

Re-futuring through fostering collective stewardship in public spaces

Sarah Fjelsted Alrøe
(201905161)
Aarhus university

ABSTRACT

How can we handle the major crises of our time when technological solutions and consumer persuasion does not seem to work? Through the argument that the answer is in fundamentally changing our society and how we think, I explore this possibility in small scale through engaging people in re-imagining local public spaces. In this pictorial, I document the development process of Ka'Vi, a concurrently physical and digital tool for collective ideation and change on a local scale. The project grapples with questions of accessibility, barriers to entry and non-hierarchical organization, and in evaluation shows the complexity of engaging in actual social contexts. The project further highlights how the rationalistic tendencies of IT are actively in conflict with making meaningful change with and within technology.

INTRODUCTION

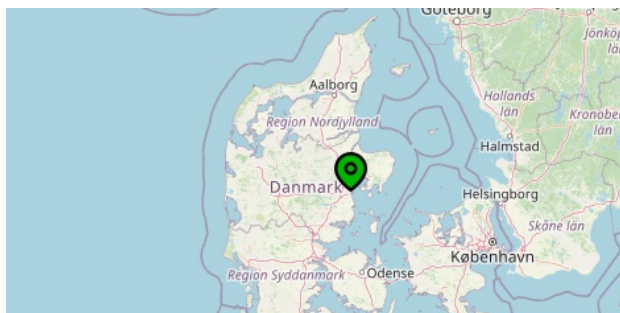
Recent years have seen an increasing focus on the unsustainability of our current society. This has resulted in a corresponding increase in research into sustainability in and through technology. Since the idea of “sustainable interaction design” was introduced by Blevis in 2007 [4], much work in HCI has focused on how design can lead people to sustainable lifestyles. Yet, it appears we are going nowhere fast. While we are waiting for green technologies and user persuasion to somehow solve it all, yearly global emissions keep increasing [14], and with that, the global average temperature [20]. As research has observed, climate change increasingly appears to be a challenge not solvable by technological solutions or by changing consumer behavior [17]. Bringing a perspective from outside the imperial core, Escobar argues that this unsustainability is an essential feature of neoliberal globalization, so deeply ingrained that it shapes how we reason about the world [10]. Inspired by indigenous Latin American movements, Escobar calls for an ontological design turn to help rebuild different ways of thinking and being, outside the structures that are. But pushing for such monumental changes



to society requires a population both capable of and willing to work towards such change. As Knowles et al. recognize, the structures of current society have conditioned us to feel helpless and anxious about change. What the authors suggest to address this is to design for a desire for change, for an empowerment of people, and to make them capable of engaging in activism [17]. I share this sentiment, and argue that a good place to start is within the local spaces that we navigate every day. So, *How can we empower people through engaging them in rethinking and stewarding the local spaces that surrounds them?*

In this report, I document the development of project Ka'Vi, a tool for engaging people locally in the stewardship of the public spaces surrounding them. The project consists of an easily reproduced sign, linking a physical space into a corresponding virtual ideation space. Placed in a public space, the sign encourages people to sketch their ideas on the environment through a window, and to continue this ideation process asynchronously in the virtual space.

This project aims to explore questions of *how change in public spaces is accomplished, how to engage people in new forms of relating through change, and what role technology plays in this approach.* The project work is situated in Aarhus, Denmark, and is thus based exclusively in a Danish city culture.



RELATED WORK

With the worsening climate crisis creating growing public awareness of the unsustainability of current life in the imperial core, human computer interaction, interaction design and adjacent fields too have started grappling with these issues. In 2007, Blevis introduced the notion of Sustainable Interaction Design [4], which has since then, along the broader notion of Sustainable HCI (SHCI), grown hugely in interest. In his original paper, Blevis argued for interaction design to be attentive to its material effects, working towards designs that encourage sustainable use, reuse and disposal. Blevis exemplified this through a series of consumer product design cases, demonstrating upgradability, heirloom status, obsolescence and augmentation of other products.

