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Abstract

In this paper we examine how ethical challenges can be approached in and through design fiction. To do so, we develop a new framework for analysis as well as creation of design fictions. Our main focus will be on design fiction within a strategical setting, connecting the notion of design fiction to the design process within large corporations as well as strategic design and decision making. Three cases are presented to support our findings. The final contribution will be the design fiction framework found in the conclusion.

Keywords: design fiction, ethics, design ethics, design thinking

Introduction

Up until the point of the actual implementation or launch any design can be essentially seen as fiction—a concept which through abduction speculates about a possible future state of the world[1]. A concept might be able to solve a given problem; however, often the concept needs expensive or still unfeasible R&D work for the designer to be able to conduct a thorough prove of concept. In recent years, design fiction has become a widely recognised conceptual tool to examine the usability, utility, and desirability of such design concepts— especially in regard to assessing the possible consequences of advances in information technologies. Design fiction is defined by Sterling[2] as "...the deliberate use of diegetic prototypes to suspend disbelief about change." This entails a focus on narrative elements, such

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[1] The design of business. Roger Martin. Harvard Business School Publishing, Massachusetts. 2009.

[2] Patently untrue: fleshy defibrillators and synchronised baseball are changing the future (Wired UK). Bruce Sterling. 2013 Wired UK. URL http://www.wired.co.uk/magazine/archive/2013/10/play/patently-untrue (accessed 12.2.15).

as diegesis and the suspension of disbelief; thus, as David Kirby argues[3], placing it close to previous notions of prototypes as 'performative objects'. This performative nature of design fiction enables the designer and the industry to create a discursive space, in which the proposed design concept can gain meaning, context and explain the yet unknown to future consumers and users.

Interestingly, previous research has acknowledged the connection between design and fiction. Even literature, close to or originating from traditional science fiction storytelling, has been experimented with as the basis for design fiction[4]. However, very few of the previous contributions on design fiction have had much focus on the role and potential of the narrative immersion provided by the fiction. One could argue this might be traced back to the strong representation of research conducted within research fields of art-based design and research through design, as opposed to fewer contributions from academic fields more traditionally inclined towards narrative and media analysis. We argue that the lacking narrative focus is not only a lacking nuance in the academic discourse of design fiction, but should be seen as a central aspect in the maturation of design fiction as a broader design approach, applicable both for critical and strategic design.

As pointed out in Vistisen, Jensen and Poulsen[5]: "A narrative opens for possibilities, and engages the reader, viewer, listener. And with engagement comes participation and empathy. A deeper understanding of the design and its purpose and possibilities within the world. This exploration is not based on some far-future utopia or dystopia, but on how we make the most responsible user experiences in the near-future." To be able to do so, design fiction needs to acknowledge its roots in narrative theories and methods. Furthermore, the importance of the social environment created through a new idea and its artefacts can be explored through literary fiction. This is stressed by Dunne and Raby[6]: "Rather than thinking about architecture, products and the environment, we start with laws, ethics, political systems, social beliefs, values, fears, and hopes, and how these can be translated into material expressions." Again, the focus is not on the design concept itself, but on the users and the changes, challenges, and possibilities the design might create.

In the following the notion of 'audience' is used to cover every kind of stakeholder in a given design fiction. This includes engineers, end users, and decision makers as well as casual viewers or readers of the particular fiction.

The Future is Now Diegetic Prototypes and the Role of Popular Films in Generating Real-world Technological Development. David Kirby. Social Studies of Science 40, 41–70. 2010

4 The Poetics of Design Fiction. T. Markussen, E. Knutz, 2013. in: Proceedings of the 6th International Conference on Designing Pleasurable Products and Interfaces, DPPI '13. ACM, New York, NY, USA, pp. 231–240.

5 Animating the ethical demand: exploring user dispositions in industry innovation cases through animation-based sketching. Peter Vistisen, Thessa Jensen and Søren Bolvig Poulsen. SIGCAS Computers and Society, 45(3), 323, 2015.

6 Speculative Everything. Design, Fiction, and Social Dreaming. Anthony Dunne and Fiona Raby. The MIT Press. 70. 2013.

By reviewing the last decade of research into design fiction, Lindley and Coulton[7] find the following criteria for something designed to become a design fiction;

"(1) something that creates a story world, (2) (…) something being prototyped within that story world, (3) [doing] so in order to create a discursive space."

