

# Leading Transformation in an Uncertain World: A Case for Strategic Speculative Design

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**Abstract:** Strategic speculative design is an uncertainty-oriented approach to perceptually bridge today with envisioned futures through knowledge-seeking design practices such as User experience design. As such, it may complement practices for facilitating transformative change found in management theory and innovation. Despite gaining importance in design schools, strategic speculative design however remains largely unfamiliar in leadership and management research and practice. We argue that this perspective may enable more active participation and dialogue with a variety of stakeholders about forthcoming or possible transformations, which may open for new or improved construction of opportunity in the present. Our paper is conceptual and offers a new model for strategic speculative design as an organisational change method relevant for transformation leadership and discusses possible managerial implications.

**Keywords:** Strategic speculative design, Digital transformation, Leadership, Organisational change, New capabilities

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## 1. Introduction

The purpose of this paper is to unpack the essential case of strategic speculative design (SSD) in leading transformation in an uncertain world. We argue that highly uncertain organisational changes and digital transformations require not only improving design/business practice, but also a better conceptual understanding. Why is this approach of interest for leading transformative change? To accelerate learning about practices of change and transformation, we need “participatory, reflective, and action-based forms of research that simultaneously work with *techne*, *phronesis* (practical wisdom), and *episteme*” (Sharpe *et al.*, 2016, p. 47). Given this learning orientation, we need more pluralistic and critical-constructive research to generate new or alternative and practical knowledge, found lagging in knowledge management research (Jevnaker and Olaisen, 2022; Olaisen and Jevnaker, 2023). One future-oriented and potentially useful, pluralistic approach is SSD. Despite gaining importance in design schools (Dunne and Raby, 2013; Hill, 2014; Bason *et al.*, 2020), SSD remains largely unfamiliar in leadership and management research and practice. We argue that speculative design could take both strategizing and organising practices into account in creative, smart ways, which deserves further exploration.

On this background, our research question is: *How can strategic speculative design enable transformative practices that may foster (or hinder) change endeavours in the context of leading sustainable organisations?*

Leading sustainable organisation can be understood from several change and sustainability orientations (see e.g., Jevnaker and Olaisen, 2022). However, transformative changes become fostered (or not) in current real-world or future practices. We argue that strategic speculative design offers a perspective not only for dealing with complex transformation as it occurs, but also for enabling new capabilities and a much wider set of opportunities or trajectories driven by digital transformation. In our paper we will utilise emergent theory from design and discuss this with illustrative examples of practices and open up for an improved understanding of SSD, in whatever ways it might emerge in real-world organisation.

In the following, we thus first introduce our design-oriented theoretical perspectives and the explorative methods taken, before delineating our key conceptual findings with some examples. We then propose a new model for SSD as an organisational change method relevant for transformation leadership and discuss managerial implications.

## 2. Theoretical Perspectives

In this paper we draw mainly from two theoretical literatures, the first is strategic and speculative design, and the other is complex strategising in transformative change: How could SSD be connected to strategy in connection to organising transformative change?

## **2.1 Strategic speculative design**

SSD is an emergent design field of interest for management and organisation studies and comprises two terms that are used within design research: Strategic design and speculative design, which we introduce below.

Strategic design encompasses all the core elements of designing from user insight to iterative prototyping, and applying it to solving complex/systemic challenges (Helsinki Design Lab, 2013; Hill, 2014; Holland and Lam, 2014). There is an alternative use of the term 'strategic design' relating to the strategic management of design to achieve business goals (Holland and Lam, 2014), a narrower definition compared to what we discuss here. Our understanding is the strategic use of designerly and transdisciplinary ways of thinking and acting in order to achieve or foresee alternative strategies for policy, a city, an organisation or a company including decision-forming and -making in turbulent and uncertain contexts (Meroni, 2008). Thus, there is some resemblance to the term "mission-oriented innovation" (Mazzucato, 2021; Hill, 2022) as a method to achieve systemic change.