This focus on sustainability through driving consumer behavior appears to have stuck: In a 2021 literature review of the field of Sustainable HCI, Hansson et. al. apply the united nations sustainable development goals as a way of highlighting tendencies in the field. The authors show a strong focus on SDG 12, *Responsible consumption and production.* As the authors summarize, this displays a tendency within the field to regard sustainability as a problem with the solution of persuading individuals to reduce their resource consumption. [12] This is reflected in the tendencies of the industry, where sustainability more often than not is framed as pushing consumers towards more sustainable options in their otherwise unquestioned consumption, e.g. how buying a new electric vehicle is considered

a green choice. As summarized by Knowles et al., this focus on persuasively adjusting consumption is far from enough. Instead, actually addressing climate change would require a radical reduction in supply of fossil fuels, which to be achieved politically, would require significant societal shifts. Among the ways the authors suggest achieving this are by designing for a desire for change, empowering people in understanding their position in complex issues, and engaging them in activism to actively push for change. [17] Similarly, Dourish argues that this marketization of sustainability reduces environmentalism to moral choices, disproportionately focusing consumer action over the roles of corporations and states, while placing sustainability in a context of competition instead of collaboration. Dourish argues we should move beyond this limited approach, and suggests using information technology as a means of connecting people through their common interests. [7]

As documented by Hansson et. al., SHCI has seen a shift away from focusing the individualised consumer and towards communities of practice and political impact. An example of this is what Hso and Nourbakhsh term Community Citizen Science, a subset of Citizen Science, not centered on scientific progression but on giving these communities greater influence through a scientific backing. The authors exemplify this through their work, *Smell Pittsburgh*, in which distributed collection of wind data, pollution sensing and personal reports were used by the community to rally for stricter regulation of air pollution in the city.[13]

Looking beyond HCI, we see these qualities reflected in long standing online communities, such as the right-to-repair movement, collectively building knowledge and tools for repair, to break the industry imposed cycle of planned obsolescence, or the FOSS movement doing much of the same on a software level [16].

As has been thoroughly documented, bringing technology interventions into a community is not without risk. In their work with information technology in permaculture communities in the United States, Norton et al. point out how many aspects of, and assumptions embedded in, IT may run directly contradictory to community values. Being products of, and in their common form supporting, unsustainable practice the push for an increase in the use of IT may seem abhorrent to the community. Where IT may default to being proprietary, using authentication, and forcing obsolescence while extracting value through its users, a community that needs extendability and anonymity and refuse the market will either outright reject that technology or be forced to compromise on their values. [21] Similarly as documented by Robinson et al. in their work with Irish islanders to build community radio, failing to recognise the power relations within a community and between it and outsiders may similarly lead to rejection [22]. All this to say, SHCI for empowering communities requires a care and sensitivity not often displayed in our field.

Finally, it is worth returning to the question of how SHCI understands sustainability, and whether the commonly held values of our field may be in conflict with it. In *The limits of HCD*,

Thomas et al. argue that Human Centered Design in its explicit anthropocentricity fails to recognise the environmental and socio-political impacts that a design may have, and that this is inappropriate for a world in climate crisis [23]. To remedy this, the authors suggest reimagining HCD (and its related ISO standards) to explicitly acknowledge consequences beyond the human. I would argue a similar self-examination of our (perhaps somewhat reductionist) understanding of *community* could be meaningful for exploring sustainability through and in communities.

In summary, while Sustainable HCI has traditionally seen sustainability primarily as a question of consumer persuasion, a broader perspective is developing including empowering of citizens in organising and collectively appealing for policy change. This points to a broader question of how we understand terms such as *sustainability* and *community*, and what the values that underpin our work mean for it. This project dismisses the idea of sustainability through consumption and attempts to provide

practical insights into what kinds of community or relating information technology can help bring forth.