This focusses on the world building, the diegesis, of the story-world. This part of the fiction is useful in explaining about the challenges of usability and utility a new design faces. That is, how a certain proposed design concept is usable and being used to a specific purpose inside a told narrative. Without diving into the narrative elements of these criteria, Lindley and Coulton seem to echo what Tolkien[8] explained as the affordances of the secondary world as a place:

"(…) which your mind can enter. Inside it, what he [the producer of the secondary world] relates is 'true': it accords with the ontological laws of that world. You therefore believe it, while you are, as it were, inside. The moment disbelief arises, the spell is broken (…)."

It is important to notice that disbelief comes from the world's inconsistency, not the apparent existence of magical dragons or a futuristic design. The designer who produces a design fiction to support how the audience understands the nature of said designed prototype needs to create a consistent, believable world, which adheres to the same basic ontology as our present here and now. This world may be futuristic or resemble the primary world as we know it, still, the prototype has to have an impact in the world to show how the design is meant to be used and how people might experience its use.

While we see the suspension of disbelief as a requirement for the success of a design fiction, Coulton et al.[9] look into plausibility and how design fiction can—wrongly—be perceived as truth i.e. a fictional design is perceived to be existing or at least in the making. This places Coulton et al. close to the subject matter of critical design, made popular by Dunne & Raby, which uses "...speculative design to challenge narrow assumptions, preconditions and givens about the role products play in everyday life." As such this notion of using fiction to suspend disbelief is in fact using narrative elements, but is not really focused on immersing the audience into a story. This leaves some of the points of utility and desirability unexplored. By using elements of storytelling this can be remedied. We argue for the need to examine design fiction through the idea of sub-creation as explained by Tolkien's notion of the secondary world, how it can be used as a tool to explore the consequences of design decisions in a strategic, rather than critical, design process.

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[7] Back to the future: 10 years of design fiction. Joseph Lindley and Paul Coulton. Proceedings of the 2015 British HCI Conference, ACM, 210-211. 2015.

[8] On Fairy-Stories. J. R. R. Tolkien. Tree and Leaf. UnWin Books. 36. 1971.

[9] Design fiction: does the search for plausibility lead to deception? Coulton, Paul, Joseph Lindley, and Haider Ali Akmal. Design Research Society 50th Anniversary Conference. 369-384. 2016.

Storytelling as the core of Design Fiction

Storytelling as it can be found in the actantial model by Greimas, the hero's journey as described by Vogler[10] or in the basic narrative curve model, can create a rather different and immersive space for emotions, drama and conflict.

As Wolf[11] explains it:

"(…) it is usually story that draws us into a world and holds us there; lack of a compelling story may make it difficult for someone to remain vicariously in a secondary world."

Design fiction naturally focusses on the bits and parts that make up the story world. If the audience is to gain a deeper understanding and meaning with the diegetic prototype, a storyline and with it plot-points, character development and emotions have to be found in the design fiction as well. Already in 1993 Brenda Laurel investigated the use of storytelling as a means to orchestrate response and understanding in her book 'Computers as Theatre'. One of her main points was the insistence on existential choices. While Laurel was comparing storytelling to computer programs, the idea of existential choices which have to be conducted by the protagonists within the design fiction still stands. If a prototype has to prove its worth, its utility and desirability, the protagonist has to be faced with 'real problems' or what corresponds to be 'real' within the secondary world.

This, in turn, is of great importance for our second addition to Lindley and Coulton's definition, namely ethical considerations based on ontological and discursive ethics as well as the rhetorical pathos, ethos and logos.

The secondary world is part of the rhetoric ethos and logos, creating the suspension of disbelief necessary for the immersion of the audience. To keep the audience immersed and involved, pathos is the next step. Pathos creates emotions which are needed to move the audience, to let the audience investigate the prototype within the world. Depending on what the designer wants the audience to experience, the presentation through storytelling and world building needs to adapt.

