seem to have set root in people’s mind as images of THE future. The same has happened with images of the future proposed by Hollywood movies, which are designed as entertainment not an actionable plan for the future or even a preferred future necessarily. Maybe this has manufactured the hyper-consumer society that is needed for a growth based economy based on

exploitation of poor communities asked to manufacture products at the lowest cost, with no regard for the impact done to the environment.

“When we create community, one thing we have to do is listen to every single voice in a way that we can fit into our key decisions. We have forgotten to ask nature, ask animals, we’ve even forgotten to ask the future what they actually think about the decisions that we’re making today for them.” (Pablo Handl 2011)

Going back to the difficult conversation about “personhood,” we can see the systems that are a product of unconscious design is what harms stakeholders in the form of diffused consequences, whether they are a person or not. This system in particular gives more power to corporations than to people, animals and the planet, which puts us all at risk. Design should be more focused on these types of problems than with aesthetics of incremental changes.

“Corporations have been the most aggressive in accruing and defending their personhood rights. Dozens of court cases in the United States have confirmed and extended the rights of artificial legal persons, including “free speech” rights to contribute to political campaigns and rights to privacy.” (Handl 2011)

In the book “Designing Regenerative Cultures,” Daniel Christian Wahl proposes changes to our worldview that align with Richard Slaughter’s and Kolko’s concerns. Wahl says that our current economic system disrespects planetary boundaries, and that economics are manmade and therefore can be redesigned. “That at its current worst economics is a dangerous ideology.” (Wahl 2016)

Our hyper-consumerist society can also be redesigned. Roger Martin at the Rotman School of Management says “We need to save business from itself.” (Roger Martin). I think the two are interrelated.

The conversation about project

**“The invisible hand  
no longer guides, it  
Chokes!”** Rou Reynolds 2015



costs should always include a fee that takes into consideration what we give back to the land when we take from it if we want to be around for a 22nd century. From an Indigenous perspective, this is the idea of not taking more than half of what is available to allow for regeneration and to allow others to take their share. In the book *Braiding Sweetgrass* Robin Wall Kimmerer eloquently reminds us:

“Many grasses undergo a physiological change known as compensatory growth in which the plant compensates for loss of foliage by quickly growing more. It seems counterintuitive, but when a herd of buffalo grazes down a sward of fresh grass, it actually grows faster in response. This helps the plant recover, but also invites the buffalo back for dinner later in the season. It’s even been discovered that there is an enzyme in the saliva of the grazing buffalo that actually stimulates growth. To say nothing of the fertilizer produced by a passing herd. Grass gives

to buffalo and buffalo give to grass. The system is well balanced, but only if the herd uses the grass respectfully. Free-range buffalo graze and move on, not returning to the same place for many months. Thus they obey the rule of not taking more than half, of not overgrazing. Why shouldn't it also be true for people and sweetgrass? We are no more than the buffalo and no less, governed by the same natural laws." (Kimmerer 2016)

Design, and Futures thinking is needed now more than ever to shift the burden of consumption from natural resources into regenerative resources. To do this Design needs to communicate effectively with both economists and business to explain the context of the situation we are in. Collaboratively we can support each other, but we must start by having the difficult conversations openly and transparently like they would appear on the walls of the design studio.

## **“A plurality of voices, Optimists and Pessimists hashing it out together.” -**

Christian Ervin 2020

# 6.0 Critical Design & Speculative Design

Critical Design is a term coined by Anthony Dunne and Fiona Raby in the 90's; their definition says "Critical design uses speculative design proposals to challenge narrow assumptions, preconceptions, and givens about the role products play in everyday life." (Dunne & Raby 1990) Speculative Design emerges out of Critical design that was inspired by the radical designers of the 1970's. It is a response to design becoming hyper-commercialized. "We are more interested in critical thinking, that is, not taking things for granted, being skeptical, and always questioning what is given. All good design is critical" (Dunne & Raby 2013)

Critical design "On the most basic level it is about questioning underlying assumptions in design itself, on the next level it is directed at the

technology industry and its market-driven limitations, and beyond that, general social theory, politics, and ideology.” (Dunne & Raby 2013 p.35)