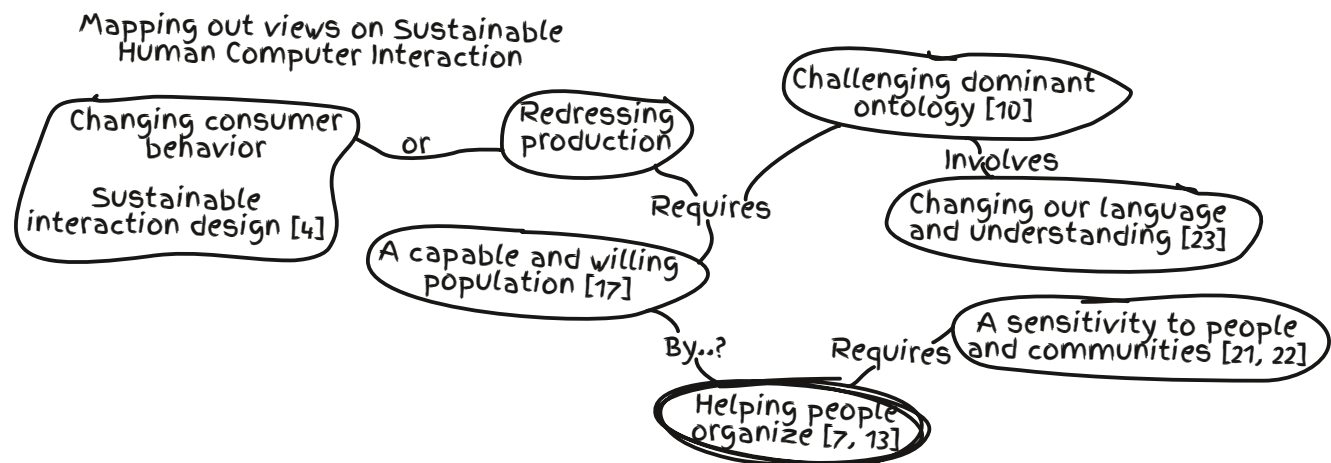
DESIGN PROCESS

In this section, I document the design process of the Ka’Vi project from early considerations about sustainability and change to the final concept and implementation.

Vectors for change

A story of a composting

What does it take to make change happen? This was the central question on my mind, as I began my design process. To approach my question, I started with the hypothesis that making invisible aspects of our society visible could be an instigator of change. What would happen if I were to completely avoid food waste with the worst case scenario being composting. Over the coming months, I implemented this as an experiment in living [19]. The insights I gained from it were quite significant, from the simple to the complex:



First, a regular danish diet does work for this, as all food must either be completely eaten or compostable. Composting meat and dairy carries with it a high risk of foul smells and attracting rats. This pushes towards a vegetarian, possibly vegan diet, to actually succeed.

Second, the experiment brought a significant change to the character of the regular trash in that it stopped smelling significantly. Further, these bags weighed very little as they mostly consisted of single-use plastic packaging. In the experiment we composted 3.5 kilos of potato peels, apple cores and cabbage stems each month on average. The experiment highlighted the ridiculous amounts of frankly unnecessary plastics used, and how the super market made it practically impossible to avoid.

3.5 kilos of trash avoided for a two person household each month. What would it mean for our waste management if everyone in the municipality did the same? Disregarding that our food consumption and waste patterns are likely not average, with a population of ~360000 [6],

the municipality could see a reduction of 8 500 tons of residual waste a year. That's more than 10% of current waste collection [18]. This would mean a significant reduction in the energy required to transport it, and would make for a less smelly and hazardous trash that would likely incinerate better due to a lowered water content, and make the plans for food waste collection irrelevant. On a societal level, such a development could start wider discussions about plastic waste and waste in general. On a social level, the broad availability of high nutrient compost could push more people into gardening. While this broad scale composting would release of some amount of greenhouse gasses like methane, this could well be offset by the changes in production and transportation it would afford.

In practice though, this hypothetical could not exist. Looking beyond people with dietary restrictions and our general cultural obsession with eating meat, broad scale composting in cities is simply not practical. Current architecture does not make space for someone in a small 5th floor apartment to compost or make use of it. Composting would then have to become a community practice organized in shared outdoor spaces, where limited knowledge and care could be disastrous. Instead, we have waste management infrastructure that makes the trash invisible as soon as it enters the chute or underground container. This invisibility actively makes it difficult to understand the scale and nature of trash and to consider changes such as the one explored in my experiment in living.

Re-framing for community change

Through this experience, the project drifted from a question of helping people experience individual change to building the capacity for change within communities of people. Recognizing the above mentioned issues with composting, my object for/of change too shifted from trash to public spaces. This shift was instigated by my daily commute by bike, which passes between an open field and an empty construction plot. Sharing looks with my fellow commuters all struggling to conquer the wind, I wondered *why can't we just decide to plant a*

Homemade compost bin



Community compost in Aarhus

Has suffered from uninformed use



windbreak by the bike track? This led to two new questions: *What are the relevant stakeholders and steps in making such a change?* And *What communities can or do exist for implementing such change?* To answer these questions, I contacted the technical and environmental services of the municipality (Aarhus Teknik og Miljø), and Fællessteder, a project of the Research Center for Social Urban Modeling (SUMO) aiming to strengthen citizenship within social housing.

what if we planted a windbreak here?



