

EXPLORING THE FORMATS OF DESIGN FICTION

A Case Study of a Manufacturing
Industry Workshop

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Industry Workshop**

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Master's Thesis for Master of Arts, Department of Design

Extent: 70 pages (66+4 pages)

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Collaborative and Industrial Design

Aalto University School of Arts, Design and Architecture

Spring 2019

ABSTRACT

Design fiction is a rather new term that describes a tool that makes use of fictive elements for communication, envisioning futures and providing inspiration or motivation for i.e. design processes or research situations. Although the tool has been around for fifteen years, it is still considered immature and lacks established pragmatic guidelines.

Design fictions can appear in various formats or mediums, such as video, audio, games and even research papers. The aim for this thesis was to study how the format or medium of design fiction affects recipients' engagement with them. The study was conducted through a case study, the workshop *Manufacturing X*, that explored new possibilities of data sharing and networking within a specific case of manufacturing industry actors.

Designing and facilitating the workshop was an influential part of the research, as it formed the research setting. Data was collected through recording and observing the workshop, and conducting a survey and reflective interviews with the participants. The analysis of the said data was conducted through Open Coding and Affinity Diagram, leading into a list of key findings.

The research showed clear differences in the participants' engagement with the design fictions in the chosen formats of video, audio and still images and mock-ups. The differences led into forming key characterisations of each format, that help in strategic utilisation and creation of design fictions in future. The research also led into identifying the separate roles of design fiction formats and content, and how they affect the utilisation of design fiction. Smaller insights of design fiction use in workshop context were also derived as a by-product of this research.

This thesis is not an exhaustive research on design fiction and its formats, but it offers a pragmatic point of view on design fiction tool usage through one specific case, the *Manufacturing X* workshop. This study may act as one stepping stone in the journey of creating pragmatic guidelines for the design fiction.

KEYWORDS: *Design fiction, workshop method, engagement tool*

TIIVISTELMÄ

Muotoilufiktio on suhteellisen uusi termi, joka kuvaa työkalua jolla fiktiivisiä elementtejä käytetään työkaluna esimerkiksi viestien välittämiseen, tulevaisuuden visioimiseen sekä inspiraation ja motivaation tarjoamiseen muun muassa muotoiluprosesseissa ja tutkimuksessa. Vaikka muotoilufiktio terminä on ollut olemassa jo viidentoista vuoden ajan, työkaluna sitä pidetään silti kehittymättömänä ilman vielä vakiintuneita käytäntöjä.

Muotoilufiktioita voidaan tuottaa monenlaisissa viestinnällisissä muodoissa, esimerkiksi videona, äänitteinä, peleinä ja jopa tutkimusjulkaisuina. Tämän opinnäytetyön tarkoitus oli tutkia, kuinka viestinnällinen muoto vaikuttaa muotoilufiktion osallistavuuteen havainnoijissa. Opinnäytetyö on toteutettu työpajan *Manufacturing X* tapaustutkimuksena. Työpajassa etsittiin datan jaon ja yhteistyön suomia uusia mahdollisuuksia valmistavan teollisuuden toimijoiden kesken.

Työpajan suunnittelu ja fasilitointi oli merkittävä osa opinnäytetyötä, sillä se määritteli vahvasti tutkimusasetelman. Tiedonhankinta tapahtui havainnoimalla ja nauhoittamalla työpajaa, sekä haastatteleamalla ja toteuttamalla kyselytutkimuksen työpajan osallistujille. Analyysi toteutettiin *Open Coding* ja *Affinity Diagram* -menetelmillä, joiden kautta muotoutuivat työn päälöydökset.

Tutkimukseen valittuja viestinnällisiä menetelmiä olivat video, äänite sekä erilaiset kuvalliset materiaalit ja sovellukset. Tutkimus osoitti selkeitä eroavaisuuksia eri menetelmien välillä työpajan osallistujien osallistamisessa. Näistä eroavaisuuksista voitiin johtaa eri viestinnällisten menetelmien luonteenomaisia piirteitä, jotka tunnistamalla voidaan tukea fiktioiden strategista käyttöä ja luomista tulevaisuudessa. Tutkimuksessa tunnistettiin myös muotoilufiktioiden sisällön sekä viestinnällisen muodon eriävät roolit, sekä kuinka ne vaikuttavat fiktioiden käyttöön. Tutkimuksen sivutuotteena syntyi myös suppeampia oivalluksia liittyen muotoilufiktion käyttöön työpajaympäristössä.

Tämä opinnäytetyö tarjoaa käytännönläheisen näkökulman muotoilufiktioihin yhden tapaustutkimuksen, *Manufacturing X* -työpajan, kautta. Opinnäytetyö ei tarjoa kattavaa tutkimusta muotoilufiktiosta ja sen eri viestinnällisistä muodoista, vaan pikemminkin pyrkii toimimaan astinkivenä tulevaisuuden tutkimukselle ja käytäntöjen luomiselle.

AVAINSANAT: *Muotoilufiktio, työpajamenetelmä, osallistamistyökalu*

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INTRODUCTION

In this thesis, I research design fiction tool through a case study, an ideation workshop Manufacturing X, that was conducted in December 2018.

My objective for the thesis is to explore how the format or medium of design fiction affects workshop participants' experience of using design fiction, does the format affect participants' engagement with the fiction, and how.

WHAT IS DESIGN FICTION?

Design Fiction is a rather new tool, used among other things for envisioning new futures, communicating innovations and providing inspiration and motivation for design processes (Tanenbaum, 2014). Design Fiction is about creating fictional worlds, which can be delivered to our factual world in a physical format (Coulton, Linley, Sturdee & Stead, 2017; Dunne & Raby, 2013). When utilizing design fiction within a workshop setting, it can be used i.e. for structuring the workshop and engaging participants (Huusko, 2018).

Even though design fiction has existed and been used for over fifteen years, there are still many unexplored avenues within it. There have been studies about the definition of design fiction, but the utilization of design fiction has not yet been researched to the point of exploring mediums of design fiction delivery specifically. I am most interested in how the format or a medium of a design fiction affects the experience of its recipient.

CONTEXT

The workshop *Manufacturing X* was conducted under the *Design for Value* program by DIMECC. The program united 11 manufacturing industry companies and 9 research institutions across Finland. The program ran in the years 2016–2019, and was funded by Business Finland (former Tekes).

Design for Value (D4V) program aimed at looking into door-to-door supply chains within marine and manufacturing industries. The main focus was in future digitalisation, and its effects to the supply chains.

The program was divided into four *Work Packages*, each consisting of multiple research themes. I was working for *Work Package 4* as a research assistant. The topics we were working with were acceptance, trust and ecosystem building. I was working together with Maria Huusko, Dr Yiying Wu and our supervisor Professor Virpi Roto.

The workshop objective was to find ways to explore the possibilities of future collaboration of our industry partner and their clientele. Our objective was to use design fiction for our research. The workshop was built as a continuum for previous design fiction workshop *Space Odyssey 2030*, that was conducted in November 2017 (Huusko, 2018).

OBJECTIVE

My research objective for the thesis is to explore design fiction's potential and characteristics in engaging participants and evaluate it in the context of design and ideation, through the lens of different design fiction mediums. In this thesis I explore how the format of design fiction affects the experience and engagement of using design fiction. The expected outcome of this thesis is to produce detailed data on characteristics of the different formats of design fiction within a workshop environment, that will feed into the utilization of design fiction.



Picture 1. Ideation results from Pilot Workshop.

RELATED RESEARCH

Design fiction is a relatively new term, first introduced by Bruce Sterling in his book *Shaping things* (Sterling, 2005). In the book Sterling, a science fiction writer himself, claims to have been writing design fiction for years; he compares science fiction and design fiction to each other, creating a link between the two terms:

“-- design fiction can be more practical [than science fiction], more hands-on. It sacrifices some sense of the miraculous, but it moves much closer to the glowing heat of technosocial conflict.” (Sterling, 2005, p. 30).

AMBIGUOUS DESIGN FICTION

The term *design fiction* started as ambiguous, and it still struggles to find clear definitions. Markussen and Knutz (2013) state that the term is *“open for several different interpretations, ideologies and aims.”* Tanenbaum (2014) follows along similar lines writing that design fiction’s *“meaning has remained somewhat up for grabs within the research community.”* Lindley and Coulton (2015) wrap this up by stating that design fiction is *“inherently ambiguous”*, ending up calling for strategies for clarifying the concept. Knutz, Markussen and Christensen (2014) attempt to clarify design fiction by beginning to build a conceptual framework in a form of a typology based on their six case analysis.

The most quoted, and therefore I dare to say most agreed upon, definition of design fiction is more recent refinement of the concept by Bruce Sterling: *“[design fiction] is the deliberate use of diegetic prototypes to suspend disbelief about change.”* (Bosch, 2012; Sterling, 2013). Sterling bases the term *diegetic* in Julian Bleeker’s influential essay *Design Fiction*, where Bleeker lends the term from his colleague and film scholar David Kirby (Bleeker, 2009). Bleeker refers to Kirby’s definition of *“diegetic prototypes”*, a term Kirby coined to describe *“cinematic depictions of fictional future technologies”* (Bleeker 2009; Kirby 2010). Exploring this use of the word *diegetic* in design fiction setting, Coulton et al. define design fiction as *“world building activity”*, referring to the Kirby’s definition of *diegesis* (Coulton et al., 2017).