If we want the audience to understand a new design which will change their basic perception of a given topic, we will need a kind of storytelling that shows different perspectives in which the design will prove itself together with the challenges still evident in the diegetic prototype. The main concern for the design fiction should be on the ethos aspect, the building of trust from the audience in the design, in the secondary world and through this in the company or designer developing the design. The corporation on the other hand needs to respect the audience, preferably by employing user generated design processes and

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10 The Writer's journey. Christopher Vogler, Studio City: Michael Wiese Productions, 2007.
11 Mark JP. Wolf. Building imaginary worlds: The theory and history of subcreation. Routledge. 29. 2014.

supporting user generated content. If the design fiction features existential conflicts and challenges, the designer as well as the audience will be forced to reflect on ethical issues concerning the prototype.

Because of the tentative character of a prototype - made even more tentative by being a diegetic element of fiction - as well as the hypothetical disposition of the design fiction, the ethical issues have to be addressed through a dialogue between the audience and the designer. Løgstrup's ontological ethics as well as Habermas' discourse ethics can be used to attempt a construction of this meeting between possible worlds with the primary world and its inhabitants. The ethical issues within the secondary world might be solved or proposed through Kantian or utilitarian ethics. These approaches might also prove useful when the designer needs to determine the strategical decision making process.

An Expanded Frame of Reference

In the following section we propose six amendments to the current discourse of design fiction research. Our focus is on the narrative storytelling and how this can enable ethical reflections of not only critical, but also strategic use in the design process. The six amendments are:

1) Story-world (diegesis)
2) Prototype (artefacts)
3) Discourse
4) Ethical stances
5) Character development
6) Rhetorical appeal

Below we briefly discuss each element, before examining three different industry cases of design fiction through this frame of reference.

Story-world (diegesis)

The design fiction should present the world for the audience, not mimic (mimesis) the existing world. This includes decisions from the designer on how the world should be seen by the audience and which parts of the world are important and need the attention of the audience. Drawing on Auger's model of speculative futures[12] (see figure 1), the scenario presented through the story-world could show possible alternate presents or lost futures by showing how a given technology shapes the actual present. Framing the actual present with the past, enables the audience to recognise emerging technologies and how they over time become or are in the process of being domesticated. This enables the audience not just to reflect upon the emerging technology of the design, but also on the emerging cultural appropriation of the technology.

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[12] Speculative Design: Crafting the Speculation. James Auger. Digital Creativity (24)1. Routledge. 13. 2013.

Prototype (artefact)

The prototype is the proposed design, anything from a concept to a functioning prototype might do. The important part is, as Sterling and Kirby originally frame it, the diegetic aspect of the prototype. It is however important to note, that diegetic does not mean that the prototype (necessarily) only exists inside the narrative context of the story-world - it might exist as a working prototype or R&D object in the real world. The diegetic aspect of the prototype is in the fact, that inside the narrative, the prototype functions *as it is told*, not necessarily *as it currently works*. This is an important distinction, which reveals why design fiction can take a step further in its exploration than e.g. traditional design scenarios or real life user testing. It is the diegetic *telling* which determines what and how the utility, usability and desirability plays out, not the current technical status of the prototype. It has to fit into the story-world and needs to be its fulcrum. I.e. if the prototype were absent the plot would be unable to unfold and the characters unable to develop their potentials. This also entails the use of different media to ensure the immersion of the audience into the story-world. Coulton et al.'s example of how a design fiction can fool people into believing that the proposed prototype actually is being developed shows how the use of a transmedia
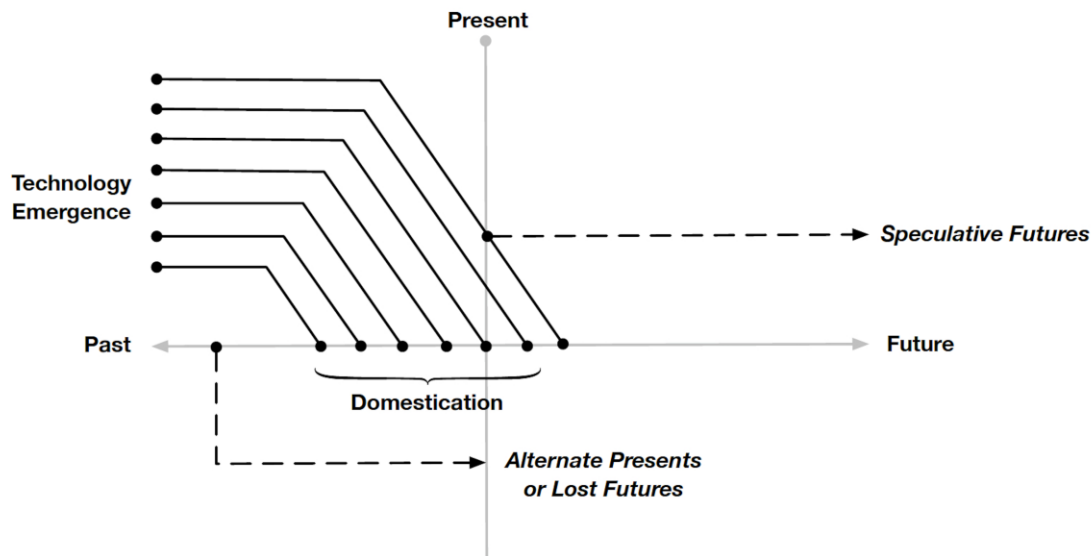
approach in the storytelling can provide further ethos to the prototype.

