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BeChange: Exploring constitutions of a transformative design practice

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Abstract

The world is in the middle of a climate crisis. The way we humans live – our lifestyle – is a major contributor, and some individuals and companies feel obliged to take actions to reduce their environmental footprint. In focus in this paper is a design-for-change initiative named 'BeChange', aiming for long-term positive behavioural change and a sustainable lifestyle. The original project vision was transformative design, to crack the code between mental models, human behaviour and sustainability. The project approach consisted of a number of co-design sprints with different participants and orientations to ensure that a variety of mental models of sustainability and change and preferences for actions and interactions were explored. This resulted in a digital service that helps users cut their carbon emissions while gaining higher levels of hope and lower levels of climate anxiety, resulting in more motivated users and more durable sustainability lifestyle changes. The conclusion of the paper is that important constitutions of a sustainable design-for-change practice are as follows: to not prescribe user behaviour in the design, but to co-create action possibilities; to involve a lot of different stakeholders and explore both mental models and action possibilities co-creatively; to continuously ask how the design could be valuable to both prospective users and to the planet; and to deal with authentic sustainability that addresses social, economic and ecological change simultaneously.

Keywords: Transformative design, Co-design, Sustainability, Behavioural design, Design for change

Introduction

The current calls for action aimed at the climate crisis have probably escaped few people. All around the globe, devotees are striving to transform the way humans live – our lifestyles – into more sustainable choices and behaviours. Designs and designers may for some not be the first resource that comes to mind for such transformations, as design has generally been associated with developing an idea or solution to be more visually pleasing or with filling the world with more inept things (Papanek, 1971). In contrast to such views, this paper focuses on BeChange, a one-and-a-half-year mission of co-creating a digital service for companies and organisations that want to inspire customers, employees and future recruits to act more consciously to reduce their environmental footprints. The overall objective of this paper is of furthering knowledge within design for change and the constitutions of the "hows" and the "whos" of a transformative design practice through exploring the motivations, actions and insights of the BeChange project.

Design used to be a subject of visual and material form but has gradually over the years expanded into different practices also tackling previously non-design-related areas and issues. Some more recent design approaches are, for example, aimed at a profound purpose, i.e. that "pulls 'design' out of the studio and unleashes its disruptive, game-changing potential" (Brown & Katz, 2011, p. 381). Design thinking (e.g. Brown, 2008; Brown & Katz, 2011), service design (e.g. Stickdorn et al., 2018) and transformation design (e.g. Bruns et al., 2006) are said to address a wider range of issues and areas than previously recognised as falling within the area of design. In these approaches, there seems to be general agreement that creativity and collaboration are good things. However, there is also critique, for example, the notion of tokenism, i.e. that some actors participate in the process simply to justify a human-centred process via

minor roles or activities (Lee, 2007). There is also a risk of ontological drifts of users' insights in the process, as the search for feasible technical solutions or financial gains takes the upper hand (Robinson & Bannon, 1991). As designers in more traditional design approaches "own" the user representation, such user insight drifts may include flip-overs that turn the result into something nobody values. Additionally, there has been criticism for new design approaches being employed based on design consultancies' drive for selling work rather than for driving transformation (Kolko, 2017).

A challenge for prospective transformative design practices is also the notion of the user, as there are no existing users before the potentially disruptive game-changing solution has been launched. Hence, there is a need for transformative design practices to explore how they could cultivate prospective user insights. The designers' role in a co-creative approach becomes as a process guide or facilitator, who through different means enables participating actors to explore a design situation (Ehn, 2008; Sanders & Stappers, 2008). In such explorations, there is a need to address both prospective user values as such and the user's mental models to identify important triggers for behaviour change (Thaler & Sunstein, 2009). To do this, there is also a need to explore with many different prospective users. In striving to foresee future solutions, designers have the responsibility of not occluding, i.e. blocking, hindering or excluding (Redström, 2017). Hence, it is essential to also address situated design norms (Wikberg Nilsson, 2021; Wikberg Nilsson & Jahnke, 2018), i.e. not to occlude prospective users by presupposing who they might be or what they might value in the specific design situation.