Design is in essence, future-oriented, dealing with products and services that do not yet exist. Speculative design relies on creative speculation and critical thinking (Dunne and Raby, 2013) and propositions such as asking "what if...?" (Simon, 1967, 1996) and probing into what the future could and should be (Zimmerman and Forlizzi, 2014). It also entails design making at the boundaries of enterprises (Jevnaker, 1993, 2005), experimentation, action simulation, and action learning in the context of uncertain and often equivocal (Weick, 1995) organisation transformations, which can go in many unforeseen directions (Jevnaker and Olaisen, 2022). Its value comes from not only speculating about futures, but 'making real' possibilities and inspirations through sketching, prototyping, and crafting tangible and intangible objects and concepts. Thus, speculative design can happen in manifold forms.

## **2.2 Strategizing in Complex Transformative Change**

We seek to combine the construct of speculative design with a rich conception of strategy, and especially the notion of strategising as a practice and ongoing process, building on the practice turn within management studies (e.g. Tsoukas and Chia, 2002; Jarzabkowski, 2005; Sharpe *et al.*, 2016), we are sensitised by the process-based practice views (Tsoukas and Chia, 2002) for our study. Because strategising in complex transformative change affected by design work tends to be highly dynamic over time and place (Olins, 1989; Jevnaker, 1993, 2012), a rich process-orientation is relevant for identifying what can enable SSD that foster (or hinder) transformative change in real-world organisations.

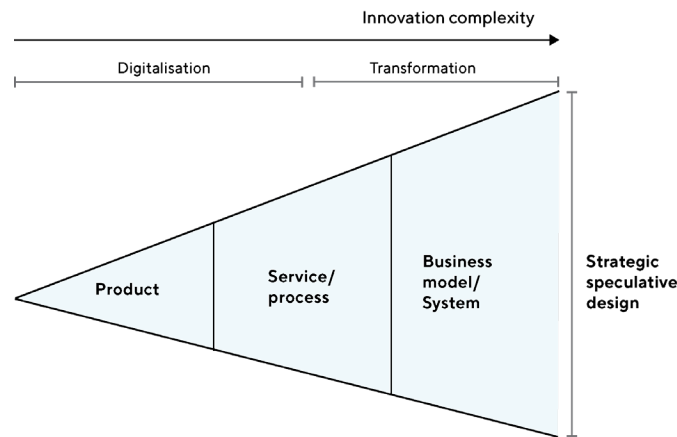
Furthermore, in this study, we were sensitised by key constructs from change management and digitalisation literature; in particular, that of digital transformation (DT). Kraus *et al* (2021) offers an overview of the manner in which digital transformation may be classified and defined from their systematic review process, where a common description is how DT and digitalisation differ from *digitisation*; the more trivial process of automating or converting from analogue to digital form (Hess *et al.*, 2016; Kraus *et al.*, 2021). In line with Hess *et al* (2016), we see DT as an area of complexity that may change not only products or services but entire business models and the way a company or organisation operates. As such, it is an important issue for management/leadership, and yet, in our opinion, it is often left at the table of IT or function staff.

One angle that is currently used by change management consultancies, is the *three-horizons* model (Baghai *et al.*, 2000), developed by partners at McKinsey & Company. This model distinguishes between improving performance and leveraging remaining value in existing core businesses (horizon one), and also considers working with new entrepreneurial ventures and emerging opportunities (horizon two). Horizon three contains ideas for profitable growth further on, such as pilot projects, research projects, or stakes in new businesses. The framework is regarded as a simple "structure" to assist how leaders can work with potentially all three growth horizons concurrently or over time without neglecting value-creation in the enterprise's core business. What is however underrated in this model, is the complex dynamics and interdependencies in-between practices on the three horizons, as well as inside each of them. Moreover, SSD could also work creatively with alternative profitable practices within a green or even de-growth perspective.

## **2.3 Combining Perspectives**

It is important to recognise the complex multi-faceted aspects of both design and strategizing in a highly uncertain, transformative change context. Past research indicates that strategic design such as in design-driven innovation (Verganti, 2009) unfolds through potentially tension-rich meaning-making and somewhat fragile designer/enterprise relations (Jevnaker, 2012). SSD can emerge in processes with hired designer groups and/or with groups of internal specialists and leaders (Bruce and Jevnaker, 1998; Svengren, 1998; Jevnaker, 2005, 2012,

2014; Hill, 2014). Although each design process might differ, there still seems to be some commonalities which we shall come back to. For example, SSD seems to involve collaborative and potentially co-creating activities as well as a variety of expertise and relations. Summing up and combining literature on strategic design and innovation through digitalisation, we created the following model for SSD in the context of digital transformation, adapted from Hill (2018), see fig. 1.