Several attempts to create definition and pragmatics for this ever-ambiguous term, *design fiction*, has been made over the past fifteen years. Grand and Wiedmer (2010) attempt to create a toolbox for design fiction in research: They position design fiction being a new strategy within design research, transcending discussion from today towards the new and possible futures. However, their work concentrates on creating a basic criteria for design fiction tools, ending up with a collection of tools that are hardly design fiction oriented, but rather generic assortment of basic design methodology (Markussen & Knutz, 2013; Grand & Wiedmer, 2010).

Juxtapositioning literary practice and design fiction seems to be a built-in attribute of design fiction. In contrast to Sterling's (2005) and Bleecker's (2009) juxtaposition of design fiction and science fiction, Markussen and Knutz (2013) utilize concepts from poetics to clarify and define design fiction. While criticizing their work, Markussen and Knutz (2013) build on the same basis as Grand and Wiedmer (2010) while endeavouring to define design fiction as a research tool. While Grand and Wiedmer claim it essential for design fiction "*to find the right focus 'in between' the simply utopian, -- and the too realistic*" (2010), Markussen and Knutz uses the *resemblance theory* and the *possible world theory* from poetics in order to further assess what Grand and Wiedmer declare as the '*in-between*' (Markussen & Knutz, 2013). Markussen and Knutz (2013) bring up a concept of *accessibility*, in order to assess fictions by the access they offer for a viewer from their respective realities.

Blythe (2017) introduces a common literary theory on basic plots, *Booker's taxonomy*, to assess traditional human-computer interaction (HCI) scenarios, critical design and design fictions against each other. He argues, that the awareness of basic plot structures helps the academics to write better fictions (Blythe, 2017). Markussen and Knutz (2013) model a method of design fiction creation that uses literature as a starting point of design fiction creation. Referring to the work of Blythe and Wright (2006), Markussen and Knutz (2013) bring in the concept of *pastiches* in order to deepen the flat personae of user centred design.

Coulton et al. (2017) claim design fiction to be still pre-pragmatic and immature. They aim to clarify design fiction through making design fiction, in the same manner as Lindley (2015) describes his doctoral thesis research on the subject (Coulton et al., 2017). In the work of Coulton et al. (2017) design fiction is taken away from mere narratives and storytelling, and the concept of design fiction is enriched from the juxtapositions of literature to the referring to a comprehensive

fictional world. Storytelling still remains as important part of design fiction, but more as a communication channel than a definition for design fiction itself (Coulton et al., 2017). Lindley (2015) describes design fiction as a combination of compelling communication tools and strong, diverse theoretical grounding among social sciences, media studies, fine art and corporate world. He states, that it makes design fiction a powerful and flexible tool for opening up discursive space (Lindley, 2015).

PRAGMATICS OF DESIGN FICTION

As design fiction is still maturing, there has been numerous calls and attempts for pragmatics and impact around it (Jensen & Vistisen, 2018; Hanna & Ashby, 2016; Knutz, Lenskjold & Markussen, 2016; Lindley & Coulton, 2014). Jensen and Vistisen (2018) call for more strategic use of design fiction. They claim that design fiction has been well established within research communities, but consolidating around the tradition of critical design (Jensen & Vistisen, 2018). They base their claim on i.e. Dunne and Raby's (2013) work, who compare design fiction in relation to their own speciality, *speculative design* (Jensen & Vistisen, 2018). However, according to Jensen and Vistisen (2018), the bias of design fiction centralizing around *critical* and *speculative design* traditions has led the pragmatic and strategic utilization of design fiction unexplored.

Jensen & Vistisen (2018) create a difference between what they call *strategic design fiction* and *critical design fiction*: they claim Sterling's (2005) original meaning of design fiction including both. The use of *strategic design fiction* lies in i.e. domestication of technology and exploring futures both possible but also plausible with fiction; Utilization of *strategic design fiction* requires clear anchors for real the world to engage and spark reflection in its audience (Jensen & Vistisen, 2018).

The prevailing methods of design fiction are criticised for their lack of real-world impact by Hanna and Ashby (2016). They attempt to create a practical 10-point list of insights helping out in creation and use of design fictions (Hanna & Ashby, 2016). Within the six years of practice and research design fiction grew from generic toolbox by Grand and Wiedmer (2010) into specific practical lists (Hanna & Ashby, 2016). In a similar vein Knutz, Lenskjold and Markussen (2016) explore design fiction's participatory powers with drawing up six strategies of design fiction for evoking participation within a project.

DESIGN FICTION FORMATS

In my thesis, I am researching the effect of different formats and mediums of design fiction to its experience and utilization. There has not yet been a lot of attention to the format of design fiction within the research field. Much of the research is circulating around defining design fiction as a concept, and more practical point of views have not yet reached the depth where they would take a stand towards the different mediums.

Coulton et al. (2017) refer shortly in their work to the diversity of media that is used for creating design fictions. They define design fiction as worlds, not narratives; Coulton et al. (2017) position artefacts to be the entry points to these worlds that design fictions represent. Without taking a stand towards what difference the various mediums of these artefacts could entail, Coulton et al. (2017) describe their process of creating the design fiction of *Game of Drones* through various different mediums. Their goal is to utilize mediums that support the plausibility and believability of their chosen fiction, and they single out the different mediums by their amount of zoom towards the world they create (Coulton et al., 2017). By the combination of different scales of artefacts, Coulton et al. (2017) create a plausible compilation of artefacts representing a believable world.

In another project presented in the same paper, Coulton et al. (2017) describe their process and reasoning for choosing alternative mediums. They choose between the mediums of video and comic strip, ending up with the comic strip for its “*encouraging for criticality and potential for new meaning to emerge*” (Coulton et al., 2017).

Knutz, Markussen and Christensen (2014) take the materialization of design fictions also into account in their typology of design fictions. However, the mediums are only mentioned as a characterisation of design fictions, not handled as topics themselves.

RELATED WORK IN D4V PROGRAM

My thesis is built upon the work of my predecessor as thesis worker in D4V project, Maria Huusko. In her thesis she goes through a design fiction workshop *Space Odyssey 2030* that took place in November 2017 (Huusko, 2018). She explores the different roles of design fiction within the workshop, concluding in two sets of roles the design fictions took from the perspective of workshop participants and workshop facilitators (Huusko, 2018).

In my thesis, Huusko’s work has acted as a starting point for further research on design fiction. The lessons learned during conducting the workshop *Space Odyssey 2030* transcended to the work of my thesis. The most influential part of Huusko’s work is the strategic studying of design fiction’s roles and purposes, which fed directly into our process of creating our design fictions.



METHODS

I base my research on analysis of qualitative data I have gathered through three different avenues: observing, survey and interview. I chose the most simple and efficient methods drawn from the field of ethnography, mainly for their reliability; However, more designerly methods were called for in analysing the gathered data.

DATA GATHERING

During the workshop, participants were recorded with simple mobile phone application. In the beginning of the workshop participants were asked for their consent for recording, after which mobile phones were placed in the middle of the room or in the midst of a team. Afterwards, I listened the recordings through, extracted the relevant parts from the files and used external service for their transliteration.

As the final part of the workshop, all participants were asked to fill in a paper feedback survey. The survey was two pages long and consisted of three quantitative questions and three qualitative ones. In the end of the survey, the participants' consent for an interview was asked along with their contact information.

After the *Manufacturing X* workshop I contacted the workshop participants who had given their consent to be interviewed later on. The interviews were designed to take approximately one hour, with four sets of questions about the overall experience, design fiction use and reflection, workshop method assessment and future development of the methods. I managed to conduct four reflection interviews, which I recorded and transliterated.

◀ *Picture 2. Mobile phone recording the pilot workshop.*

OBSERVING

- An audio recording of each team's work
- Recording the workshop team with mobile phone application, one phone recording in each team
- Three a little longer than an hour audio files, transliterated into text format and further analysed

SURVEY

- 2-sided A4 paper feedback survey with 3 qualitative and 3 quantitative questions
- Filling out paper feedback survey in the end of the workshop
- 9 feedback surveys that were further analysed

INTERVIEW

- Approximately one hour semi-structured interview with four topics of the workshop experience
- Interviewing in person or via video call and recording
- Four interviews out of which two in person and two via video call were recorded, transliterated and further analysed

ANALYSIS

For the analysis of large quantities of qualitative data I chose to utilize the method of *Open Coding* (Flick, 2009). Each transliterated interview and workshop recording were worked through for coding the content, after which the codes were transported together for closer look. Found patterns from the data were rearranged into categories within each piece of data. Afterwards, all of the analysed data categories were brought together in order to cluster them by the method of *Affinity Diagramming* (Lucero, 2015). Then, the clusters were organized into a list of key findings.



Picture 3. Mobile phone recording teamwork in the workshop.