Even though some of the aforementioned approaches are somewhat new as concepts, they have a design tradition to build upon. Transformative design, for example, has links to action research (Lewin, 1947), is a forbear of both participatory and co-design (e.g. Schuler & Namioka, 1993; Ehn, 2008; Sanders, 2002) and embraces egalitarian notions of change, innovation and emancipation. Bruns et al. (2006) state that transformation design goes beyond problem-solving, as it involves creating solutions for current pressing challenges, such as health issues, impacts of climate change or an ageing population. In this respect, it deals with everyday life choices and organisations aspiring to transform how they connect to individuals. Service design, on the other hand, has the prevalent focus centring on value creation, via redesign and the co-creation of resources by customers and other actors (Wetter Edman et al., 2014; Vargo et al., 2015). Online services are, on the one hand, seen as a way of cutting costs and adding customer value and on the other hand as a way of making customers co-creators of the services they use (Bettencourt et al., 2002).

With all this in mind, relevant questions to address are the "hows" and "whos" of a transformative design practice. This paper seeks to expand upon the previous works cited by exploring and proposing new insights of co-design for sustainable change.

Literature review
The aforementioned design approaches generally focus on understanding users' attitudes and/or behaviour. In this sense, the focus should neither be on who the user is nor on what kind of material or immaterial aspects that they appreciate, but rather on creating interplays and transitions between appreciated actions and through them understand behaviour and create designs (Redström, 2017). Some thoughts on how to achieve this and what to avoid in practice are outlined in the following sections.

Human-centricity might for some seem like a rather new design approach. However, the field of action research (AR) embraces several of the now [re-]discovered human-centric principles and practices. One significant contribution in terms of design for change is by one of the AR founders, Lewin (1947), who emphasised the relevance of human experience and *doing something with*, rather than *looking at* this

experience. Lewin stressed explorations of both parts and the whole as situated in context. He argued that one can never fully understand a system without trying to change it. The concept of 'situatedness' is detailed as awareness of meaning and representation in relation to participating actors, things and contexts (Haraway, 1988). In this view, it is vital to embrace a critical perspective about how meanings are created in order to be able to live in meaningful futures. This involves real-life activities, in which many actors exchange knowledge of the situation at hand and take responsibility for nodes and directions in both the material and the immaterial sense (Haraway, 1997). Such an approach relates to the reflective practice described by Schön as indeterminate zones of practice:

> *"Actions that function in three ways: [1] to test new understandings* […] *[2] to explore new phenomena* […]*, and [3] to affirm or negate the moves by which the practitioner tries to change things for the better* […].*In these instances, we can think of the inquirer moving in the situation, 'talking back' to the inquirer, triggering a reframing of the problem, a re-understanding of what is going on."* (Schön, 1995, p. 25–26)

In relation to material and immaterial meaning, Argyris and Schön (1975) developed their action theory based on 1) espoused theory that expresses the users' idea of how they think they should behave and 2) theory in use that controls how they actually behave. The crux of this theory is that it is not enough to ask a user how they should behave in a particular situation. To understand human behaviour, one must understand and observe a larger and wider context than the concrete situation one intends to change. Hence, there is a need to know more about how people behave, i.e. intuitively rather than sensibly, and through responsible design of nodes and directions guide people toward what are seen as better actions (Thaler & Sunstein, 2009). In this view, a good design choice consists of the principles of exploring incentives, understanding mappings, carefully designing action possibilities and defaults, providing feedback, expecting error and structuring complex choices through careful design. Humans are always subject to various biases that can inform non-rational decisions. In this sense, a good design choice can support behaviour change. Morewedge and Kahneman (2010) describe human thinking as linked to system 1, automatically and intuitively generated representations and based on prior knowledge, background, values and norms. The more energy-consuming system 2-thinking in this respect only starts when system 1 cannot process what is happening. Usually, human inclination is to rely on system 1 thinking in most situations and only apply a small percentage of system 2. By understanding more about how people usually behave, empathic design can contribute to understanding more of how design can support behavioural change (Lidwell et al., 2010). Similarly, Eyal (2014) states that human behaviour can be changed through design. However, he emphasises that the main question is whether the solution will improve the user's life. A key question to regularly readdress is hence how will it be valuable for prospective users?