**Figure 1: Strategic design may encompass speculative designing at different levels and scales of innovation complexity from digitalisation to digital transformation (adapted by authors based on Hill, 2018)**

This model allows us to address speculative design in a transformative change and digitalisation context. It resonates with findings in past relevant research that innovation groups encounter multiple complexities and process dynamics (Van de Ven, 2017). Also, strategic design practices could move from product or service problem-solving orientations towards a wider scope of (re)configuring business practices and meaning-making (Jevnaker, 1993, 2000, 2012; Verganti, 2009; Keeley *et al.*, 2013) and be applied to systemic challenges.

### **3. Research Method**

In line with our explorative and conceptual aim, we have addressed SSD as a case of interest for transformative change in an uncertain world, informed by two main theoretical perspectives. We see this as a model paper, where we pursue to identify connections between constructs (Jaakkola, 2020) and to offer a visual representation (Gilson and Goldberg, 2015). It is not an empirical investigation, but we find it useful to draw on exemplary SSD endeavours to conduct our analytical construction. The examples or “mini-cases” are based on a mix of published material and conversations and observations over time with key actors that had a role in their execution. Thus, they were not selected at random, but were considered to be illuminating and relevant for the paper topic. Both cases have been presented publicly and are award-winning as particularly innovative (Kollektivtrafikkforeningen, 2021; DOGA, 2023).

We combined an experiential, narrative approach with visual mapping, fitting for the paper’s aim and material. The authors shared the work between them in the following ways: Both authors proposed the case of this paper and equally developed its conceptual ideas and analytical discussion. Author1 selected and elaborated the two main examples in section 4, drawing on recent research, participant observations, and intimate knowledge of several real-world digital transformations that included complex user interaction design and innovation work. Sensitised in in-depth past strategic design/management and innovation research, Author2 proposed theory-informed aspects of the analytical categorising and elaborated elements for the new model. Both researchers developed and discussed all parts of this paper’s study.

### **4. Exemplary Practices**

Our case is SSD as a transformative change practice. As a subject matter this is still understudied beyond a few exceptions (see e.g. Tseklevs *et al.*, 2019; Sustar, Mladenović and Givoni, 2020), and thus we will make our presentation more concrete and insightful by elaborating two examples from recent real-world transformative change efforts from Norwegian settings. The first example is an exploration into an alternative strategic vision for digital money issued by a central bank, and the second example is an algorithmic real-time pricing model for public transport. These exemplary SSD endeavours are interesting and relevant because they offer rich experiential and revelatory aspects of working with strategic design to promote and enable digital

transformations in real-world organisational contexts. Below, we provide a brief overview of the case vignettes before proceeding with analytical discussion.

#### 4.1 Digital Money as a Platform for Sustainability

This project explores how central bank digital currency (CBDC) may be used as a platform for achieving sustainability goals and public sector innovation. CBDC is electronic money made available to the general public as a form of digital “cash” and therefore a public alternative to account money issued by private banks. The strategic design work executed in this project was done in the context of a master thesis (Sæstad, 2022) where interaction designer Glenn Sæstad found that central banks were currently exploring digital central bank money and focused on how digital currencies may make the financial system more efficient, secure and innovative. The UN climate panel and the public sector call for more sector-wide action and instruments to be able to address the sustainability goals and reduce the effects of climate change (IPCC, 2023). Thus, Sæstad set out to work in parallel with one of the working groups in Norway's central bank and engaged in dialogue with them before, during and at the end of the work. When the working group mentioned they were going to use futures methods (scenario techniques), then Sæstad decided to also follow futures method, but opted for working strategically with transformation to explore multiple paths for a desired future where digital money is construed as a platform for SDGs (Sæstad, 2022). The exploratory design work resulted in various concepts for what CBDCs could be used for in the public sector. Further, an alternative strategic vision was proposed for investment in smart digital central bank money in collaboration with the rest of the public sector, where the sustainability goals were set at the centre. The vision contained four strategic principles and a collection of service concepts which illustrated what such a vision could lead to (Sæstad, 2022), see fig.2 for exemplification of service concepts related to the strategic principles. The service concepts acted as opportunities for dialogue and ponderings on possible futures.