Speculative Design is the essence of design; all others are Design operated within the structures of capitalism. It is design gasping for air and dreaming of a new set of constraints outside of market fit. It is critically looking at the world to imagine other possible worlds. “Critical Design is critical thought translated into materiality. It is about thinking through design rather than through words and using the language and structure of design to engage people” (Dunne & Raby 2013 p.35)

An argument that could be used in favor of Speculative design can be drawn from the contemplations of a thought leader in the field of design, Don Norman. Even though he is referring to human centered design and its power he says “Many proposals for large-scale, societal projects

optimize their recommendations for efficiency, productivity, cost, or reliability, not recognizing that these measures often take a toll on the people involved in the system which in the medium- to long-run reduce the efficiency and productivity while increasing cost. Many disciplines are good at problem-solving, but few ask whether they are solving the correct problems.” - (Donald Norman 2020)

Elliot P/ Montgomery, a design researcher, strategist and educator, brings us the following statement as an explanation as to why contextualization of futures is important. “Interacting with a future artifact in a contextualized environment engages people on a visceral level, allowing them to consider possible futures in concrete terms beyond the anesthetized and aestheticized futures posited by Hollywood movies and corporate advertising campaigns.” (Montgomery & Wuebken 2016)

## **6.1 Successful experiential futures that address “The Dithering” of our times:**

The Dithering - “A state of indecisive agitation.” is how Kim Stanley Robinson, a hard science fiction author describes how future generations refer to our time in his novel ‘2312’. Stasis amidst calamity that only rings true for 2020.

**“Learning to stay with the trouble of living and dying together on a damaged earth will prove more conducive to the kind of thinking that would provide the means to building of more livable futures.”**

(Haraway 2016)

# SuperFlux Studio's recent project “Mitigation of shock” -

Mitigation of Shock is an immersive experiential future installation that is set in a world affected by climate change in 2050. We step into a London home that is adapting to cope with the troubles of living under such harsh conditions as shown below. It is a fantastic example of Design and Futures creating pockets of futures of (degrowth) in a collapsed future and learning to live on a dying planet as Haraway suggests. The beauty of this project is how it acts as a bridge between academia and real world practice, between theory and practice. The level of detail in fabrication of objects from the future entangled in such a rich narrative of how life could be in a planet assaulted by climate change — this is speculative design at its most impactful.