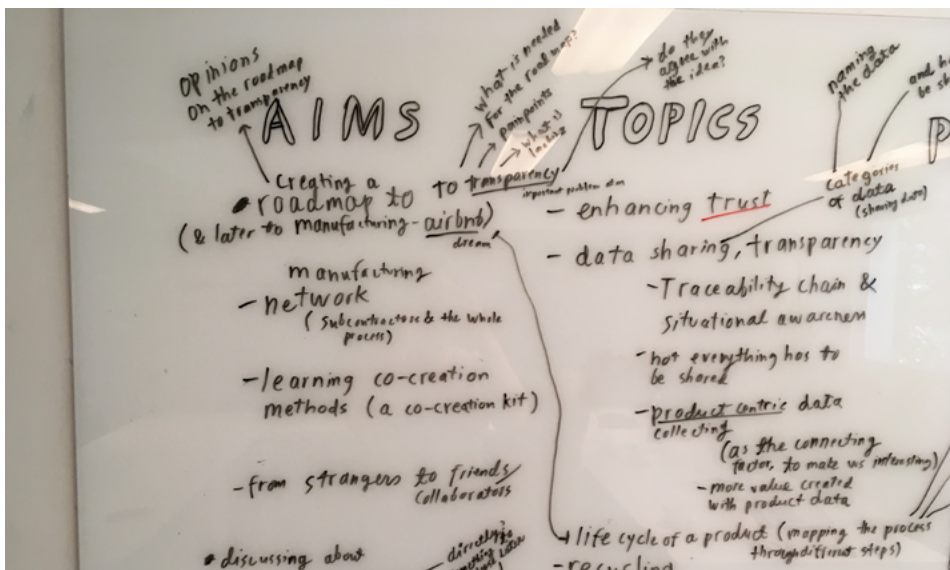
DATA & PROCESS

The data for my thesis is drawn from the joint process of planning, organising and facilitating the workshop *Manufacturing X*, together with two other design researchers, our team supervisor and partner company representatives. Therefore, the configuration of the workshop affected my research outcome.

OBJECTIVES OF THE WORKSHOP

The objective of the workshop *Manufacturing X* was two-fold. First of all, our design team wanted to explore design fiction within the workshop context. Secondly, the workshop was created in partnership with the manufacturing industry company, whose needs and aspirations had to be catered as well as our own research objectives. Our partner's interests for the workshop shifted alongside with the workshop design process, which required a lot of flexibility and agility from the whole project.

The ambiguous and sometimes dissonant objectives of our research team's and our partners' affected both the construction of the workshop and the expediency rate of our chosen methods.

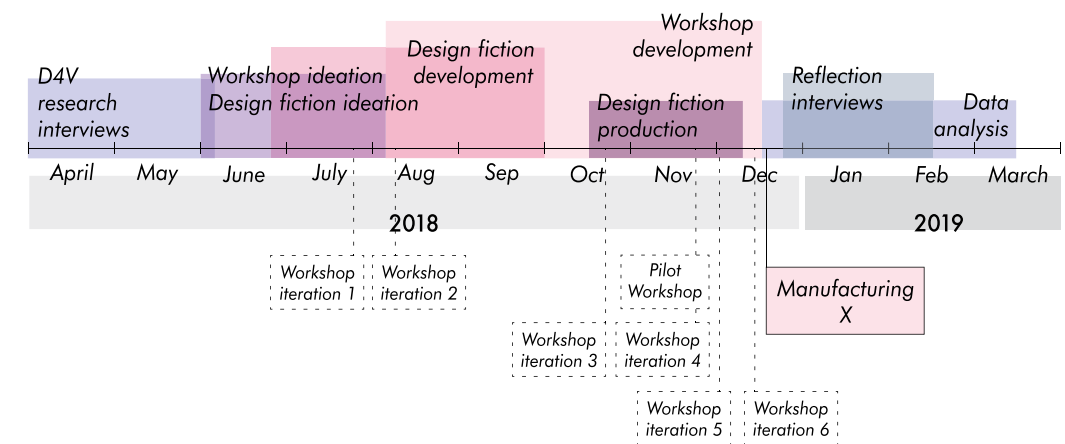


TIMELINE

The groundworks for the workshop were laid in April 2018. However, due to many delays, the actual workshop ideation begun in June 2018. The workshop structure was designed in detail by August 2018, and checked together with all interest parties. Design fiction creation ran along the workshop design process; the two were intertwined. Design fictions were finalized by and checked in a pilot workshop meeting in late November 2018. The workshop was still heavily modified between the pilot meeting and the workshop itself, which ran in 14th December 2018.

Afterwards, I conducted reflection interviews for workshop participants from December 2018 to February 2019. Simultaneously, I conducted data analysis for collected recording and survey data. The analysis of data was finalised by mid-March 2019.

Timeline



▲ Figure 1. Timeline for the entire thesis process.

◀ Picture 4. Initial objectives and topics for the workshop.

CREATING DESIGN FICTIONS

The design fictions were developed intertwined with the workshop design process, altogether during four months. The process I am showcasing here is very long and consisted of many iterations and changes of direction, which I try to open up in order to explain the outcome and my research setting.

INSPIRATION

In the beginning of the project, I conducted a set of research interviews discussing digitalisation and its effects within manufacturing industry. Initially, the aim was to build the workshop around the interview findings.

Thereby, we begun our workshop building with data-analysis for the interviews and looking into their findings. By using open coding and cross-referencing our findings we created a list of possible topics for the workshop. We started to loosely ideate around these with traditional pen-and-post-it method, utilizing our design skills to reach as far and wide with the ideas as possible.

IDEATION

The initial ideation session was conducted casually as a mere trial for the ‘*real ideation*’; As it happens, the ideas spun from that session were enough to begin our work, and the seeds for the final design fictions were laid then and there. Out of those ideas we created a catalogue of possible fiction ideas and started to develop them further. After some development was done, we brought the ideas into a project meeting on 20th July 2018 together with our team, and the partner company representative.

The initial topics for the workshop were decided on 20th July as follows:

- Enhancing trust
- Data sharing & transparency
- Lifecycle of a product
- Recycling
- Novel ways of using data

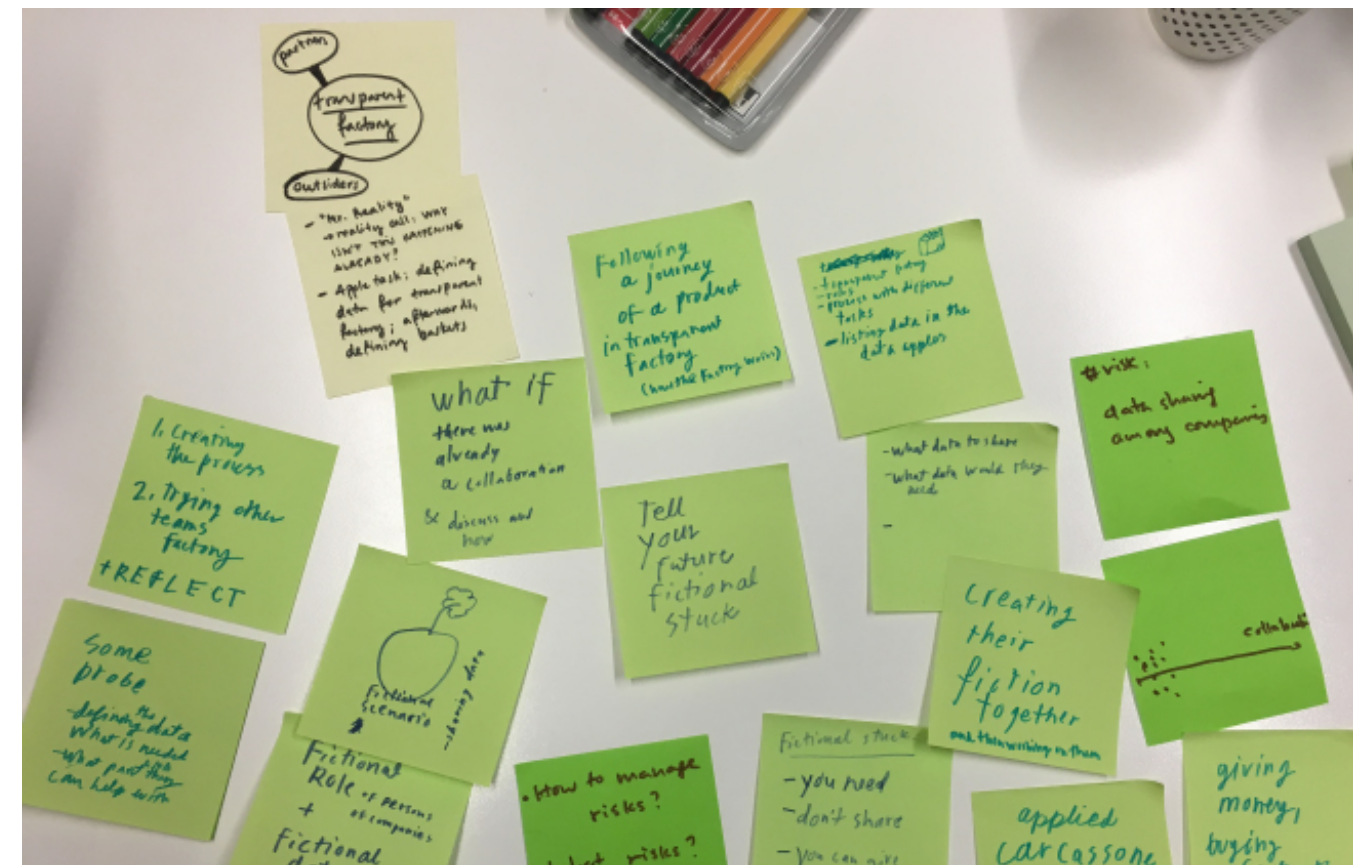
The fictions were chosen to reflect these topics. Nine fictions were chosen after the project meeting for further development.

FORMATS

At this point, the design fiction formats became the main objective of my own research. As design fictions are to be presented as artefacts, we started to assess the resources at our disposal for artefact creation. We formed an idea of different formats for design fictions, which consisted of paper documents, online documents and websites, interactive activities such as role play and acting, rich media such as audio and video, and designerly artefacts such as mock-ups and visual marketing material. Due to our team’s limited expertise and the resources at hand, we ended up in five different main formats:

- Video
- Audio
- Printed still images
- Online mock-ups
- (Interactive cards)

▼ Picture 5. Initial ideas for the design fictions.