Figure 1: auger's model of speculative futures

Discourse

Auger's model of speculative futures shows the importance of the domestication process of emerging technologies and the framing of the alternate presents. This challenge is covered partly by the discourse developing and surrounding the new design through its

multiple manifestations. These manifestations, both real and implemented as well as the ones proposed and told through narrative, form what Gaver [13] labels as a 'design space'. Inside a design space multiple concepts for a new design proposal might exist. The way we reference these and use them as performative objects forms the multiple discourses of the design space. When telling a story involving diegetic prototypes within a story-world — which serves as the design space—the discourse should also be deliberately created and framed in the design fiction. The designer has to draw on existing notions and structures (metaphors) to enable the audience's understanding of the concept, directing the attention towards the design issues at hand.

Ethical stances

While the first three elements have to be present in any design fiction, the ethical issues might be outside the scope of the design fiction itself. Meaning, the creator of the design fiction might want to show the new design in an unambiguously positive or neutral perspective, leaving any obvious design related ethical challenges and problems to the audience to realise or resolve. However, as pointed out by Gaver[14], all design has a more or less build-in ontological policy, directed against proposing change to the status quo. If this is the case, any design fiction has to at least be subjected to some kind of ethical considerations. It can thus be argued, that the narratives of design fictions should effectively make their ethical stances explicit and make them part of the discourse surrounding the storytelling around the diegetic prototype.

If the design fiction takes an apathetic stance on ethical issues, the functionality and utility of the design prototype or system will be more important than user experience or user participation. Minor ethical issues can be addressed when a sympathetic stance is taken, in which the prototype or system is modelled mainly regarding what the users express as their wants. In this, the design fiction would still be unambiguously positive towards the design presented; enhancing the positive effects of the design especially regarding the users and their transformation of behaviour or life circumstances. Major ethical issues have to be addressed and shown when the design fiction takes an empathetic stance. Here, the audience will be presented for challenges, wicked problems, and other ambiguous changes as possible results of the prototype or system. In other words, the audience needs to draw their own ethical conclusions from the first two stances, being critical rather than adoring of the possibilities presented. The third stance could be likened to critical design, which shows utopian or dystopian futures in all its inglorious aspects. Still, we would like to maintain our position of seeing design fiction as a narrative which opens a discussion, embraces the immersion of the audience, and through this immersion enables the audience to understand the near-future possibilities and challenges inherent in the artefact and its consequences for society.

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13 Making spaces: how design workbooks work. Bill Gaver. ACM Press, p. 1551. 2011
14 What should we expect from research through design? Bill Gaver. ACM Press, p. 937. 2012

Character development

As with the ethical issues, the element of character development is needed the most in the empathetic stance. Here, the characters who use the artefact have to show what happens, how the context of the given task changes through the use or implementation of the design. Like the story-world, character development is one of the elements taken directly from the narratological theories embedded in design fiction. As Sterling[15] proclaims in his very first definition of design fiction, it is an intertwining of the designer and the author. In Sterling's case, his starting point was the science fiction novel which turned into a presentation of possible designs of the future. The novel explaining the future gadget and its implications for the people affected by it. This close connection between the storytelling and the design has to be acknowledged in the new framework of design fiction. As for character development, the artefact portrayed in the design fiction should be used as a plot device which enables the character to grow and develop.