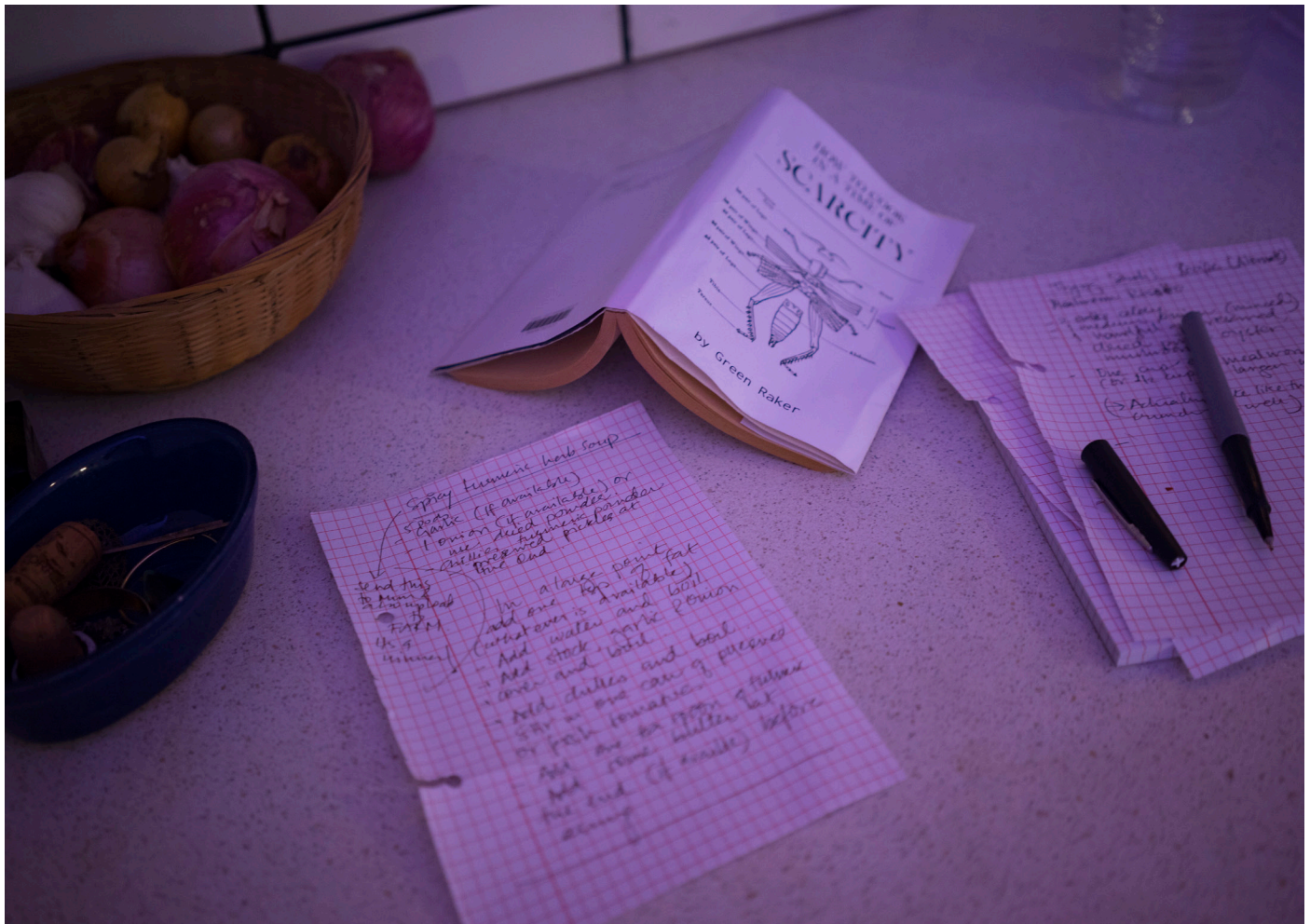


When exploring the ethics and design for regenerative cultures, Daniel Christian Wahl presents us with this definition of design: “Design is not so much about making things as about how to make things that fit gracefully over long periods of time in a particular ecological, social and cultural context” (Orr 2002: 27 P. 132 DRC). Mitigation of shock is extremely on point with the topic of living under uninhabitable conditions by showing us a very intimate

(Figure 12) with permission from Superflux Studio. Showing newspaper headlines from the future. Super Effective!

Source: <https://superflux.in/index.php/work/mitigation-of-shock/#>





space, our home, and situating it in one of our worst nightmares in a way that is hopeful and with a clear transition roadmap outlined. In this collapsed scenario, people are sharing their knowledge and collaborating to find clear paths forward during a food shortage, rather than resorting to dystopian nightmares. There are numerous self-sustaining food-growing systems within the tiny apartment, including live worms and grasshopper farms, fog-