Lewin (1947) suggested both laboratory and field experiments of change, including both experiments and concrete observations in the actual context to understand the user in the system that is to be changed. Jungk (1987) and Jungk and Mullert (1989) proposed future workshops for understanding the users' context in both current situations and their dreams of what could be. Future workshops are a kind of probe transmitted into the ordinary world to explore users' experiences and situations. The method can also be seen as design spaces or cooperative learning processes, where actors have the opportunity to both question and explore current understandings and practices (Sanders & Westerlund, 2011). Such generative sessions can involve a variety of stakeholders in co-creation activities that both lead to a greater understanding of the users in the situation and also give the participants a greater commitment to the matter as such (Brandt et al., 2008). Such generative sessions have the potential of clarifying both the explicit and implicit understanding that participants have (Sleeswijk Visser, 2009). Moreover, the user

experience is not limited to the actual interaction but contains the whole experience of representations, aesthetics, layout, interface and/or physical interaction (Garrett, 2011). In this sense, it is important to define more than just the actual interaction.

Traditional design practices have been criticised for focusing on designing for the user rather than with the user (Sanders, 2002). The co-design approach is in this respect a change of mindset, considering all people as possible contributors to design, as long as the right tools are given for them to act. The rationale for a human-centric design approach is defined as developing a deep understanding of the user's needs, desires and values to meet these with design (Brown, 2008; Brown & Katz, 2011; Stickdorn et al., 2018). Stickdorn et al. propose that the difference in approaches is more in which methods are used than the basic principles themselves: "Whatever you design, you must always understand the needs of users, you always work iteratively" (Stickdorn et al. 2018, p. 88). Whatever approach is chosen, the notion of user insights is critical. Robinson and Bannon (1991) describe ontological drift as the translation of meaning that occurs between first user insights and goes through different actors' translation in the process into the final delivered solution that either satisfies user needs or not. The latter is hence an example of user insights drifting away as too many stakeholders re-contextualise the insights into their understandings and belief systems. The reasons for such design drifts may be that designers often conduct activities without involving all stakeholders, hence ending up "owning" the user's insights. Some reasons for this are lack of time and doubts around how end-users might experience interacting with other actors. There is also the risk of an applied "I-methodology", which Akrich (1992, 1995) explains as un-reflected design practices.

The designer originates from his/her own understanding and experiences and develops a 'script' that guides the user to a certain behaviour, role and interaction. If the designer fails to recognise important user insights, the risk is that some might not subscribe to the design results. In this, it is important to think design after design. Latour (1987) developed the actor-network theory (ANT) as a critique of designers not taking responsibility for what happens after the design process, in implementation and use. Relevant in this context is the concept of services, as service designers usually have to consider what happens in implementation and use and the whole customer journey. Services has been defined as intangible and heterogeneous interactions, which are co-produced by receivers/customers and providers and which are predominantly local (Gersung & Resengren, 1973). Digitisation is said to be one way of developing existing services by transforming the explicit and tacit knowledge that both providers and customers have into digital yet tangible interfaces and interactions. In such transformations, different forms of co-design practices are seen as imperative in understanding value and desirability amongst both customers and users to finalise a successful service design solution (Steen et al., 2011). The opportunity to develop a service through digitalisation is said to reform the opportunity to create increased value for both receivers and providers and to create outreach beyond the local market (Yoo et al., 2010).