After choosing the formats for the fictions we started to build our workshop supporting my own objective. The topic of the workshop had been refined into *Future Collaboration and Data Sharing within Manufacturing Industry*. Our aim was

“to develop a new model of collaboration among workshop participants in the manufacturing industry and ideate on new ways of using data to create value through new services and products (and collaboration)”.

The structure for the workshop and the design fictions were designed to snugly support the aim and topic. At this stage, the rough structure of the workshop was designed as follows:

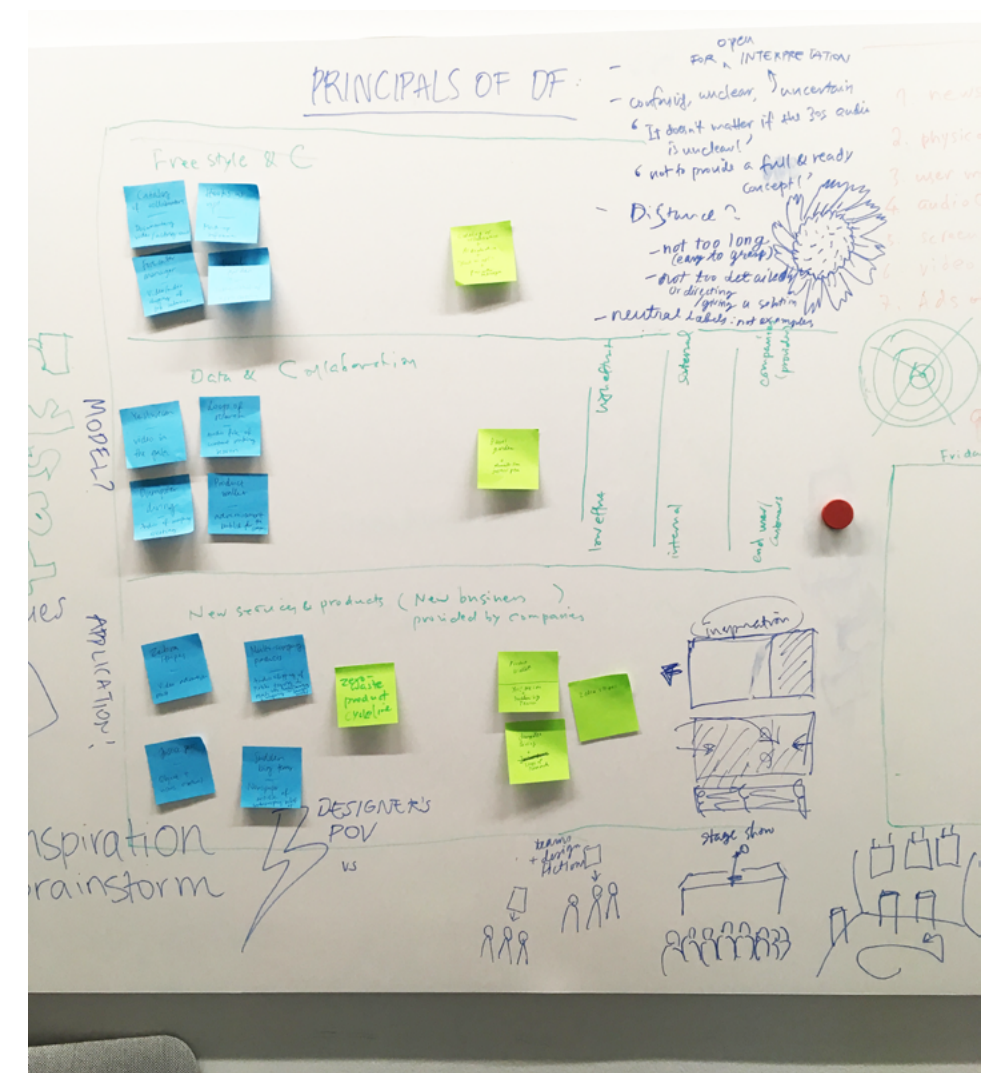
Workshop Design 1.0

When	Who	Task	What
Before Workshop	Company representatives	Pre-task	Dreaming on new collaboration topics in order to dive into workshop topics
	Together	Warm-up	Introducing & warming up for creative labour
		Expectation Exchange	Exchanging expectations for hypothetical future collaboration
		Common Goal	Finding Common Goal on what future collaboration among companies could be
In Workshop	Mixed teams	Ideation	Ideating with design fictions in 3 waves, using Common Goal as guide: 1st: What future collaboration could be? 2nd: What data sharing could bring to future collaboration? 3rd: What new services and business ideas future collaboration could enable?
		Select & Evaluate	Selecting ideas & developing them further, using Common Goal as yardstick
		Acting Out!	Acting the resulting ideas as presentation
	Company representatives	Evaluation	Evaluating each other's ideas within company representatives

Figure 2. The first workshop configuration.

As can be seen, we added elements of role play and acting to the second to last task of the workshop. Our resources and abilities were not enough for trying them out as an actual design fiction production, however, we did want to see how the tools could work as narrative building.

The ideation task consisted of three waves of ideation, each with slightly different connotation to the topic. We designed the design fictions, their topics and formats to correspond with the three waves of ideation. We aimed to move from less complex ideation tasks and design fictions to the more complex ideation tasks, accompanied with more complex and rich design fictions.



Picture 6. Dividing design fictions in three categories.

The design fiction formats were divided into three categories according to their complexity:

Design Fiction Formats			
	Format	Topic	Use
The Hobbit	What If? questions	New technologies Collaboration based approaches Data based approaches Process based approaches New benefits	1st wave of ideation
Aragorn	Printed advertisement Printed leaflet Application mock-up Website mock-up	Collaboration Artificial Intelligence Data sharing	2nd wave of ideation
Smaug	Audio Video	Trust Sustainability Data recycling	3rd wave of ideation

Figure 3. Design Fiction formats and their categorization.

As our process was circulating around fiction, we ended up naming the different levels of formats according to the characters of Tolkien's literature: *The Hobbit* is a small, weak species in his books, *Aragorn* is a powerful soldier, and *Smaug* is a super powerful dragon, one of Tolkien's main antagonists.

The main difference between the categories here is the richness of detail, and the anticipated ease of engaging with the format. The different formats of design fictions were designed in different level of richness; Audio and video clips were designed with the most complexity of narrative, and rich characters in them. They were labelled as *Smaug* ideas, the biggest and most powerful of the design fictions. The still materials such as advertisement, leaflet and various online mock-ups were developed with decent level of richness, but they didn't include any characters in them. They were labelled as *Aragorn* ideas, with mediocre power.

Picture 7. One of the video design fictions viewed in pilot workshop. ►

The last level of format we designed, *the Hobbit*, is not a design fiction anymore. We created a set of *What If?* questions into triggering cards, that were designed to inspire creative minds for ideation. The cards were consisting of both *What If?* questions, and similar questions with one keyword edited off of each leaving a blank space instead. The blank space cards were initially chosen to be the only ones for use, since they had the potential of nudging the recipients into interactive work.

Whether one can create a link from the set of *What If?* conversation piece questions and design fictions is highly questionable. However, the activity these cards provide is actually narrative building; the cards are acting as triggers for piecing out a fictional world or scenario, which could be linked to design fiction creation. The cards might be a distant cousin for design fiction, perhaps.



PRODUCTION

The production process of the design fictions was very straight forward. Production phase was conducted during September to October in a couple of sprints. The text based fictions were developed into more rich and mature narratives within our team by iterating, evaluating and circulating authorship and design leadership. Creating the fictions begun with mere two-word ideas, which were developed into concepts of design and narrated through rich characters. One of the fictions even utilized *pastiche* in the form of naming one of its characters after a famous movie personality, *Dr Strangelove*.

Production Details of the Design Fictions

Format	Quantity	Production time	Activities	Tools
Video	2–3 min	16–24 hours	Costumes & make-up Set scouting Filming Cutting & editing Subtitles & special effects	Canon DSLR camera Adobe Premiere Adobe AfterEffects Adobe Illustrator
Audio	2–3 min	30 min	Recording Cutting	iPhone
Still images	1–8 pages	2–6 hours	Graphic design Printing	Adobe Illustrator
Mock-ups	1–11 screens	4–8 hours	Graphic & interaction design	Adobe Illustrator
What If? cards	15 cards	1–2 hours	Graphic design	Adobe InDesign

Figure 4. Design Fiction production details.

The most complex format of our design fictions, the video clips, were most carefully planned and produced. The design fictions were created with a bit of tongue-in-cheek attitude (see Coulton et al., 2017), trying to add humour and light-heartedness into the story and execution. We were mostly acting in the productions ourselves, transforming ourselves into various, rather extreme characters such as *Kai Kiertotalous* (Kai Circulation Economy), *Gurtrud Majava* (Gurtrud Beaver) and *Jen Lee*, a founder of the company *Steel-A-Thon*. We deployed our colleagues and friends for the roles we couldn't act ourselves.

Filming, cutting, editing and special effects were managed through our team's own expertise. Although none of us were experts in filmmaking, our talents were sufficient for creating short video clips.

Producing audio clips was merely a question of finding silent space for recording. Mock-ups and print-outs were designed in vector art and either printed or transferred to appropriate device for presenting.