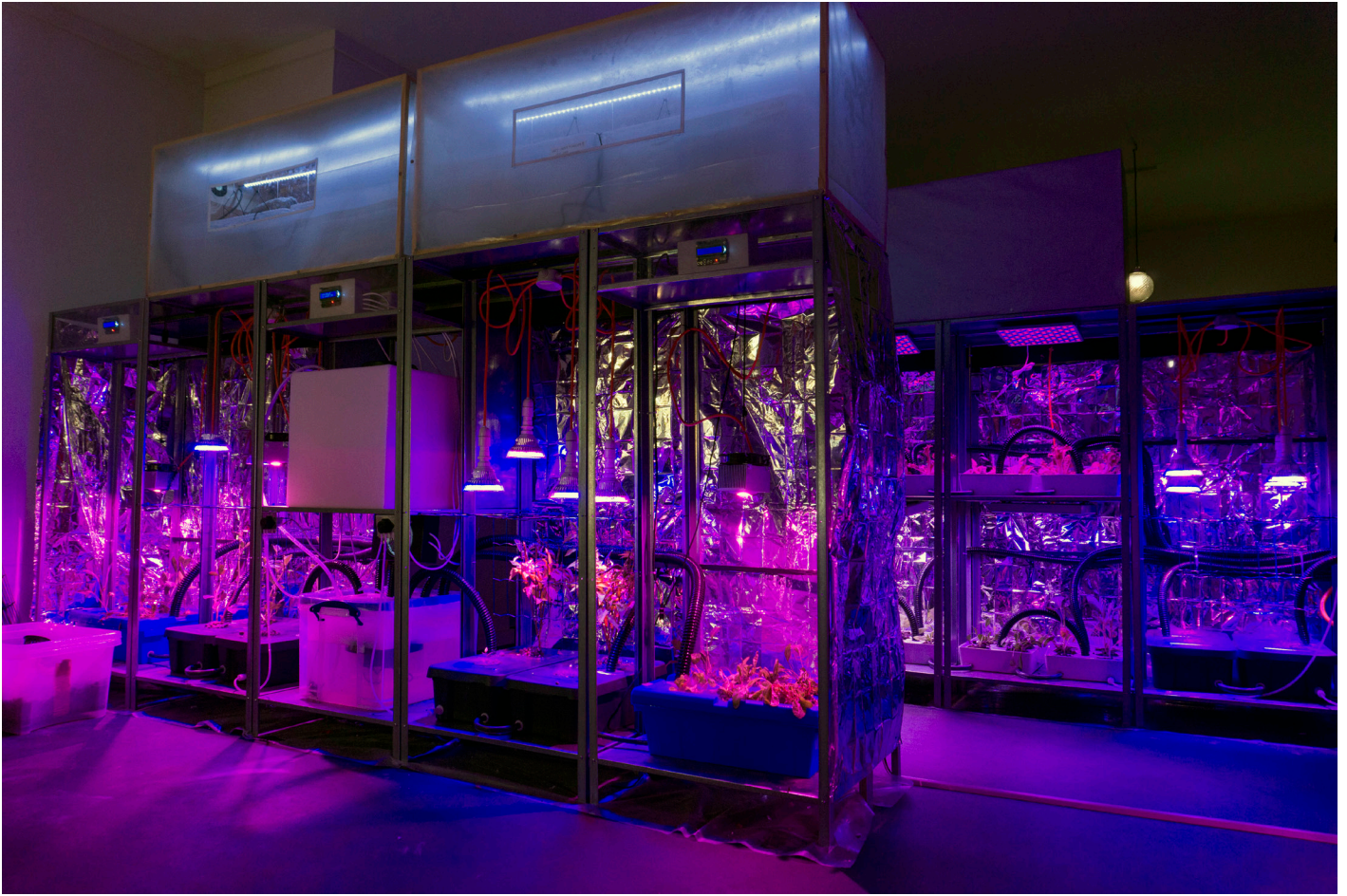
(Figure 13) with permission from Superflux Studio. Showing Recipes for scarcity. Source: <https://superflux.in/index.php/work/mitigation-of-shock/#>



ponic systems for plants, and mushroom logs. There are also seeds saved for the future, clearly detailed plant-growing schedules, and even an accompanying app for controlling the equipment. The clearly detailed instructions allow participants to fully engage with this experiential future — they can become the time travellers and transport these objects of the future back to their present, setting up their own food-growing systems and, in turn, perhaps influencing future out-

(Figure 14) with permission from Superflux Studio. Showing The interior of a home in London 2050 Source: <https://superflux.in/index.php/work/mitigation-of-shock/#>





comes by acting in an environmentally friendly way.. In this way, the project offers a fully realized democratization of both futures thinking and the design process.