New ways of relating with Fællessteder

On the 22nd of march, I had a zoom call with Morten Nielsen from SUMO to learn of their approach to strengthen citizenship. As Nielsen tells, associational life is doing as well as ever. The issues are that a significant amount of people do not partake in associations, and that that associations in their structure prescribe certain ways of organizing and acting. So if we recognize and build associations as the only way

for people relate to each other, we're missing a lot of people and a lot more ways of relating. So how else can we conceptualize relating? Nielsen highlighted how communities arise around getting things done. People attempt to address some shared issue in their lives, and come together in rectifying it. This may not lead to communities or associations as we understand them, but is still a highly meaningful way of relating in itself.

Municipal vectors for change

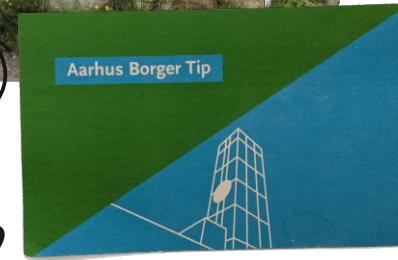
On the 3rd of April, I met up with a representative from Aarhus Teknik og Miljø (ToM), Stine Kamstrup Knudsen, to understand how they implement changes in the public spaces of the city. Knudsen explained that changes with the involvement of the municipality usually happened one of three ways: 1) For large redevelopments, ToM does outreach through local councils, libraries and schools, to understand and address the needs and wants of the local community. 2) For small changes to public spaces, the municipality invites suggestions from citizens through an app platform. 3) And most interestingly, the municipality may delegate the establishing and maintenance of a public space to an association. Examples of this include the Pier 2 and Åbyhøj Park community gardens.

While the municipality strives to do as well as possible by their citizens, they are strongly bound by laws and regulations, making it difficult to implement some forms of change that otherwise would seem relatively effortless. To better accommodate this, the municipality has recently begun assisting in creating agreements



The Pier 2 Garden is run on municipal grounds by an association

Municipal citizen suggestion platform



between different local instances. Knudsen gave an example of this in the form of a foot path that local citizens wanted illuminated at night. Because the municipality was required to lay down asphalt for that to be possible, engaged local citizens instead worked out an agreement with the local church to provide the power for lamp posts they would put up themselves.

Experiences with local associations

Around the time of these meetings I went to the the yearly meeting for my local home owners association and an urgent meeting for my social housing association to get an understanding of the their current state, activities, and active membership. Most striking was the lack of size and representation in the meetings. While the residents of my area are relatively diverse with regards to age, ethnicity, and to some extent

social class, these meetings were not, consisting almost exclusively of older ethnic Danes with an over-representation of owners compared to tenants. This could partially be explained by the associations having sent out esoteric invitations, exclusively in Danish, for meetings on weekday evenings.

While the purpose of the social housing meeting was to approve an inevitable replacement of the apartment roofs, the meeting quickly devolved into participants individual grievances with the management of the housing association. In contrast, the HOA meeting showed a tendency to passivity, focusing on maintaining expenditures, rejecting the few new suggestions that were brought up. While these associations are not representative, they show two concrete examples of associations turning inaccessible.

HOA Social housing votes: 344
At the meeting: ~6

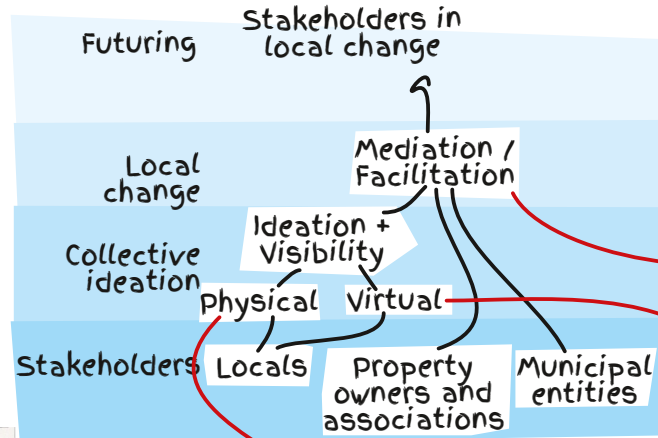
Bilag 1 Stemmefordeling				
Parcel	Boligenheder		Stemmer	
1. Andelsboligforeningen Havkærvænget	13	5,1 %	26	5,1 %
2.1. Havkærparken	42	16,5 %	84	16,5 %
2.2 Rønnehegnet	172	67,7 %	344	67,7 %
2.3 Grundejerforeningen Havkærvænget	6	2,4 %	12	2,4 %
2.4 AB. Vænget	21	8,3 %	42	8,3 %