Over the last decades, the service sector has expanded, paving the way for the design field to emerge through creating and formalising practices, processes and tools towards the design of services (Stickdorn, et al., 2018). Service design can be outlined as a merger of industrial, interaction, graphic- and participatory design together with knowledge from e.g. service marketing, innovation, human work science, psychology and system engineering (Segelström, 2013; Wetter Edman, 2011). Other approaches focus on value creation, through a redesign and co-creation of resources by customers and other actors (Wetter Edman et al., 2014). The difference is a reconfiguration of socio-material constellations, as long-term relations between actors necessitate new action patterns and value creations. Vargo and Lusch (2016) articulate a need for outlining the mechanism of coordination and cooperation involved in the co-creation of value-in-context. The significance lies in creating several levels of value for individuals, organisations and society. A

challenge is that service design involves complex combinations of both explicit and implicit knowledge that receivers and providers need to structure and integrate to reach a successful digital service design solution. Online services are generally seen as a way of cutting costs and adding customer value but can also be one way of making customers co-producers of the services they use (Bettencourt et al., 2002).

The BeChange project

The BeChange initiative was initiated as a social innovation start-up in 2017, based on a drive to contribute to efficient lifestyle changes for both companies and individuals. The three founders have different backgrounds as a mental coach, ecologists/environmental scientists and business developers. In Sweden and certainly other countries around the world, environmental and climate issues have gone from engaging a few people to becoming something that most people are aware of, whether they act on that awareness or not. The current drive for sustainable development calls for major transformations, both on an individual and societal level, to reach United Nations (UN) climate goals. Goal 13, for example, deals with climate action through improving education, awareness-raising and human and institutional capacity on climate change (UN, 2020). How we humans choose to live our lives and the choices we make on an ordinary day affect energy resources. Sustainable lifestyles are, however, often depicted as individual sacrifices rather than gains (Ilstedt & Wangel, 2014). Positive future visions are necessary to be able to motivate a change of human behaviour. The BeChange founders noticed that the media debate on environmental and climate issues largely focuses on the negative aspects of climate change, i.e. as future disaster scenarios and the negative consequences of having to abandon "all good things in life". Carrying such crude concerns might lead to diminished hope or zeal for engagement and with that the drive to engage in solutions (Ojala, 2007, 2013; Scheier & Carver, 1992). Unprocessed climate anxiety and change fatigue might in this sense impede the behavioural changes needed to affect the climate in positive ways.

The BeChange entrepreneurs explored the idea of delivering a global company service that makes it easier for employees to create a greener and more positive sustainable lifestyle customised to their needs. The overall vision was expressed by one of the founders as "a genuine belief that this is possible, to be the change here on earth" (BeChange founder, May 2020). In August 2019, a core design team was formed, consisting of the BeChange founders, four design consultants (1 web developer, 1 designer, 1 project manager and 1 business designer) and 1 design researcher. Other actors were involved in different phases throughout the process. The vision was initially defined as design for change – to develop a service that contributes to changing human behaviour towards more sustainable lifestyles. The mission was to design an easy-to-use and inspiring digital service concept that tackled both mental models and sustainable lifestyle changes. The overall tactic was iterative co-design sprints, consisting of exploring desirable sustainable lifestyle changes, a viable business model and feasible digital solutions for different platforms in a mix of methods aiming to crack the code between mental models, human behaviour and sustainability. A method, as a simplified representation of a process, seldom accounts for the messiness that often goes on or the values and bias that are assumed. A method "unavoidably produces not only truths and non-truths, realities and non-realities, presence and absence" (Law, 2004, p. 143). The co-design sprint approach was seen as both dynamic and flexible. It is a condensed design process, moving forward through iterations, aiming at co-explorative learnings through experimentations, in which failure should happen fast, and prototyping is seen as vital for understanding what the end solutions must accomplish (Knapp et al., 2016). Such intense processes should in this sense be iterated several times to explore different themes, experiences and concepts to gradually develop an understanding of what values the solution should contribute to. This also associates with the previously mentioned indeterminate zones of practices (Schön, 1995), aiming to test new understandings, explore phenomena and affirm or negate thoughts, ideas or concepts through user involvement.