“Mitigation of Shock (London, 2050) is our attempt to make the size and complexity of a hyperobject like climate change tangible, relatable and specific. Following extensive research and prototyping, as well as interviews with experts from NASA, the UK Met Office and Forum for

(Figure 15) with permission from Superflux Studio. Showing indoor growing experiments. Source: <https://superflux.in/index.php/work/mitigation-of-shock/#>

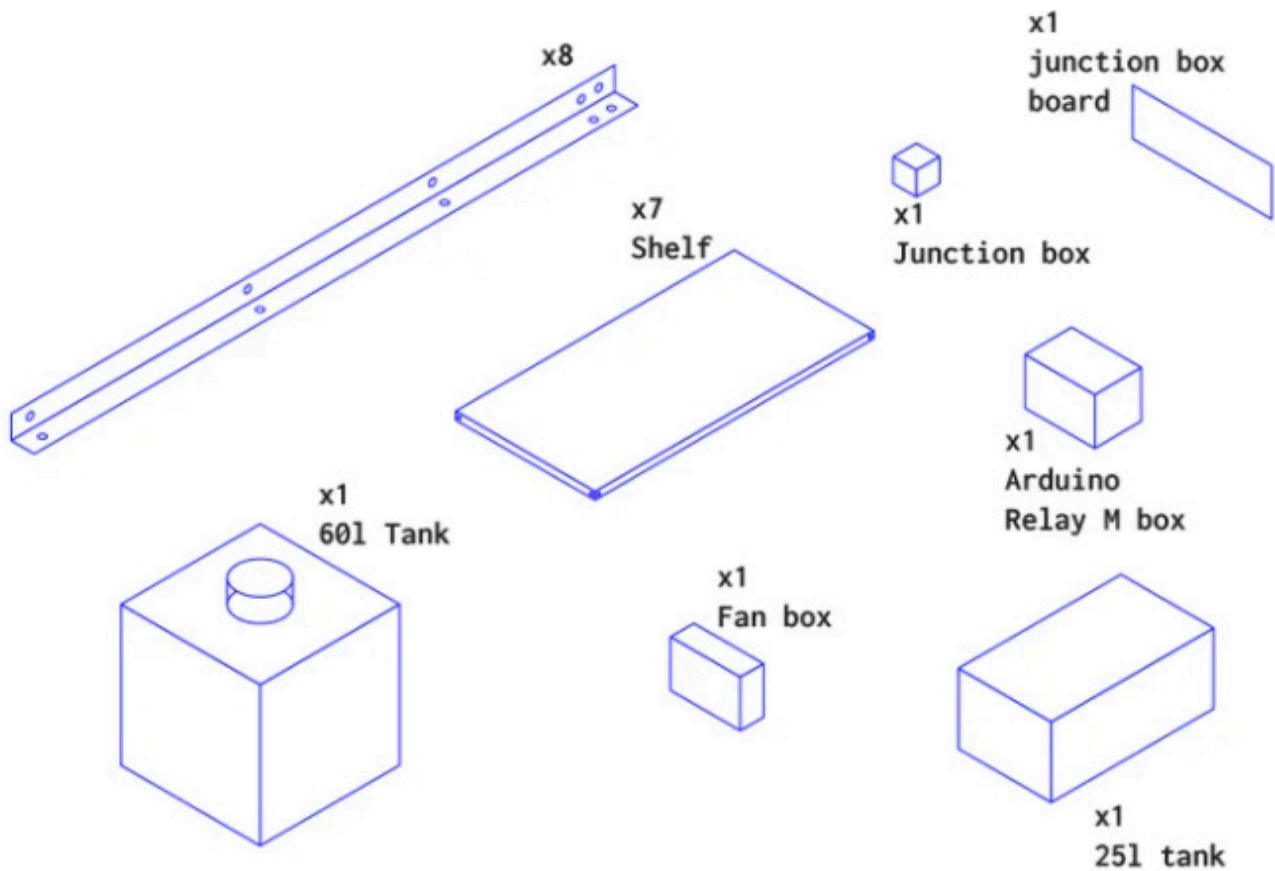


the Future, we built an entire future apartment situated in the context of climate change and its consequences on food security. People could step inside this family home and directly experience for themselves what the restrictions of this future might feel like. Instead of leaving visitors scared and unprepared by the challenges of this world, we shared methods and tools for not only surviving, but thriving there.”