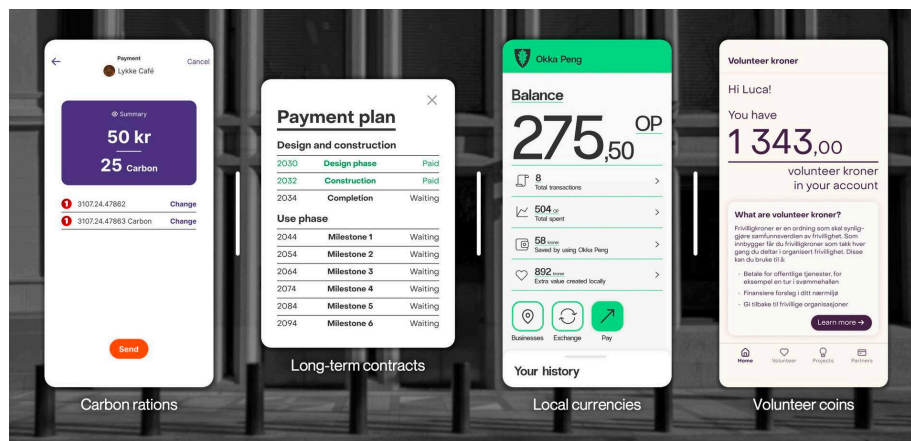


Figure 2: Using strategic speculative design to explore concepts built on top of CBDCs as a platform for achieving Sustainable Development Goals (SDGs) (Sæstad, 2022, used with permission)

#### 4.2 Flexible and Adaptive Pricing Models for Public Transport Travels

Public transport ticket pricing is mostly fixed and set by travel zones with rebates based on subscription models (e.g. monthly passes etc). The rebate models incentivise high-frequency travelling, but provide little incentives for occasional travellers, for instance those working parts of the week from a home office or would prefer the bike when the sun shines. At the public transport authority *Kolumbus*, in the Stavanger region, interaction designer Mathias Molden started looking into alternative pricing models. He particularly saw that the zone structure in some cases turned out to be unfair, and that the price you paid per kilometre and per trip varied greatly. He saw that this did not necessarily motivate sustainable behaviour. A model where you pay for what you actually use was also more suitable for new local forms of mobility (on-demand public transport and city e-bikes) where there is a higher cost per trip compared to mass transportation. The team developed algorithms and various iterations of user interfaces for a new and dynamic price concept. Algorithms are hard to grasp and to communicate, thus, a visual pricing calculator was developed on top that acted as a communication tool both within *Kolumbus* and with stakeholders such as city and county politicians. At the time, there was little awareness within *Kolumbus* of what people might end up paying if they lived just outside zones in combination with infrequent travelling patterns. Thus a visualisation of these scenarios and examples were important to illustrate the user perspectives as input to general strategy. In conjunction with this work, design interfaces for

a new digital payment solution was designed and embedded into the real time transport app that Kolumbus developed from scratch. Currently, the system is being tested by 700 users as part of a Norwegian research council funded project in collaboration with the Institute for Transport Economics and Ruter (PTA for Oslo-region).

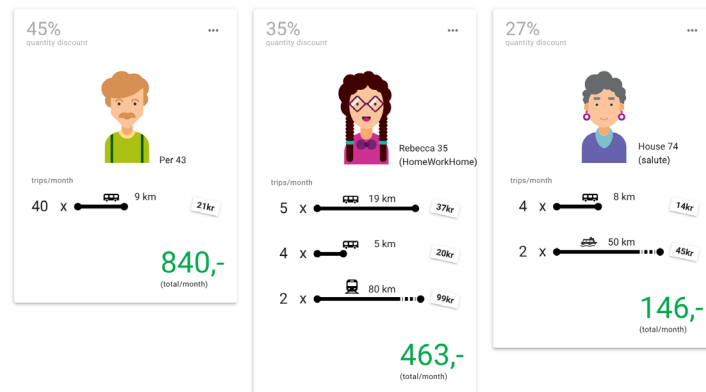


Figure 3: Interactive pricing calculator for different travel patterns (screenshot translated by Google Translate)

## 5. Analytical Discussion

In this paper we asked: How can SSD enable transformative practices that may foster (or hinder) essential change endeavours in the context of leading sustainable organisations? Based on our study of existing research and examples of potentially SSD practices, we identified several triggering puzzles, which we will discuss in this section.