Reflecting on the short duration of production phase, these design fictions were designed within an exceptionally long period of time. However, they went through several iterations within our process, and gained excess reflection time from the stickiness of the workshop creation progress.

Next pages:

Pictures 8–11. Different design fiction formats being viewed in the workshop.



FINALISING THE WORKSHOP

The workshop model, my research objective and the workshop tasks were designed hand-in-hand with developing the design fictions; The final construction of chosen fictions and their formats were tightly linked with the overall process.

As described before, the first draft of the workshop design was ready in the beginning of August. It was presented and discussed with our partner company in a meeting on 10th August. After that meeting the construction of the workshop went through numerous refinements, but the basic structure stayed the same. However, the initial workshop objectives grew with a layer of participant experience, which became more valuable for our partner than the initial objectives; At this point, our client had started to lean more towards arranging the workshop as a kick-off meeting for their own network creation purposes, rather than the ideation workshop of earlier discussions.

Our design went through serious reformations at least four times during the process due to the various reflection and participant meetings. The latest refinements were done a couple of days before the actual workshop, and consisted of cutting down tasks and time from the workshop. Because of these multiple shiftings within objectives, duration, schedule and participants, the eventual aptitude of design fiction was compromised. This is reflected in the data collected from the workshop itself, as well as in the interviews conducted afterwards.

Figure 5. Workshop design iterations. ►

Workshop Design Iterations

Design by	Name	Date	Duration	Tasks	Topic	Participants	Objective
Late July	–	–	1–2 days	–	Trust & Data Sharing	Manufacturing industry company representatives, researchers	Ideating on trust & data sharing
Early August	Manufacturing 111	1.11.	Full day	7+1	Collaboration & Data Sharing	10–15 Partner company's clients A, B & C, researchers	Ideating on collaboration & new business ideas around data sharing
Late October	Manufacturing X	26.11.	Full day	7+1	Collaboration & Data Sharing	10–15 Partner company's clients B, D & E, researchers	Ideating on collaboration & new business ideas around data sharing Participant satisfaction
Late November	Manufacturing X	In December	6 hours	6+1	Collaboration, Common Future & Data Sharing	5–10 Partner company's clients B, D & E, researchers, partner company representatives	Ideating on collaboration & new business ideas around data sharing Participant satisfaction
Early December	Manufacturing X	14.12.	6 hours	4+1	Common Future & Joint Challenges	5–10 Partner company's clients B, D & E, researchers, partner company representatives	Ideating on common future & new business ideas Participant satisfaction
Actual Workshop							
Early December	Manufacturing X	14.12.	5 hours	4+1	Common Future & Joint Challenges	11 3 partner company's clients B, D & F 3 researchers 5 partner company representatives	Ideating on common future and new business ideas Participant satisfaction

INVITING PARTICIPANTS

Gathering up workshop participants became more challenging than expected. The task was difficult especially due to the high profile of the desired participants, that led to extreme scheduling conflicts and difficulties in reaching the invitees.

In the beginning of the project, the invitees were supposed to be gathered from the pool of interviewed company representatives from spring-summer 2018 (see p. 23). As the process went on, the objectives of the workshop became less relevant for that specific pool of representatives, and the pool of invitees had to be rearranged. This somewhat changed the nature of our invitation, thus having less importance and weight in the eyes of the invitees than in a situation where the invitation had been handed in for interviewees already committed to the work, for which the workshop was supposed to be a continuum.

The desired number of participants for the workshop was initially figured as follows:

- 9 company representatives from 3 different companies,
3 representatives from each company
- 3+ researchers from different research institutes
- No participants from partner company

= altogether 12 participants.

The role of our facilitating partner company was desired to stay minimal in the workshop, as for the ownership of the workshop would have stayed neutral in that regard. However, the final construction of workshop participants became as follows:

- 3 company representatives from 3 different companies
- 3 researchers from different research institutes or branches
- 5 partner company representatives

Thus, our partner company held the workshop ownership and authority clearly in stead of the neutral ownership we designed for in the beginning of the process. Ethically thinking, this probably became a better solution than trying to keep appearances of a neutral ground, while conducting work for the benefit of our partner company; However, we lost the desired effect of creating the workshop as neutral, common ground for all of the participants.

Invitations were sent out by our partner company representative, for people they knew personally and had a chance to meet before the invitation was sent. Setting the date for the workshop was a last minute task, as most of the invitees had conflicts for the initial dates we suggested; It was only a few weeks before the workshop when we managed to land on one date that at least one participant out of each invited company agreed to.

The official invitation document with a pre-task was sent out for the invitees by email after the initial meeting; a set of phone call conversations and date configuration that acted as the motivation confirmation. Most of the invitees came to the workshop without paying much attention to the invitation documents, probably due to the heavy duty date configuration activities already conducted for the workshop, and their aforementioned busy schedules.



Picture 12. Workshop participants in the beginning of Manufacturing X.

THE FINAL WORKSHOP DESIGN

The final workshop was held in 14th December 2018. The structure became as can be seen in figure 6.

The workshop shifted from its pre-drawn schedule, as any workshop might. Nonetheless, the event was a success from the partner company’s point of view.

From the facilitator’s point of view the workshop became a stratified collection of objectives and methods. In the end, my internal strategy for my own research objective on design fiction was focusing solely on the 45 minutes long *Ideation task*. We designed a pattern for testing my research objective within the ideation task, that can be seen from figure 7 (page 40).

Figure 6. The final workshop design. ►

Final Workshop Design			
Time	Who	Task	What
Before Workshop	Individual	Pre-task	Listing today’s challenges
10.15		Introduction	Partner Company: Future visions
10.30		Warm-up	Introducing ourselves & the whole group
10.50	Together	Sharing Common Challenges	Sharing common challenges from Pre-task
11.35		Expectation Exchange	Listing expectations of each participant to each other
12-13		Lunch	
13	Mixed Teams	Ideation	Ideating utilizing design fictions in teams of 3-4 people 1st wave: Ideating solutions to tackle Common Challenges 2nd wave: Ideating solutions to together tackle Common Challenges 3rd wave: Business opportunities emerging from solving Common Challenges together
13.45		Coffee Break	
14		Evaluating & Developing	Positioning ideas in now–future matrix Selecting one idea & developing it Presenting idea to the whole group
15	Together	Discussion & Next Steps	Wrapping up & Defining next steps
15.15	Individual	Feedback	Research survey for participants

Design Fiction Formats in Ideation Task

	Team 1	Team 2	Team 3
Session 1	What If? cards	Audio clip 1 Print advertisement	Video 1
Session 2	Application mock-up Print leaflet	Video 2	What If? cards
Session 3	Audio clip 2	What If? cards	Print press release Website mock-up

Figure 7. The research pattern for design fiction formats within ideation task.

We designed the ideation session on the basis of formulating three teams of participants. Each team consisted of one participant company representative, one researcher and one to two partner company representatives. We numbered the teams 1-3, and each of us three facilitators observed and supported their own team.

In the ideation task, the design fictions were designed to inspire, guide, orient and open up thinking before diving into actual ideation. The ideation session was constructed as follows:



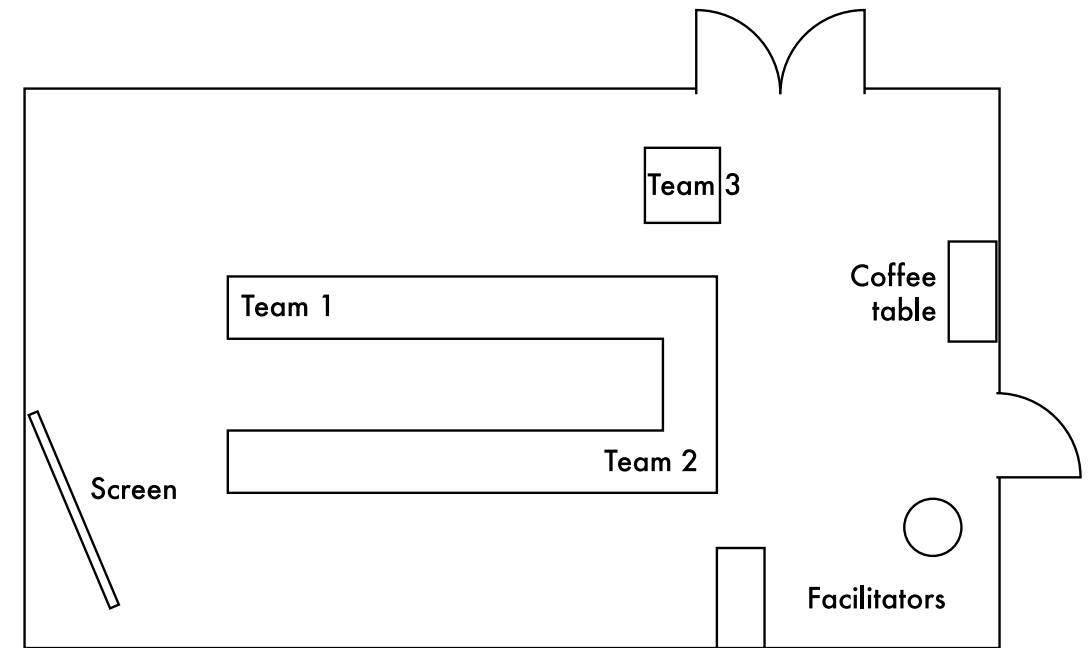
Picture 13. Each workshop team were designed to consist of participants from different institutions.