(Figure 16) with permission from Superflux Studio. Showing The view from the window of a home in London 2050 Source: <https://superflux.in/index.php/work/mitigation-of-shock/#>



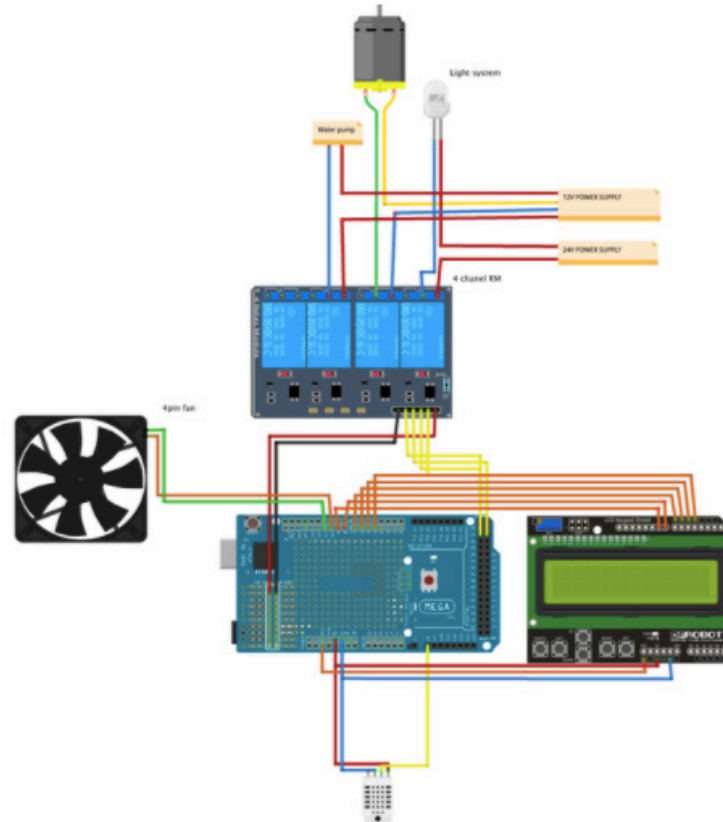
- MAIN HEAD COMPONENTS -



Superflux is thorough down to the last detail as Dieter Rams advises us to be. They even include an instructables guide on making your own mitigation of shock adaptations to living in inhabitable conditions. Making something first, testing it, now passing on the torch for people to design their own adaptations and experiments. By making something they have kickstarted a cycle of iterations that designers and futur-

(Figure 17) with permission from Superflux Studio. Instructions for creating your own experiments Source: <https://www.instructables.com/Mitigation-of-Shock/>

## Step 2: ARDUINO INSTALLATION: the Main Head



ists can continue to re-design and adapt to emergent conditions. This project follows Dator's first law of futures in that it is an ongoing exploration to create a guiding vision and Dator's second law that any useful idea about the futures should appear to be ridiculous until it becomes 'normal'.

(Figure 18) with permission from Superflux Studio. Arduino components for creating your own experiments Source: <https://www.instructables.com/Mitigation-of-Shock/>





“WHAT WAS OUR MOTIVATION FOR DOING THIS? Mitigation of Shock is not a prediction, nor a render. Our approach combining foresight with practical experimentation makes it possible to directly step into a familiar space to confront our fears and find concrete ways to mitigate the shock of climate change.” ... “When people walk in, we wanted them to feel a sense of strange familiarity in this completely transformed space. We wanted people to emotionally connect with the challenges everyone could soon be fac-

(Figure 19) with permission from Superflux Studio. Showing indoor growing experiments for mycelium.