### 5.1 Some Puzzling Aspects From Practice

The two examples introduced allowed us to identify some aspects emerging in SSD:

The first example, the diploma thesis 'DSP for SDG', outlines a new direction and radical ambitions for the use of digital central bank currency potentially creating added value for society at large. The project was to some extent beyond what the central bank perceived as their mandate, and they traditionally looked towards private sector innovation for inspiration and had not considered how they could support public sector and municipal innovation. Thus, it was important to anchor the innovation proposed in the project in broader national policies and strategies (Sæstad, 2022). The project explored how design can play a role in transforming society on a financial level, a context where design rarely plays a strategic role resonating with design-informed research on innovation (Keeley *et al.*, 2013). Interestingly, the project also contributed to communicating the monetary system more broadly. Sæstad reflects in his thesis that the complexity of the topic may be a democratic problem. The concepts and the strategic principles helped clarify for stakeholders what money is and how CBDCs *might support* public sector innovation if we take SDGs into account. Furthermore, the project did not start from a specific technological point of view, but rather from use cases and several possible future business models and systemic solutions, which helped envision new practices.

In our second example, from a regional public transport company, the wider scope for digitalisation and innovation was central. The interaction designer was part of a forward-leaning team which had proved itself with well-received, award-winning and innovative digital products and new mobility solutions. The team leader shared the idea of a smarter knowledge base for ticket prices. When county politicians commissioned Kolumbus to reintroduce the 'punch cards' (multiple trip rebate cards) in 2018, the team decided to look beyond the instructions and explore underlying purposes: "To make public transport more attractive for occasional travellers". This was interpreted to be in line with their ongoing exploration. Thus, rather than launching technology from the 'paper era', they continued with the dynamic payment model. Through a long term design process, the team moved between diving deep into background information such as legal frameworks, and designing strategy and artefacts to communicate the transformation - and the designing of finalised solutions and products/services - including running beta tests with functional solutions and actual users.

From both examples, strategizing in design practices occurred in and through *particularities* of strategic mapping and reconfiguring processes, whether done by design experts in collaboration with established companies and/or a mix of design/management teams, or other people engaging in design (Olins, 1989; Jevnaker, 2000;

2005; Hill, 2014, 2022). Why actors engage in a speculative design may thus not be as simple or straightforward as the three-horizon change model could suggest. Rather than simply “a structure” of three distinctive growth horizons, we may instead view them as a dynamic complex of transformation and renewal practices. More specifically, speculative design practices can present some interrelated common challenges and potentials, which deserve further discussion.

## 5.2 Towards a Model of Strategic Speculative Design

Strategic design typically includes transdisciplinary creativity and imaginary processes engaging with *wicked* or ill-defined problems (Rittel and Webber, 1973; Buchanan, 1992), as well as navigating innovation processes with multiple uncertainties. In particular, SSD involves working with both visible and invisible complexities (Jevnaker, 2005, 2012), where the invisible has been referred to as “dark matter” (Hyde, 2012; Hill, 2014) and traditionally beyond the scope of design. Drawing on existent sensitising literature and some comprehensive real-world examples, we identified four puzzling aspects that could foster potentially transformative change practices. These are condensed and illustrated in fig.4, below.