In summary, the first design sprint dealt with understanding the scope, developing an understanding of the user experience and use context and through insights developing a first minimally viable prototype. The second design sprint consisted of refining understanding of user experiences and use context through user testing and value propositions to develop a feasible prototype. In the third design sprint, all user insights were gathered into a final desirable, viable and feasible digital service concept. Each design sprint involved different actions and actors. Project activities were documented in different ways, mostly through the material being developed in the workshops, by taking notes and photos and some additional recordings of users' interaction with prototypes. Activities were analysed through both quantitative and qualitative means. The online surveys and tests for example provided quantitative data as "how many" experienced different things. Other activities, for example, the co-creative sessions, provided qualitative data on what values participants had that were jointly analysed in the core co-design team in terms of understanding what was going on. The phases overlapped as many activities were initiated in parallel; however, the core team had regular sessions aiming to define insights and discuss what future actions needed to be taken (Image 1).

Findings

The first design sprint was mainly internal, based on the core project team's activities and insights that the founders brought from previous activities. Current services and applications were explored to identify different aspects that participants thought would be good for the final solution. Through both material and visual means, user representations, user actions, service features and content, such as goal-setting, feedback and human behaviour in general and detail were explored (Image 2). The materials from the generative sessions were seen as important starting points and were used as means for exploring and discussing values in the core team. The practical transition the user would have to make in lifestyle changes, as well as the mental transition into positive future visions, were central in exploring the whole concept and its details. Various metaphors for the user journey were discussed and used as a base for developing a graphic profile and a first user interface.

Image 1: The first design sprint iteration.

The second design sprint was more external and focused on understanding user experience and customer value. The prototype was developed with a few additional features and then tested with prospective users (Image 3). During the tests, two people were in the room with the users, and others watched the tests on

a screen. The reason for this was to share insights with the whole core design project team. This iteration provided insights that the conceptual digital service provided valuable actions to take for reaching a sustainable lifestyle but that it was difficult to understand how to set initial goals, i.e. what actions contribute to a sustainable lifestyle? The activities exposed different and sometimes opposing values and preferences, such as some wanting to being able to set short-term goals for the month or year and then change them and others wanting more long-term goals for the rest of their life.
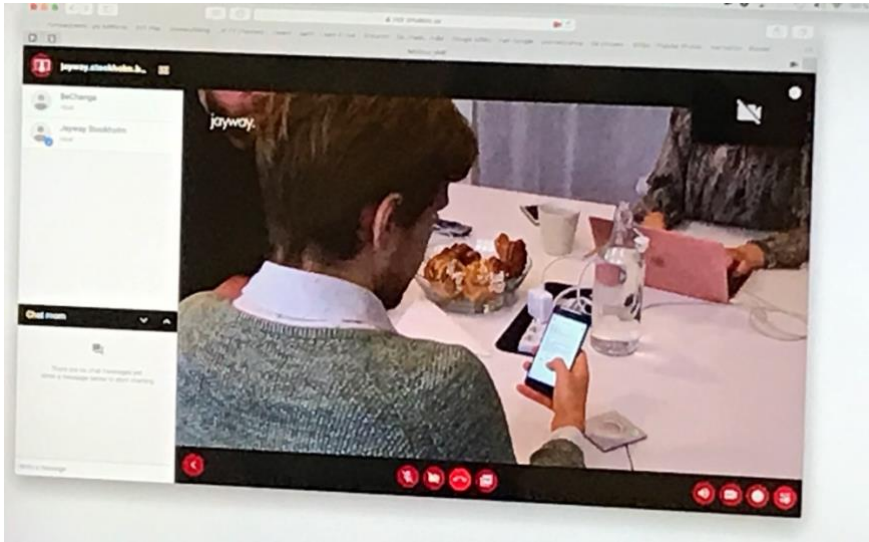

Image 2: Screen view of user test of prototype 1.