Source: <https://superflux.in/index.php/work/mitigation-of-shock/#>

ing. We wanted to help prepare for a future, by working with it today. This experience is intended to nurture hope and motivate transformative action. At the same time, it raises awareness and a sense of responsibility around the consequences of inaction.” (Arderm & Jain 2020)

For speculative design to add value to our lives we should consider that “All good critical design offers an alternative to how things are. It is the gap between reality as we know it and the different idea of reality referred to in the critical design proposal that creates the space for discussion.” (Dunne & Raby 2013)



## 6.2 Design in context - Local Futures in Context

When we integrate futures with design it raises the difficult question of whose futures are we designing exactly? The futures have to be context specific because they happen from the bottom up. As William Gibson says, “The future is already here — it’s just not very evenly distributed.” (date) All futures are happening at the same time, today. Singapore lives in 2040 while rural Mexico lives like it is the 1800’s. It is in this way that all futures are happening simultaneously.

Designers need to become more like time travelers, designing for multiple futures and discerning which context is best suited for the problem they are trying to solve. Future problems do not always require futuristic solutions — technological solutions maybe, but not necessarily cutting-edge high-tech

products. The solution could be identifying and employing traditional Indigenous knowledge within a given geographical area; therefore, region, culture, history, tradition and the people themselves are all crucial to the development of context for the deployment of a futures-design oriented strategy to be successful. For rural Mexico a regional organized banking system might work better than cryptocurrencies, for example. Is one better than the other? It depends on the context of the problem. So like Stuart Candy says “Whose Future is it?” and yes “it is ours,” but simultaneously it is also the future of someone else. It is important for Futurists to keep their “user” or “human” in mind at all times. This requires a skill that designers have been developing through their explorations, and this is the ability to listen deeply, understand what they are hearing and ask questions to help define if it is this thing or another. This allows designers to make better informed decisions about their design solutions.

Similarly futurists should listen to the voices of the people in their futures and clearly define the needs of that future through an immersive experience and the design tools outlined in the above sections, such as future personas, design studio walls and the creation of future objects.

When we start to integrate the idea of “The Pluriverse - a world where many worlds can exist” (EZLN 1996), we allow for many worlds to be imagined. We now know that integrating Indigenous knowledge is something that could help us create more regenerative futures, cultures, and societies instead of relying on more Western practices of dominating the land, taming it, and forcing it into shape so that a very specific few may thrive. If we use this type of mentality to “colonize” space, we are going to replicate the same problematic systems we created on Earth. Language matters in the design of futures; employing the word “colonization” in reference to space

replicates harmful and destructive practices of the past and narrows the possible outcomes of that potential future. Space Exploration is a good term, but Space Integration sets us on a path towards a less destructive way of existing outside of earth. Therefore we need to start thinking of language as a crucial tool for both designers and futurists as they intersect and provoke difficult conversations in their fields.

Just as the pandemic had a large impact on my own design research, it also had major repercussions for the future of design across the globe. Yosuke Ushigome, Director and Creative Technologist at London and Tokyo based design innovation firm Takram & 2019 Core77 Design Awards Speculative Design Jury Captain, said the pandemic has had a huge influence on his team's process:

“Working with futures during a global pandemic was a highly humbling experience. We think that our

design practice now recognizes the diversity of the anxiety people feel and the multiplicities of the desirable worlds, in a much higher sensibility.

The pandemic heightened the urgency of imagining alternative futures and visualizing tangible pathways towards them, making Futuring as practice ever more important. As a result, designers are now tasked to go beyond 'spark debate' speculations and to create space for people to discuss how to get there." -(Ushigome 2019)

CORE77

Futures cannot be read from left to right like words in a book written in English. Futures grow from the ground up and not from left to right; they are emergent, they sprout from the soil, intertwining their branches as they grow, as Haraway describes, in "tentacular" ways. Futurists need to apply guerilla tactics and a graffiti approach to introducing pockets of the future into the world we live in. This will create

experiential futures of a more organic nature. As people bump into these futures, they are given permission to imagine what this and other futures may look like.

“By sharing what we’ve learned, we hope to enable - rather than dominate or predetermine - productive conversations with a diversity of collaborators, introducing different experiences, values, and worldviews to current global conversations about the future.” (Montgomery & Woebken 2016)

## 7.0 Conclusion:

Dear Future Designers, The Futures will not be perfect or utopic in any way. Like Richard Slaughter said —“the central point is this: we face a civilisational challenge. The challenge is to grasp our destiny on this small planet and to work toward consciously chosen futures, rather than drift further into crisis and devastation.” - (Slaughter 1996)

In theory if design and futures are used correctly, that means targeted and applied to helping humans figure out how to collectively live less destructively on this planet, then perhaps there is still hope for livable futures for the generations to come.