Rhetoric appeal

The following elements originate from rhetoric methods and have to be considered as a way of engaging the audience. While ethos is important in a participatory context[16], pathos is needed to move the audience and favour the presented design. Pathos is essential in a sympathetic stance towards the design at hand. The sympathy of the audiences is likewise needed with regard to the apathetic stance, where the emphasis in the world building and storytelling is on the artefact itself rather than its users.

While ethos would be the starting point in any participatory design setting, in the case of design fiction it is the basic starting point for an empathic stance towards the presentation of an artefact. If the design fiction needs to explore major ethical issues, the audience has to trust the storyteller, the characters depicted and the story-world presented. The storyteller has to respect the audience in way of both showing challenges and possibilities, wicked problems as well as solutions achieved through the prototype. It is important to notice that ethos is given by the audience to the design fiction. In this way, ethos is the audience's way of suspending disbelief and fully engaging in the story-world. by believing in the narrator (designers).

The rhetoric element of logos is mostly of use in an apathetic setting, focussing on the system or prototype rather than its impact on the users. Logos should be seen as the world as it presents itself, though still with the deliberate perspective of the designer. Meaning, the design fiction has an intention—showing how the world would be like with the prototype in it. This intention can be shown by solely depicting the artefacts and how it works with minimal characterisation of the users. The logos appeal can also be seen as the narrative anchor to the present reality, outside the story-world, which allows the drama of the

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[15] Design fiction. Bruce Sterling. *interactions* 16, no. 3. 2009. 20-24.
[16] Tent-Poles of the Bestseller. How Cross-media Storytelling can spin off a Mainstream Bestseller. Thessa Jensen and Peter Vistisen. Academic Quarter 07. 243. 2013.

suspended disbelief to come to a halt, and return the audience to the present time and place. Thus, logos is the finite appeal of the design fiction, drawing focus back to the current state of the world, asking the audience which rational steps that are needed in order to either create or avoid the narrative of the design fiction.

We argue that through the deliberate choice of ethical and rhetorical stances, the design fiction will change its focus on what is presented to the audience. An apathetic stance will focus on the consistency and ontology of the world with the artefact in it. A sympathetic stance focusses on the behaviour within the same world, showing how the artefact helps changing an existing behaviour or task. The fulcrum is epistemological. Finally, with an empathic stance the design fiction closes in on critical design theory—not as the speculative challenge of our presumptions, but as the critical examination of utility, usability, and desirability of the discursive space created around the diegetic prototype.

An empathic stance needs to question both the ontological and epistemological implication of the artefact within the world and how it affects the user. With regard to the world building and how the artefact impacts users and surroundings, the main focus should lie on the responsibilities towards users and environment. We see these deliberate choices by the designer as necessary to address new challenges. Maturing design fiction is not just a critical design tool, but also a tool to strategically discuss which future narrative a field of business or consumer technology ought to take.

As such, depending on the audience and the artefact in question, the designer must choose an ethical stance for the way the design fiction should present the world with the artefact in it. Storytelling and world building should depend on the ethical stance and the intentions of the designer.

The Cases

In the following the design fiction framework will be further explained through the analysis of several cases. The first is a video by Google, announcing and trying to simulate the possibility of their then work-in-progress 'Google Glasses Project'[17] (Google Glasses) which in Lindley and Coulton's words is a 'vapour fiction'. The second is the decades old video 'Knowledge Navigator' created by Apple[18] to highlight their vision for the next decade of computing in the early 1990's. We use these examples to show two very different approaches to corporate design fiction within ICT. Finally, we show how design fiction in corporations can be found even back to General Motors' Futurama 'To New Horizons' from 1940[19] is to further support our findings.

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[17] Youtube 'Google Glasses Project' —
https://www.youtube.com/watch?v=JSnB06um5r4&t=24s — Accessed 26/01/2017.
[18] Youtube 'Knowledge Navigator' —
https://www.youtube.com/watch?v=hb4AzF6wEoc — Accessed 26/01/2017.
[19] Youtube 'To New Horizons' — https://www.youtube.com/watch?v=aIu6DTbYnog — Accessed 26/01/2017

The Google Glasses case is presented from a first person perspective with a male protagonist who starts his day with waking up and having his glasses on. The design fiction is shown as a two and a half minute Youtube film. The interaction with the glasses remains a mystery at the beginning of the storytelling, at 00:26 it shows to be voice activated. This is not consistent throughout the film, since at several points the glasses seem to 'know' what the user wants without the user doing anything—at least nothing that can be perceived by the audience. The protagonist has to solve different tasks during the day with the Google Glasses as his helper. He meets up with a friend and ends his day with playing the ukulele while having his girlfriend watching the same scenery as himself through his glasses, listening to him playing.