Parallel sessions with company managers led to insights into the prospective customer being a medium-sized company in low-impact industries. These participants, however, saw the BeChange concept primarily as a tool for employees' well-being rather than as a service for the company's sustainability performance. This produced the insight that BeChange can be valuable both for individuals who want to change their lifestyle and for companies as part of both their human relations (HR) and corporate social responsibility (CSR) activities. Different self-assessment features were explored through online tests with prospective users. These included reacting to value statements such as "I don't see conflicts between a sustainable lifestyle and how I live" and "I think humanity will be able to make the changes needed for sustainable development" for the mental model feature. In parallel, the sustainability educational service content was developed further through processing the textual content and developing video content in sessions with instructional designers. The service content was advanced and explored with several potential users and went through a couple of iterations before the final design sprint.

Based on user insights gathered in the process, the graphic profile was redesigned. A "buddy" was developed as a character who prompts user interaction through nudging. The character was defined to be "serious" yet "friendly" and was created to represent the core values of BeChange: positive sustainable lifestyle changes. In addition, it was designed and experienced to mix stereotypical representations of a woman/female and man/male to make all potential users feel included. It was created as an answer to user needs for a feature that gives some kind of feedback. The buddy should care about sustainability in general and support the user in particular. The traditional green climate/nature-connoted colour was in the graphic profile complemented with other colours to also communicate moods such as positivity, well-being, harmony, action and hope (Image 3). A new "works-like" prototype was developed. It had limited functionality and did not include all features yet had the central content such as both mental and lifestyle features and the ability to adjust some of the settings.
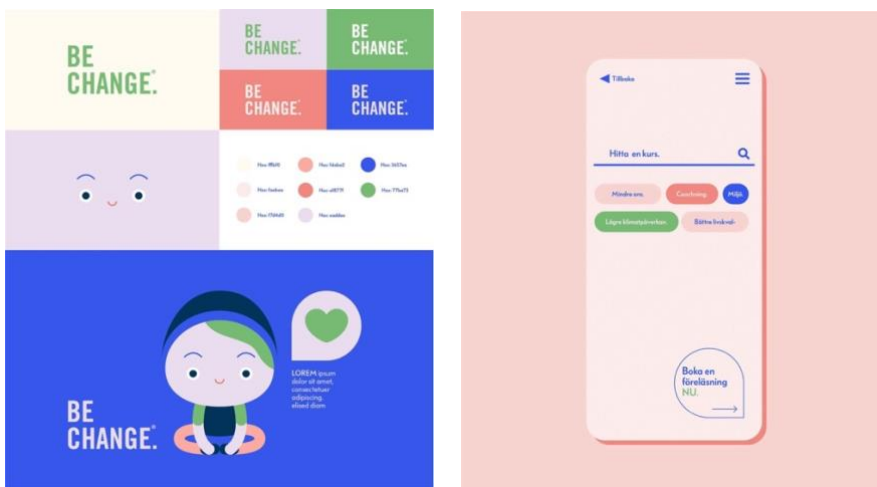
Image 3: The BeChange graphic profile and user interface v.1. Graphic design: Laura Di Fransesco.

The final design sprint focused on forming all insights into a final design. This phase involved more co-learning of what the concept needed to be to fulfil desirability, viability and feasibility. Value propositions were summarised based on the previous insights. The customer was identified to be active in a low-impact industry, e.g. the IT or service business with 200–400 employees of equal gender distribution and most employees younger than 45 years. The main pain points for a BeChange user would be that climate change is too slow and there is limited time to make a change. The BeChange service was seen to add authenticity to the company's sustainability work, which was understood as crucial for preventing accusations of "greenwashing", building a strong brand and making employees feel motivated. A summary of the value proposition can be seen in Image 4.

Image 4: The BeChange value proposition and a mobile version of the BeChange service. Interface design: Laura Di Fransesco & Patrik Juteståhl.