Ideation Session Construction

Part	Duration	What?
Instructions	3 min	Guidelines for sessions & ideation
Session 1	3 min	1.1 Design Fiction presentation
	5 min	1.2 Discussion in teams
	7 min	1.3 Individual ideation
Session 2	3 min	2.1 Design Fiction presentation
	5 min	2.2 Discussion in teams
	7 min	2.3 Individual ideation
Session 3	3 min	3.1 Design Fiction presentation
	5 min	3.2 Discussion in teams
	7 min	3.3 Individual ideation

Figure 8. Ideation session configuration.

Each team received the design fiction in the beginning of each session. We facilitators introduced the fictions as far as they required introduction, but did not endeavour to explain or talk them through. After the design fictions were seen, heard, read or received, we facilitators nudged the teams into discussion. The set question for this part was: *“What thoughts, ideas and feelings the fiction(s) provoked in you? What insights the fictions provide to the common challenges?”* This set question was made visible for the teams from the big screen in the room (see picture 14) in order to guide their discussion.



Picture 14. Rough sketch of the room configuration.

As the discussions went on, we nudged the teams again for beginning ideation. Each ideation session had their own objective (see figure 6), but they were only visible for the teams from the screen, quite far away. Our instructions guided the teams also to look into the challenges discussed in the morning phase of the workshop (see figure 6), in order to find possible solutions for those.

AFTER THE WORKSHOP

The workshop itself was a success by the standards of our partner company. Their objectives set for the workshop were as follows:

- Beginning discussion on joint manufacturing industry development work
- Offering participants the chance to voice their concerns and struggles
- Gathering ideas on future collaboration
- Providing a kick-off for joint manufacturing industry development network

All of the above objectives fulfilled perfectly, and the workshop model supported these activities to succeed. However, our research team's objectives were more difficult to assess:

- Utilizing design fiction
- Creating continuum for the workshop *Space Odyssey 2030*
- Supporting our partner company in achieving their goals for the workshop
- Producing relevant data for D4V program

We did support our partner company to succeed in reaching their goals, that is easy to state. I am not sure whether the data produced became the most relevant for D4V program's research objectives; however, the overall outcome of the workshop served the program objectives in supporting our partner company in their work. The utilization of design fictions realized in somewhat awkward fashion, as the design objectives shifted after their making; however, the outcome of their utilization produced valid data for both our team, my own work and for our partner company. Finally, the workshop was not a straight-forward continuum for the previous design fiction workshop *Space Odyssey 2030*, but more as a '*lessons learned*' version of it. There were no links with the previous workshop within our work, apart from the fact that the working team was more or less 75% the same as in the *Space Odyssey 2030*. However, creating a *Space Odyssey 2030 2.0* was not our objective, but building on top of the work conducted. Therefore, I feel that our research team's objectives were more or less fulfilled, but I cannot assess whether or not to the perfection.

My own objectives were more successful:

- Creating a research setting to investigate how format affects the use of design fiction in a workshop setting
- Harvesting data in multiple channels
- Creating connections for later reflection interviews

They fulfilled almost to the perfection, although, the connection creation for later reflection interviews achieved only a part of its fullest potential; I received consent for later interviews from most of the participants, nonetheless, only less than half of them became reality.



Picture 15. Positive reactions from facilitating team after the workshop. ►

REFLECTION

The workshop itself differed somewhat from the final design we presented (see figure 6). Some parts, such as the *Introduction*, gained more time, and some parts, such as the *Evaluating & Developing*, were reduced in time. This kind of shifts are natural occurrences of life, and as such not dramatic in their effect. However, due to the last-minute changes to the workshop construction, parts of the workshop lost some of their weight or reasoning, thus rendering them less useful than intended.

One of such occasions occurred within the *Ideation* task. The *Ideation* task was initially built in three parts, each part reflecting on one point of view of the complex, overall topic of the workshop. Once the main objective of the workshop shifted towards the more kick-off meeting like event, the ties to the initial topic broke off.

We chose to trust in the produce of the *Pre-task* and *Sharing Common Challenges* (see figure 6), in which we gave the instructions to write down common challenges for all the participants to see. This part of the workshop failed in its effect: the discussed common challenges stayed in such high level that they were difficult to write down in accuracy, thus making the participants reluctant to write down anything at all. The discussed themes were wide and writing down the most relevant topics would have required choosing; in the end, the templates provided for writing down the common challenges became so filled and scattered, that it was very difficult for anyone to make anything out of them. Therefore, in the Ideation task, there was no relevant challenges to reflect upon when trying to create novel ideas.

The constructions of design fictions had been done throughout the workshop design process, in order to support the workshop itself. When the workshop configuration altered, the design fictions were already produced. Therefore, they ended up not being necessarily supportive or the most relevant to the workshop topics.



Picture 16. Workshop materials on the table after the workshop.

FINDINGS

In this chapter I take a closer look at the data I have gathered for my thesis, and go through the findings it has yielded through analysis. I go through the analysis by different data sources first, and in the next chapter I tie all of the results together into conclusions.

VALUES OF FORMATS

As described earlier, immediately after the workshop the participants filled out a feedback survey on paper. The survey began with quantitative multi selection questions on each individual design fiction and *What If?* cards used in each group. I asked the participant to use a scale from -2 to 2 for estimating the value of each fiction for their ideation process; the negative end of the scale describing the values of *harmful*, *detaching*, *annoying*, *irrelevant* and *confusing*, and the positive end of the scale describing the values of *useful*, *engaging*, *fun*, *relevant* and *inspiring*.

When taking all of the results together and zooming out from individual fictions, but looking into their formats, interesting results were shown:

Value of Design Fictions for Ideation Process by their Format

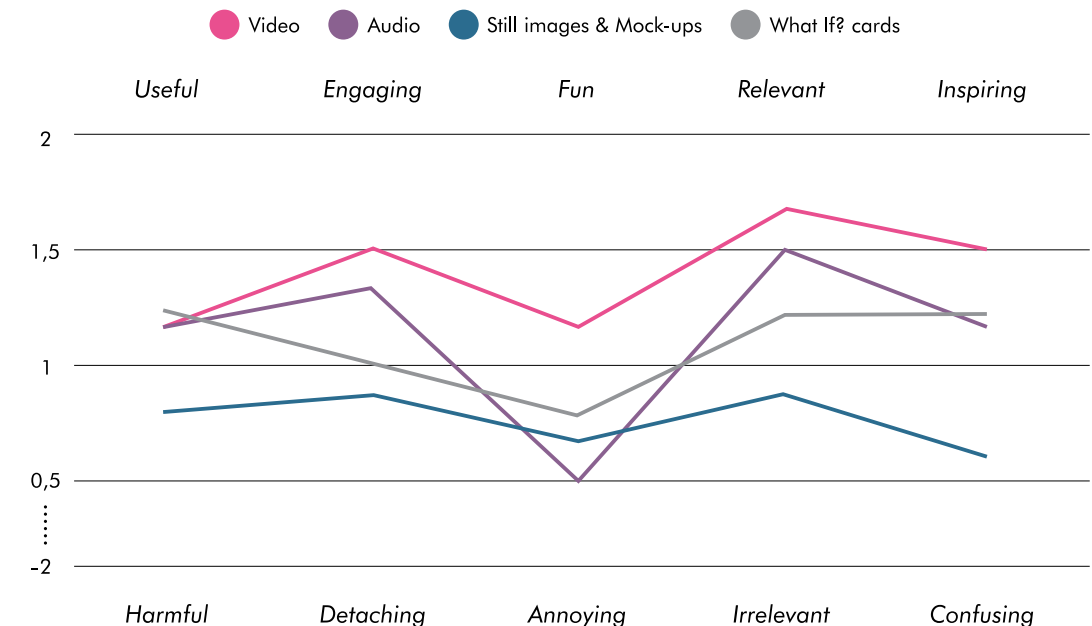


Figure 9. Value of design fictions for ideation process on the scale -2 to 2, 2 representing positive values listed beneath the X scale.

The estimation of the workshop participants' show a clear trend for the video format receiving the most positive values in each category; *Useful*, *engaging*, *fun*, *relevant* and *inspiring*. The other two formats of design fiction, audio and printed material, have clear preference as well, the audio format being received in more positive way in every value other than one. In the case of the value of *fun*, the still material and mock-ups have slight preference among the participants.

As stated before, *What If?* cards are not treated as design fictions. As participants perceived them, the cards are positioned somewhat in the middle of the positive end of the value scale, not forming any particular trend in relation to the other formats. However, these results are withdrawn from the answers of all workshop participants, which affects the results due to the varying experiences each team had within their respective processes.

After the multi selection questions I asked each participant to rank each utilized design fiction or *What If?* cards from the best to worst in relation to their *usefulness for the participant's process*, and what they felt *most engaging and easy to approach*. The results were not as straightforward as in the previous question, and in few cases the ranking had been done only for one or two of the formats, due to the misunderstanding of instructions or lack of time or effort put towards the survey. However, out of eligible answers, two thirds of the respondents ranked video format both easiest to approach and most useful to their process, following along similar lines as in the previous question. Other formats were ranked more evenly for their *usefulness* and *engaging and ease to approach*, thus no trend could be detected from there.

Latter part of the feedback survey constituted of qualitative open questions. These were widely left unanswered, or the replies commented on matters handling the overall workshop without taking a stand towards the design fiction as a tool or individual material. Therefore, I chose not to include the answers to my analysis at all.

TEAMS' CHARACTERISATIONS

The workshop participants were divided into three teams for the ideation and development tasks of the workshop. Each team had their own process of receiving and handling the design fictions and *What If?* cards. All of the teams were individually recorded with mobile phone audio recording applications, and each recording was later transliterated and analysed further.