Focus is on showing how Google Glasses can help the protagonist going through his daily life. The glasses are presented as 'it is' in the world. No questions are asked as to security issues, ethical issues—as his friends are unable to see, what the protagonist is seeing or doing, e.g. filming or taking pictures—and privacy issues, just to name a few. While the glasses in mysterious ways seem able to understand what the user wants, the interaction parameters are unclear and again, never questioned within the world of the fiction.
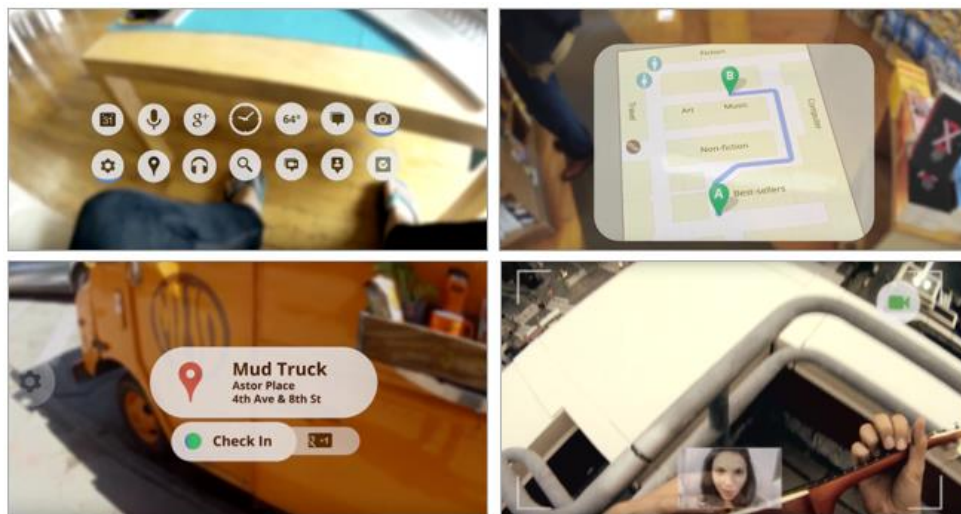
Figure 3: stills from google's 'a day with glass' design fiction video (2012)

This design fiction can be placed between the apathetic and the sympathetic stance. While it caters to the perceived wants of the user and shows how the user apparently wants to act, the protagonist is underdeveloped and never questions any of his actions or the interaction with the glasses. As such the design fiction has traits of a commercial rather than a world building story.

The Knowledge Navigator case is presented in the third person perspective and runs for five minutes and forty-five seconds. Already from the get-go the protagonist and his daily life is part of the world building. The artefact in the form of the navigator, a device much like a large mobile phone or iPad with build-in artificial intelligence and voice recognition like Siri, is the fulcrum of the storytelling. The protagonist, Michael, is an environmental scientist who is late for preparing a lecture and uses the navigator as a kind of secretary

who puts him in contact with other scientists, finds relevant papers, and on its own answers calls or tells Michael about upcoming events. The audience is at no time in doubt how the artefact works. As helpful as the navigator is for Michael, some situations show a few problematic traces. At one point the navigator relays information to the caller, Jill Gilbert, which indicates Michael's missing work discipline (3:10-3:22). While the navigator helps Michael to accomplish his preparation and to discover interesting correlations in climatic changes, it also reminds him about birthday parties and other upcoming events. In the last sequence of the video (5:23-5:35), Michael's mother calls him to remind him of a birthday cake and other meetings. The navigator tells her that Michael is not present, but the mother assumes that the navigator is lying to her, "Michael, I know that you are there."