Subsequently, the content was re-configured into a prototype with both text and video content to satisfy different uses and users. It was also re-arranged to better follow the user journey of an initial weigh-in and gradually developing both insights and actions to take for change of behaviours through educational content and goal-setting for eating, living, consuming and travelling (everyday/vacation trips) (Image 5). An additional user test invited users to log in and test the service online and provide feedback. This gave insights that the concept was experienced as playful and interactive and that both prospective customers and users found it valuable and inspiring in terms of contributing to a transformation into sustainable lifestyles. The final test run also provided great results, as the participants reduced their climate footprints by half during the two months and stated a positive outlook on humanity's ability to handle the climate crisis.

> "The whole concept is inspiring, as it facilitates the need for more sustainable lifestyle changes. It is also inspiring in its colours, animations, illustrations and expressions – and 'the buddy'! It is different compared to other solutions, and it is so important to realise that sustainability should not be boring, it should be inspiring." (Participant May 2020)

Image 5: The final online version of BeChange — Sustainable for you and the climate. Graphic design: Laura Di Fransesco.

As the BeChange project has now been finalised and the service launched, some participants shared their insights of the process, their learning and the results. It seems that all the core co-design team participants, founders and designers, had different ideas of the project before and after and also developed their understanding of design for change as a consequence of all interactions:

> "An insight is how important it is to test, test, test – not just speculate about ease of use and how things are experienced. It was valuable but complicated with many parties that should be coordinated and all the knowledge that should flow between all activities and actors." (Founder, May 2020)

> "A key insight is that it is so important to involve users. I knew this beforehand, but it has certainly been manifested in this project. The scope should perhaps have been smaller, but at the same time all of the participating users and all of these tests certainly made the solution into what it is. It has been

stressful from time to time, but overall the co-creative sessions contributed to good communication and transparency in the project team, which is important." (Designer, May 2020)

The final prototype was launched in September- November 2020 in a sort of final "dress rehearsal" with 16 users and the BeChange coaches. All in all, the users were satisfied with the learning experience and had great results in terms of decreasing their individual environmental footprints. One participant summarised:

"[BeChange] made me go from thoughts to actions. I feel better now that I have started the transition to my new clime-smart life." (Participant after final test run, November 2020)

Discussion

The motivation behind the current study was to explore the constitutional aspects of a transformative design practice, the "hows" and "whos" of participation and user involvement in design for sustainability and behavioural change through exploring incentives and insights of the BeChange project. The following sections aims to define such insights.

The project vision was of a transformative design practice to develop a service that contributes to changing human behaviour towards more sustainable lifestyles in a positive manner. The mission was, however, more of a service design practice to design an easy-to-use and inspiring digital service concept. The overall approach was iterative co-design sprints, consisting of explorations of desirable sustainable lifestyle actions, feasible technical solutions and viable business models, through explorations of user experiences and use contexts. The overall endeavour can hence be seen as drifting back and forth between transformative vision and achievable mission. In hindsight, the constitutional aspect of the design sprint approach supports Schön's (1995) description of indeterminate zones of practices: to test new understandings (need for sustainable lifestyles), to explore new phenomena (through co-creating action possibilities and triggers for a digital service) and to iteratively affirm or negate the moves (iterate the design to develop a deep understanding of both physical and psychological triggers for change). The co-creative design sprint approach is hence seen as a key factor in the design success. The latter refers to both the positive user experiences of interacting with the digital service and their actions taken for a successful reduction of their climate footprint.

A vision for a digital service for change of human lifestyles with non-existent current solutions or users imposes a need for a deep understanding of the potential user's insights and values (Brown, 2008; Brown & Katz, 2011; Stickdorn et al., 2018) to be able to meet these with design. The diverse potential stakeholders and users involved in the BeChange project thus confirm that a fundamental aspect of a transformative design practice is authentic co-creation. This also resonates with the risk of user insights drifting away during the process as more financial gains take the upper hand (Kolko, 2017; Lee, 2007; Robinson & Bannon, 1991). Additionally, it resonates with the risk of an "I-methodology" (Akrich, 1992, 1995). The current approach was more of a "we methodology": a will for identifying how we could change behaviours into more sustainable lifestyles. There is thus a need for approaching the mission with a "we methodology", co-creating iteratively with potential users all the way, providing them with a sense of ownership of the design. Some insights are further outlined below.