As for the research purposes, the workshop had been planned so that each team received different design fictions and *What If?* cards in different order (see p. 40 and figure 7). Team 1 started their ideation phase by listening to an audio clip from headphones simultaneously, continuing to see a short video in the second ideation phase, and ending up receiving *What If?* cards in their last ideation phase. Team 2 started with watching a video, then received a set of *What If?* cards, and lastly were instructed to peruse through still material and a webpage mock-up. The third team started with *What If?* cards, secondly received a set of still images, and lastly listened to an audio clip simultaneously.



Pictures 17–19. Different workshop teams in workshop Manufacturing X.

Recordings of each team's groupwork show, first of all, the myriad of variables that can affect any general workshop experience. Each of the teams seemed to have very different group dynamics, related or not to the actual task at hand; each of the teams had different tactics for completing the tasks at hand; each of the teams had different tactics for competing various strains and stress they experienced throughout their process; each of the teams perceived different style of communication among themselves; and each of the teams created their own style of work and atmosphere around it. The way each team conducted towards instructions affected their level of confusion in the later phase, and familiarity among team members affected the quality of conversation within the group. However, these general variables are only mentions in my thesis, as their effect for my research objective is only secondary.

The recordings show interesting difference in the results of the workshop. The general goal set for the ideation task was to create novel ideas, develop them into a concept and possibly a business idea, and present that to the whole group in the end. When looking closely to the conversation, one can detect how the design fictions and *What If?* cards sprang conversation around certain themes, and how fruitful the conversation seemed to be for the task at hand within the teams; one can hear some of the themes and topics springing deeper and longer discussions, and some of the themes iterating into idea seedlings as well, which in later phase were refined into the end results.

Due to the background noise and using only one audio recording device per team, the recordings are not a complete record of everything that happened within the teams. The results shown here are estimates and assumptions of the trend that could be detected in the data, without further knowledge or complete data to back it up seamlessly. However, as far as it could be detected, I identified two key figures for each of the teams:

- The number of conversation themes or topics yielded from the design fiction or *What If?* cards, or directly after perceiving them in the team
- The number of idea seedlings sprang within the team's conversation

When calculating these, each team's group work could be identified by the characteristics these key figures represent. However, these numbers are not the total of individual ideas of each team, or reflect the quality of the ideas the team created – these figures simply tell us, how many individual themes, topics and idea seedlings visited the group's conversation during their teamwork in ideation phase, as far as the recordings can show.

Team 1	Team 2	Team 3
35 themes or topics 0 ideas	22 themes or topics 12 ideas	31 themes or topics 5 ideas

Figure 10. Resulting number of conversation topics and idea seedlings in teams' recordings.

Team 1 had a lot of conversation within their group work. However, a lot of their conversation was also irrelevant, floating from contemporary books to car brands. It was noticeable, how much the participants of *Team 1* talked on top of each other and on top of the instructions. Their confusion of instructions and aim of the tasks at hand was visible in the workshop situation itself as well. Later in the idea development phase of the workshop, *Team 1* had to sprint in order to get more ideas on their table for development. However, their team seemed to have the most fun, which also shows in the amount of joking, laughter and in their general relaxed atmosphere. I would call *Team 1* '*The talkative team*'.

Team 2 had much less conversation about their group work, and in general as well. They generated a lot of ideas and managed to receive expected results in due time in each of the workshop tasks they completed together. Their group work seemed efficient, although more leader-led than others. One characteristic of their work was, that in *Team 2* they were most critical towards their own idea seedlings, without giving them a chance to grow into wild, new ideas. *Team 2* was '*The productive team*'.

The most balanced work seemed to be done in the *Team 3*, where the conversation flew within each ideation phase freely around several themes and topics, which led to a decent amount of ideas as well. The special characteristic of *Team 3*'s work seemed to be the large quantity of supportive talk and joint group work facilitation, that seemed to create warm and supportive atmosphere for their work. Also, unlike in the other two teams, in *Team 3* the participants didn't talk on top of each other, but conducted conversation respectfully, thus perhaps not as anxiously as i.e. in *Team 1*. *Team 3* also asked the most clarifications to instructions or parts they felt confused about. However, in *Team 3* the ideation continued still throughout the development and presentation preparation tasks, and their work was not as efficient as in the *Team 2*. The team 3 received a nickname of '*The smooth process*'.

PARTICIPANT'S POINT OF VIEW

After the workshop I conducted in-depth semi-structured reflection interviews with four workshop participants. The main challenge with the interviews was simply to set them up, as most of the workshop participants proved to be extremely busy.

The four interviews reveal four very different workshop experiences from four different standpoints. I interviewed one participant from teams 1 and 3, and two participants from the team 2. When comparing the experiences even among the same team, they were extremely different from each other, sometimes even contradictory with each other.

My interviews handled four different topics about the workshop: each interviewee's personal goals for the workshop participation, each interviewee's personal experience on the design fictions used and *What If?* cards, general reflection on the whole workshop and reflecting on how the workshop methods and outcomes could feed into the interviewee's own work in the future. Each interview took approximately 60 minutes or a bit less.

After the interviews I utilized open coding in order to find patterns and themes from the text, categorized them and brought together all of the codes and categories from each interview (see page 20). After clustering the data with *Affinity Diagramming* (Lucero, 2015) I formed 11 topics or subtopics from which I made interesting findings.

WORKSHOP PARTICIPANTS' EXPERIENCE

The workshop was unanimously perceived successful and relevant for each interviewee. Each interviewee had different goals and different reasons for their participation, therefore the success of the workshop was due to very different reasons as well. However, as facilitating party, I was very glad to hear that the workshop felt justified in the eyes of the interviewees.

The majority of the participants were not in their comfort zone when it comes to the designerly ways of working. Even writing down ideas on post-its proved difficult for some participants, as scribbling down unrefined idea seedlings felt odd and unfamiliar. The way of working seemed not to be familiar for our participants, thus creating insecurity and confusion towards the tasks and methods on top of the general confusion new topics and tasks gave for the participants.

It did not seem to help that our scheduling proved to be designed too tight, despite our efforts of loosening it up beforehand. Tight scheduling resulted in rigid construction of the workshop within the ideation phase, which would have required more flexibility and the act of 'reading the participants'; Some of the tasks were given so that it distracted the work within teams, who could've benefitted from more respect towards their own process. Unfamiliar methods and rigid schedule created stress and strain for time and performance among the participants, and didn't allow them to explore the materials thoroughly, or even to understand instructions properly.



Picture 20. Participants had hard time perceiving the readable material.

IDEATION TASKS

The tight scheduling and rigid constructions harmed some of the teams, as they experienced our instructions and task progression as interruptions for their own process. Both in the interviews and in the recordings one can detect how the instructions left a lot of the participants confused. The confusion was intensified, as due to lack of commitment for the instructed ideation phase process, some of the instructions were directly talked over by the team participants.

As part of the workshop design the teams were instructed for conversation before each ideation session, which proved to be both fruitful and fundamental part of the group work. The conversation part merged participant's views and allowed new point of views to the topics, that otherwise could have been left more narrow. A good code of conduct from the facilitators was gently nudging the teams into conversation, as the facilitator noticed that the team is ready to proceed.

One of the interviewees noticed how warming up for their ideation took time in the beginning. Strategic placement of different kinds of design fictions or *What If?* cards seemed to have an effect for the smoothness of the ideation process; for example, the *What If?* cards seemed to work well for light warming up style of work, whereas the still image design fictions seemed to require more effort to get familiar with. The characteristics of each design fiction's format and *What If?* cards are crucial for recognizing in this kind of ideation work, in order to produce pleasant and supportive process for participants.

The interviews also yielded a long list of practicalities, that are more in the line of to do -list for future workshops; for example, remember to have enough printed material for each participant; remember to provide all possible extra material in accessible way; remember to place key instructions or questions in prime spot within the team or the working space, et cetera. These detailed findings were not directly relevant for my research objective, but failing in these small details affected the experience of the interviewees, thus affecting their sense of the design fictions.

WHAT IF? CARDS

A list of qualifications of *What If?* cards as part of ideation process could be detected from the experiences of the interviewees:

- *What If?* cards are interactive
- *What If?* cards give space for ideation
- *What If?* cards are context-independent

Because of these qualifications, the cards worked out well for warming up in the workshop. However, their working method resembled simple, elementary school assignments for some of the interviewees, thus thwarting their creativeness in the process.

For the Team 3, using interactive yet simple method in the beginning of ideation gave the participants nice warming up for the consequent tasks, and paved the way for engaging with design fictions and narrative scenarios more enthusiastically (see p. 53, and figure 7). For sure, this cannot be calculated as a default outcome of this use of this particular method, but perhaps looking into the characteristics of interactivity and ideation space allowance is the key for reaching smooth start for this kind of work.

DESIGN FICTIONS

The interviewees identified *opening up thinking* and *guidance for thoughts* as the roles of design fictions for their experience in the workshop. Design fictions offered access points for complex matters and supported the beginning of conversation about them. Some of the interviewees experienced, that the design fictions helped to guide the ideas to be wilder and in further future than they otherwise would have generated.