If Futurists and Designers can collaborate better, the informed conversations about the future and deep human insights, could be combined, reimaged and re-designed, in the hopes that what emerges are more meaningful conversations that include non de-

signers/futurists, and it is my hope that they also include more-than-human beings into these conversations. Bring the entire forest with you, bring it into your heart and allow it flow through everything you make.

## 7.1 Next Steps:

In order to bridge the chasm between academia and the world out there the following logical step is to test out all the theories that have been discussed here and combined — to turn them into tangible and actionable steps by testing them out in workshops, design sprints and client work to really separate what works from what is jargon-filled nonsense.

The next step as a designer is to use the tools that I have shown here and create images of the futures, diegetic prototypes and provocations that help expand human imaginations for what is possible and preferable.

I would like to invite professionals in the field of Futures and Foresight to reach out and find ways to collaborate better. I look forward to traveling to your futures and helping you discover what that world looks like, who lives there and how they do it.



## 8.0 Appendix A: Literature review

Designing Regenerative Cultures  
(Daniel Christian Wahl)

Extrapolation Factory Operator's  
Manual

(Elliot P. Montgomery & Chris  
Woebken)

Design, When Everybody Designs  
(Ezio Manzini)

The Design of Everyday Things  
(Don Norman)

Massive Change  
(Bruce Mau)

Wicked Problems: Problems Worth  
Solving

(Jon Kolko)

Exposing the Magic of Design  
(Jon Kolko)

The Human Factor  
(Kim Vicente)

Thoughtful Interaction Design  
(Jonas Lowgren and Erik Stolter-  
man)

Dear Future Historians  
(Rou Reynolds)

Speculative Everything  
(Dunne & Raby)

Braiding Sweetgrass

(Robin Wall Kimmerer)

Staying With The Trouble  
(Donna Haraway)

Well Designed  
(Jon Kolko)

Design + Futures

(Stuart Candy + Porter)

Create the future + Innovation Guide  
Book

(Jeremy Gutsche) TrendHunter.com

Thinking in Systems

(Donella Meadows)

How to future

(Scott Smitth + Madeline Ashby)

## 8.1 Appendix B

# List of workshops 2020-2021:

Workshops Attended in 2020-2021:	Building the ministry for the future - Hosted by SOIF
World Foresight Summit 2020	Speculative Design Showcase by Speculative Futures Chapter Milan 2021 (march)
Design Operations Global Confer- ence 2020 - Liverpool	Speculative Futures Chapter Edin- burgh 2021 Doughnut Economics Meetup March 11 2021
Design for Good by Facebook - Won first prize for a rewilding project that uses user data to scope out best pollinators to grow in the area avail- able.	Fireside Chat with SFI Foresight sto- ries
UNESCO Futures Literacy Summit - Design Sprint Workshop on Miro + Zoom: Creating worlds and applying a technology to imagine different worlds.	APF - Friends of Foresight building a Global foresight Community
Z-topia Speculative futures chapter - Elliot P. Montgomery at the Extrap- olation Factory	Building the ministry for the Future
Decolonizing Futures	Friends of Figma - Design Opera- tions meetup 2021
	Designing with Slime Mold

## 8.2 Appendix C:

### *Strengths*

- Easily grasped by participants
- Stimulates complex, systematic thinking
- Provides a clear visual map of complex interactions
- Flexibility for respondents
- Fast data collection
- No transcription of data required

### *Weaknesses*

- 'Intellectual Spaghetti'
- Results vary in consistency
- Limited by knowledge and perceptions of participants
- Information overload
- Complex and time-consuming data analysis
- Higher cost per respondent
- Speculative nature of data

Figure 10) Benckendorff, Pierre. (2008). Envisioning Sustainable Tourism Futures: An Evaluation of the Futures Wheel Method. *Tourism and Hospitality Research*.

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