First*,* I propose that a constitutional aspect of a transformative design practice, however messy it might be, can be the "hows" of simultaneously and co-creatively addressing mental models and human behaviour and social, economic and ecological sustainability. The BeChange mission was initiated with the incentive of transforming human behaviour into more sustainable lifestyles. The first motivation was thus purely

"eco-logical", i.e. based on the logic of saving the planet. The incentives were of course also "eco-nomical"; the founders wanted to be able to do this for a living, and the design consultants wanted their bills paid. However, they all had the sheer motivation of realising social, economic and ecological sustainability. The co-creative process contributed to more social "eco-creative" incentives, i.e. explorations of user insights of positive human lifestyle changes through the overall service concept and its interactive platform. In retrospect, the BeChange core design team might have anticipated some of the challenges a transformative design practice yields but perhaps did not realise the messiness of sometimes conflicting needs and preferences, many interactions with different actors and a lot of ideas, imperatives and relations they sometimes saw as difficult to manage. This echoes the challenges of current design problems being complex, crossing boundaries of several organisations, stakeholders, producers and user groups and that the design solution must meet diverse demands and expectations (Redström, 2017). In relation to Lewin (1947), the ambition was to identify triggers for change in human behaviour in more sustainable ways: understanding how people behave and, in line with Thaler and Sunstein's (2009) tactics, through design nudge them into what is co-creatively identified as more sustainable actions.

Second, I propose that a constitutional aspect of transformative design for change is how the prospective customers and users are involved in the process. The iterative co-design sprint approach paved the way for the solution being inclusive and human-centred. However, it became so much more than the design of an online service's interface and its interactions, as it involved enquiries into what different values of sustainable lifestyles might be and how they might be accomplished through design. This meant realising that it is neither merely a matter of putting people first nor of finding out what technical solutions or business propositions could best fit the concept. Rather, it was involving many different actors, exploring all of these factors iteratively through co-creation, that ensured a successful outcome. Users were at the centre of the process, it was however not one homogeneous user representation but several diverse perspectives and understandings that contributed to the success. This also included not prescribing user behaviour through the end solutions' action possibilities but co-creating how people would like to be prescribed into such roles and responsibilities.

Third, I propose that a constitutional aspect of a transformative design practice is that the outcomes cannot be discussed as "the design" or even "the final result". We can neither say if the digital service will contribute to sustainable lifestyle changes, nor if it will take one month or 10 years for potential users to make such changes. Rather, the BeChange service can be seen as what Haraway (2004) describes as a cybernetic organism, a creature of social reality as well as a creature of social fiction. This resonates to the ANT (Latour, 1987) of not being able to define beforehand what it will become once it's out there. For this reason, design-for-change practices have to deal with the "hows", as in taking responsibility for nodes and directions through co-creating and testing material and semiotic meanings rather than prescribing actions. It also deals with the multidimensional connections between the "whos": the designers, the things, the users and the planet, relating to how human beings and things interact in the world and the meanings they create of the same. The key question, in this case, was asking how this will be valuable to prospective customers, users and the planet and prompting this question repeatedly.

The original BeChange conceptual idea is now launched as a unique service experience that supports both organisations and individuals to bring about long-term positive behavioural change and sustainable lifestyles. Naturally, more research is needed to confirm and identify more constitutions of design-for-change practices. In that respect, Papanek's (1971) now legendary words that designers are a dangerous bread, little more than producers of future garbage, should be seriously considered. In summary and by contrast, I propose that a constitutional aspect of this particular project was its capacity to invite altruistic

action, performed to satisfy a worthy issue or demand, through the implementation of a core co-design-for-sustainable-change approach. In short, it dealt with authentic sustainability, achieved through a genuinely transformative co-design practice.

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