The design fictions were also experienced confusing, as some of their contexts were quite detached from the themes of the workshop. Also, describing concepts from limited area of manufacturing industry, the design fictions themselves created cognitive strain for at least one of the interviewees who was not familiar with that world beforehand. Also, another interviewee experienced that the ideas they generated within their group would've been just the same with or without

design fictions; however, that statement might deserve some critical review in the light of the recordings from their groupwork, as the group conversations circled around the topics and themes directly inspired by the fictions. However, this particular interviewee didn't see the role of design fictions as crucial for their process as the others did.

FORMATS VS. CONTENT

Different design fiction formats had different characteristics for the interviewees. The most useful and positively perceived format in the feedback survey, video, was identified among the interviewees to have been the easiest format to concentrate on within the team. This was simply due to, that while all of the team members were concentrating simultaneously in watching the video, there were no other distractions happening within the group. The same applies for the audio format as well, as the audio fictions were listened to simultaneously from a headset. It was noted that the audio fictions gave more space for imagination than the video fictions, as the audio files didn't include any visual material other than transcription of the heard conversation.

The still image and mock-up design fictions seemed to generate a lot of attention to their visual details, especially the application and website mock-up fictions. Conversation sprung from those fictions stayed on detail level, circulating around how the fictional concepts would relate to the contemporary world or industry. Some of the texts in the printed material felt too long for the interviewees to read through, especially as the fictions given for each team were unique, and one had to wait for to get to explore them. Therefore, the participants were getting familiar with the printed design fictions in different phase, and the conversation began while other members were still in the middle of reading. That affected the concentration so badly, that two of the interviewees had not been able to get familiar with some of the materials at all during the workshop.

The unanimous experience seems to be, that the format of the design fictions affected largely how and how well the participants were able to engage with the fictions. Getting familiar with the fictions was crucial in order to have a conversation that everyone could participate in. The formats of video and audio offered concurrent experience for the team that begun and ended simultaneously for each team member, thus fostering joint conversation with equal participants. The individual still images or virtual mock-ups didn't engage or nudge participants to concentrate, thus getting familiar with them requires more concentration and cognitive strain.

Out of the three formats, audio is the only non-visual. However, only the still material invited the participants to concentrate on the visual content and details, which was experienced to hinder participants' lift-off for ideation. The video format was mentioned to have been the richest of the fictions provided, but dealing with moving picture doesn't invite the participants to get stuck in one detail.

When asking about the impact of the design fictions for ideation, the participants identified the content having sole effect on their produced ideas. The format of the design fictions defined how well the participants were able to engage with and digest the said fiction. After digesting the design fiction, it was the content of the fiction that affected interviewee's thinking and ideation further.

THE PACKAGING

The interviewees had experienced, that each of the narratives or fictional worlds provided with different design fictions could have been provided in a different package just the same; The story that was told through video medium, could have been transcribed into printed material or audio file without affecting the consequences the design fiction had for the process.

Each of the design fictions were early on built on top of their chosen presentation medium, which makes me think whether the assumption of the interviewees could be possible. In our process we chose mediums or formats for the fictions that we felt supported the themes and topic of each concept; we felt that the richer medium could deliver more complex matters easily, the kind of concepts that the two dimensional printed materials could not deliver at all (see p. 28). Separating the content and the format in two gives clear roles for both, the format being the package in which a design fiction is delivered in, and the content being the world that the design fiction constitutionally is (Coulton et al., 2017). When reflecting the process of making the design fictions, I can hardly imagine that such separation is that simple; in our process, designing the design fictions took a specific point of view for the said world that each fiction presented, from which the world itself was created simultaneously with the packaging and the story that the packaging encapsulates.

CONCLUSIONS

In this chapter I go through the key findings and reflect them against my research objective and related research.

KEY FINDINGS

My objective for this thesis was to study the effect of design fiction formats for their recipient’s experience and engaging with the fiction. The data is collected out of one case study, a workshop *Manufacturing X* that I have been designing and facilitating within a team of three.

In the light of my research objective, the findings from the workshop could be reduced in a list of seven insights:

- 1 Visual fictions withhold concentration on detail level.
- 2 Concentrating on the fiction simultaneously in the group offers space for engaging with the fiction.
- 3 Reading textual fictions requires concentration and cognitive power.
- 4 Format of fictions affects engaging, not thinking.
- 5 Content of the fiction affects the thinking and ideation.
- 6 Conversation acts as digestion point, where the recipients’ different points of view help each other to widen their perspectives.
- 7 Design Fictions are fairly unfamiliar and therefore require warming up to.

CHARACTERISATIONS OF EACH FORMAT

The insights 1–3 describe the characteristics of the explored design fiction formats and their effect on groupwork; the characteristics of *concentration*, *space for engaging* and the *need of cognitive power*. These characteristics are visible from the collected data, and they explain at least partially the major differences in how the workshop participants perceived and experienced different design fiction formats.

Characterisations of Formats

Characterisations	Formats			
	Video	Audio	Stills & Mock-ups	
	Concentration	Requires some	Requires some	Requires a lot
	Cognitive Power	Requires some	Requires some	Requires a lot
	Space for Engaging	Offers	Offers	Doesn't offer
Use of Senses	Seeing, hearing	Hearing	Seeing	

Figure 11. A compilation of the different characterisations of used Design Fiction formats and What If? cards in the workshop Manufacturing X.

Video format was the easiest format to digest for the workshop participants by many measures; as we can see from the table above (figure 11), watching a video doesn’t require excessive concentration or cognitive power, but it offers a space for engaging by it’s time bound nature. What is also interesting, perceiving message in video format ties recipients’ concentration from two sensory avenues, that is unique comparing to the other two formats included in my study.

Audio format has similar characterisations as the video format, with the exception of only involving one sensory avenue, hearing. However, using headsets for listening to the audio fictions in the workshop supported concentration by blocking other distractions, and the lack of visual input created more imaginary experience for the recipients than the video format or still images and mock-ups.

The downfall of still images and mock-ups lie in the participants' difficulties in concentrating on them. The textual format required cognitive power and excess concentration, while simultaneously not offering specific time or space for engaging with them. The still images and mock-ups involve one sensory avenue for digesting, leaving one crucial sense, hearing, open for distractions, which were plenty within the teams and in the whole space as well in our workshop.

In the *Manufacturing X* workshop different formats seemed to work out in very similar manner for all of the participants, creating a possibility to study their characteristics in the way I have done above. Sharing the same workshop structure and space, all of the participants were similarly affected by the spatial and construction based shortcomings. However, people are unique in the ways an individual person perceives, engages with and understands things; I conclude, that design fictions in use should be provided in multiple formats in order to ensure their effectiveness in a large group of recipients, but as some of the design fiction formats carry certain specific characteristics that do affect how they are perceived, it is important to calculate those characteristics into the workshop and design fiction design in the beginning of the process.

ROLE OF FORMATS

Insights 4 and 5 explain the roles of format and content for design fiction construction. As Coulton et al. (2017) describe, design fiction itself is a fictional world. I would declare, that the content of design fiction is the world itself and narratives and stories it provides. The artefacts in which design fictions are presented in are mere entry points for the world itself (Coulton et al., 2017).

The format is a tool that offers the affordance for perceiving the world, the design fiction. As Knutz, Lenskjold and Christessen (2016) describe in their case example, their format of design fiction acted as a *mediator for engaging with the game of make-believe*. When considering design fiction as a fictional world, I would rephrase the role of format of design fiction as the *mediator for engaging with the fictional world* that invites into the game of make-believe. Therefore, choosing the format in which the design fiction is presented in is a crucial point, where one should consider multiple aspects: the audience and their characterisations, what kind of affordances or entry points would serve them best? The end goals of specific use of design fiction, where does one wish the design fictions to take one's process to? The characterisations of the format in relation to the use situation and its specific characterisations, such as the ease of concentration, the amount of time to engage with the fictions et cetera.

SUPPORTIVE MEASURES

The insights 6 and 7 fall in the category of best practices for design fiction, and are not in the scope of my research objective directly. However, these insights behind our chosen actions were crucial for succeeding in using the design fictions, and thereby I wish to bring them up shortly.

The format of design fiction brought the world of our design fictions to the participants. The role of conversation after perceiving the fictions came to be the final digesting point for participants, where exchanging views on the perceived fiction widened participants' perspectives towards it. The joint digestion of perceived fiction acted as a seal for the engaging with the fictions, and the anticipation of conversation as a nudge towards it. This kind of activity can be utilized for reinforcing engaging with fiction, as a supportive measure for strategic use of formats.

Another insight generated from our experiment with the order of perceiving different format of design fictions (see p. 40). It seems, that adding an interactive yet simple and easy to approach method before diving deeper into more complex or unfamiliar methods acted as a warming up period, and created a smooth process for the team (see p. 53). This kind of action seems natural and self explanatory, but I feel it is valuable to point out as a supportive measure with such contemporary and speculative tool as design fictions are.

THE OUTCOME & FUTURE

My thesis aimed to explore the effect of formats for design fiction engaging. I have made findings and generated insights that define the role of format for design fiction as mediator for engaging, and defined characteristics for the formats I have studied in my thesis.

The work I have done is based on one case study, and is in no way exhaustive in any respect. However, I believe this work can act as a stepping stone for defining some of the detailed pragmatics and best practices for design fiction in the future. If the reader finds the insights in this work helpful, I feel I have succeeded in more than just one arena.



Picture 21. Workshop over.

THANKS

I want to give my sincerest thanks for my colleague Maria Huusko, and my colleague and advisor Yiyang Wu, for making this process fun and inspiring. I give my thanks for guidance to my supervisor Virpi Roto. My special thanks goes to my friends, family and my beloved husband who have supported me in multiple ways with my quest for completing the thesis.

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