Figure 4: stills from apple's knowledge navigator design fiction (1989)

This design fiction is fleshed out and gives some flaws and quirks to the protagonist as well as to the other characters within the story. The navigator itself seems to have a personality, entering a conversation without being asked or prompted. In the story itself certain ethical issues are addressed, like the growth of the Sahara and the diminishing Amazon rain forest. At the same time, the use of the navigator is not as such put into question. Still, a few challenges are shown: the navigator seems able to lie regarding the presence of other people; the navigator is able to expose other peoples flaws; while not overtly pointed out, the question and challenge of the uncanny valley is present since the navigator is depicted the same way as any other caller on the device.

Knowledge navigator as a design fiction can be placed between the sympathetic and empathetic stance. The artefact itself changes the way Michael works and interacts with colleagues. It makes access to knowledge and distribution of knowledge easier. By telling Michael's story, the design fiction shows how we should act and what kind of world we would want. The moment both Michael and Jill realise how they can use each other's knowledge and together create a new understanding of environmental changes, comes not only as an illumination for them but for the audience as well. Needs and wants of the users are equally addressed.

The third design fiction is 'To New Horizons' by General Motors from the year 1940. The film shows a futuristic 1960s with emphasis on how autonomous technology (a precursor for todays AI) would affect traffic and infrastructural development. It features a 23 minute long vision of the developmental possibilities of industry and science. This design fiction

is a clear example of an apathetic stance with a calm and authoritative voice over explaining the future of traffic, inner cities, nature, and farming. No protagonist is shown and pathos is explicit from the very start of the film, which shows waves fading into clouds and the male voice over explaining about mankind's progress through time and space. The clouds become land, hills and trees maintaining a strong emotional pathos, both in picture and the lilt of the voice over. Focus is on roads, which become more elaborate as the story continues. At 8:01 the film changes from black and white into colour and continues in colour through the remaining time. The colour indicating the future as seen by GM's engineers and scientists. Throughout the film everything presented is explained with positive connotations, connecting progress with safety, efficiency, and security.
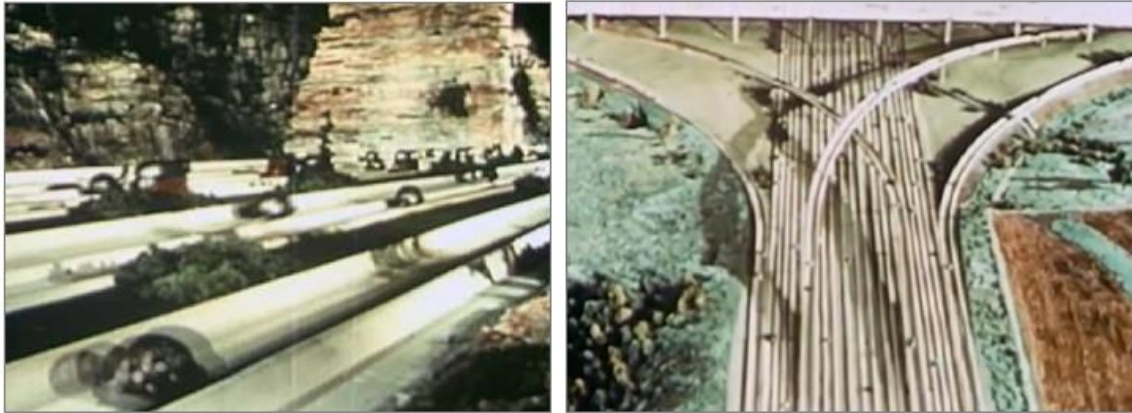
Figure 4: stills from gm's 'new horizons' (1940) design fiction, showing autonomous cars in cylindrical lanes.

This design fiction focusses solely on the ontology of the world, showing us how it is in the eyes of GM. It is a utopian place, but still recognisable. While the voice over points out the advances in industry, science, research, farming, and education, any impact of the infrastructural changes with regard to society as such is not addressed. Negative topics like slum or derailed industrial areas are mentioned only to explain how they will vanish because roads will be build to avoid those places. Leisure and recreation, elimination of congestion, safety for pedestrians are shown to the audience as the main results of the new technology.

As with the Google Glasses, New Horizons does nothing to show any kind of negative challenges regarding the future of the infrastructure, not even regarding a possible change in society's structure. The focus on the 'things', a word which is repeated several times, on the development of new, better things shows the priorities of the company.