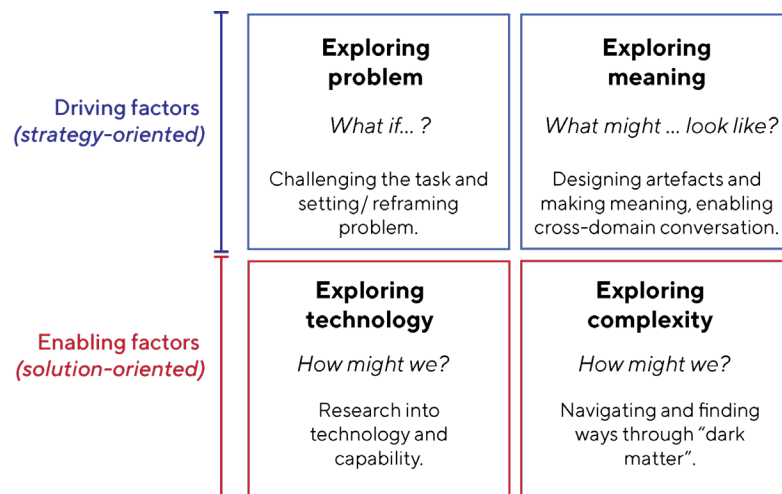


Figure 4: Pieces of the puzzle of SSD in transformative change practices

The four aspects in fig. 4, comprise two *driving factors* that are strategy-oriented towards creating alternatives for possible, plausible and (potentially) desirable futures (Miller, 2007; Dunne and Raby, 2013) and creating meaning and purpose (Mayer and Roche, 2021). They are explorative and answer values-based and reframing open-ended questions, such as “What if digital central bank currency was a platform to achieve sustainability goals?” (from example 1) or “What if we could offer a more fair pricing model that incentivises sustainable travel patterns?” (from example 2). In exploring meaning, several design artefacts were made in order to examine what such a future might look like - including design at different levels of complexity: products, services/processes and business models/systems (see also fig. 1).

Then, there are also two *enabling factors*, which are more solution-oriented, and answering questions such as how the strategic dimension may be achieved with both technology, capabilities and through exploring and finding ways through the “dark matter”(Hill, 2014, 2018), i.e. all the invisible yet necessary complexity such as legal frameworks or contracts between organisations (Hill, 2014, 2018). These enabling factors can also feed into and foster (or hinder) the strategic drivers, such as when moving into realisation and implementation, where objects will have to change based on what is possible in the present. Yet it is important to distinguish the enabling from the driving factors in transformation, because the enabling factors are in flux and might change rapidly what will be possible (high degree of uncertainty). Whereas the strategic oriented factors of creating meanings and alternatives (Verganti, 2008) are future oriented in nature and could sustain (Jevnaker, 2012) while the enabling factors, in particular with new and disruptive technologies, might change quickly.

In sum, we found that there are some key recurrent activity aspects – what we for simplification have called “pieces of the puzzle” of SSD. These four aspects are not strict categories, sometimes they may be overlapping (technology may be complex, in the case of AI for instance). And with “exploring complexity” we refer not only to legal or contractual matters but sustainability aspects (e.g., in short- or long-term) and dynamic contextual forces in human and business interaction in their habitats such as ecological factors (Jevnaker and Olaisen, 2022). The pieces do not unfold in an already ready-made recipe. Rather, they are recurrent *ingredients* in SSD



processes. By introducing such a sensitising framework, we also make clear that while technology and jurisdiction may be enablers (or barriers), it is in the dynamic strategising practices that alternatives and visions can become created and visualised for different alternative futures and directions that practising groups, enterprises, or communities in society may move towards in concurrent digital transformation. It is here we might create dialogue on what the future should be so that we may use it to steer by (Miller, 2007).

## 6. Conclusion and Managerial Implications

In this paper, we identified four speculative design practices that are strategic oriented or solution oriented. Given that strategic speculative design can enable new productive practices in both imagining and performing transformative change, it seems essential for leaders to personally collaborate in, and encourage such processes, even if they start out open-ended and with no defined technology as a starting point. Despite many complexities, an important implication for managers is actively engaging in the speculative design inquiries and thus eventually learning to work with the dynamics of SSD in the particular transformative context with potentially shifting use patterns. To participate and co-create *hands-on* is essential for not only becoming more familiar with, but also learning to work creatively with new strategic opportunities and perspectives. We also find that the SSD perspective can enhance and contribute to literature on digital transformation and how to deal with complex, future-oriented challenges.

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