While the other two cases were less clear in their relation to the different design fiction aspects, the GM case is clearcut in its message: the future will be bright, better, safer, and more efficient than now. No questions arise regarding the ontology of the artefacts presented, and no questions regarding the epistemology of the human behaviour and conduct are posed.

Surprisingly, many of the things and predictions came true during the ensuing twenty years. A few would need more than twenty years to be realised.

An Ethical Design Fiction Framework

With the above we would like to iterate two main points regarding the framing of design fiction as a tool for analysis and creation of possible designs. One, design fiction has to embrace its origin in fiction and with that narratological and rhetorical theories and methods. Two, the value of design fiction is not (just) for critical design per se.

Theories and methods within narratology, literature, and rhetorics can add a new level of understanding and prototyping to the strategic design process grounded in which narratives the near future of business and organisations should or could be. The ethical narrative enables the creation of a discourse in which challenges and problems can be addressed together alongside the responsibilities of the designer. By creating a story-world in which the prototype comes to 'life' its impact on people and the world can be shown and assessed - diegetically told from a particular rhetorical appeal with an explicit ethical stance. By using narrative elements, designers can create goodwill for their ideas. Or, if a design needs to be evaluated, a design fiction can create a basic understanding and points of departure for ensuing discussions and strategic decisions. Of course the rhetorical approach has its caveats. Pathos can turn a design fiction into a mere publicity stunt, a 'vapour fiction' with no real ground for critical thinking and reflection. With the use of design fiction the responsibility of the designer, the choices made in the design process, and the way they are presented and used in the story-world becomes more important. A fiction can move the audience, create and enhance emotions. The audience can identify itself with the protagonists of the story and the use of the artefact. This both for the good—ensuring discussions and reflection—or the bad—making sure the audience accepts the artefact without questions.

On the other hand, the narratological foundation must be transcended in the design fiction itself. Design fiction is not just fiction or storytelling. It has a purpose which lies distinctively outside of the story-world. Alongside this, the discourse created through design fiction is not just aimed towards proposing an ontology of 'what the world could be' or an epistemology of 'how people might perceive the world' but rather actively challenging the audience to question both the ontology and epistemology of the story-world, and its diegetic prototype(s). These questions can be guided by making the ethical stance of the design fiction explicit, guiding towards discussing apathetic, sympathetic or empathetic stances on how a company should act and what kind of world they want to present to their audience— and thus their potential future users.

Based on the above discussions, we now propose the following framework as our synthesis of what we would like to label as narrative ethics in design fiction:

	Design Fiction		
storytelling	logos + pathos	pathos + minor ethical issues and character development	ethos + pathos + major ethical issues and character development
world building	storyworld, prototype, discourse consistency (logos)	storyworld, prototype, discourse help (pathos)	storyworld, prototype, discourse responsibility (ethos)
	ontology *This is the world*	**epistemology** *This is how we act in the world*	**questioning ontology and epistemology** *How should we act?* *What world do we want?*
ethical stances	**apathy** system over user	**sympathy** giving the users what they want	**empathy** giving the users what they need

Figure 5: the design fiction framework.

This framework can be read vertical or horizontal, depending on whether to use it as a tool for analysis or synthesis.

The vertical reading is essentially what can be seen in our above case analyses, reading design fictions through their storytelling, world building and ethical aspects, and thus assess the strength and depth of its fundamental narrative. From the cases we were able to show how the different design fictions used elements from the columns, and how this use could show what ethical stance was prevalent in the particular design fiction.

A horizontal reading of the framework enables a comparative analysis of certain elements within the design fiction, and thus also reveal aspects about wether multiple design fictions from the same design space might show and evolve from e.g. showing the ontology and epistemology of the story-world, towards questioning it. Also, a horizontal reading could be used actively in the constructive design process, where the designer works from the apathy stance towards a deeper understanding of the situation and the users, found in the empathetic stance, as was shown in Vistisen, Jensen and Poulsen.

Finally, we will end with arguing that design fiction has matured enough to rise from pure criticism or art-based speculation, and is now ready to enter the strategic domain of near-future design. Here the ethical considerations will not just be fiction anymore, but potentially real user experiences for real human beings. Having experimented with, and opened an early low-cost experimental discourse from fiction might ensure that reality wont be stranger than fiction.