Ideating designs for change

Mapping out how people, communities and governing structures currently achieve change revealed an open space for exploration. While municipalities and people embedded in their local councils and associations are already capable of and attuned to managing public

spaces, people standing outside these communities have little way of affecting the spaces around them. With this, the project shifted towards a new (final) central question: *How can people be empowered to collectively make change outside these structures?*

With this in mind I mapped out the stakeholders and necessary steps in making change in a public space to identify possible areas to intervene:

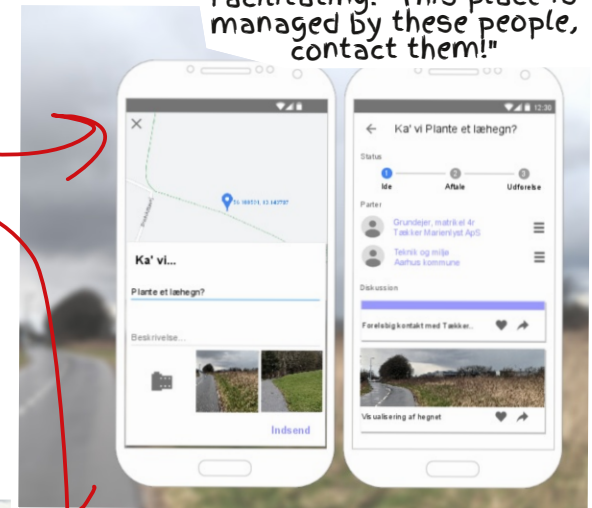


Visibility: "We're doing something, come join us!"



Digital, virtual tools to engage people in collectively ideating about the public spaces they frequent. Building representation in the physical world to draw people into these processes. And then facilitating mediation between new ideas and the people who own and manage the space on paper. From these three points to intervene I sketched out three different concepts for approaching the question: Large touchscreen signs to collectively make collages on public spaces, signposting for virtual representations, and an app for identifying the relevant stakeholders in a s

Facilitating: "This place is managed by these people, contact them!"



Ideation: Collaborative collages in public space



Not content with either of these concepts, I started mapping out their qualities and challenges in relation to each other and ArkiCity, an existing commercial product for obtaining citizen perspectives in urban planning [2]. From this I arrived at a core set of qualities and activities for the product to support. With all these qualities and concerns in mind, and with external feedback, I proceeded with a new concept for a concurrently physical and virtual ideation space, unreliant on existing power structures.

Mapping out qualities of concepts

- Central qualities:
- Low threshold for participation
 - Organisation in doing
 - Accessible production



Initial Ka'Vi sketch



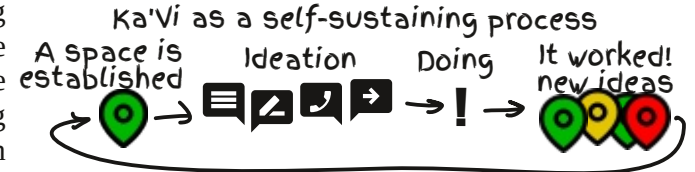
Developing the concept revealed several interesting avenues for exploration within the idea of an ideation space. These ranged from questions of access and authentication, to collective virtual sketching, to onboarding people with limited to no prior contact. Because of the limited available time, I restricted the scope of the project to aspects directly supporting the discovery to ideation path. Through implementation, this concept developed into the final Ka'Vi concept.

Building Ka'Vi, a tool for change

Ka'Vi aims to exist as a reproducible medium for locally organized change that consists of a physical sign and an online ideation space. The sign functions as a physical manifestation of a specific ideation space, itself representing a specific geographic location, and functions as an entryway into the space for newcomers. The project aims to be self-sustaining in its own reproduction through letting people create new spaces for new ideas, accumulating and reusing knowledge and material.

Building a tool for organizing change without central authority or expectations of agreement brings many interesting questions from minimizing participation thresholds in authentication, to concurrent collaborative ideation, and community moderation without an established authority. To limit the scope of the project to something accomplishable within the available time, I focused on the aspects necessary for beginning conversations about change and realizing shared ideation within and across projects. Specifically I focused on entry into the ideation process through the physical

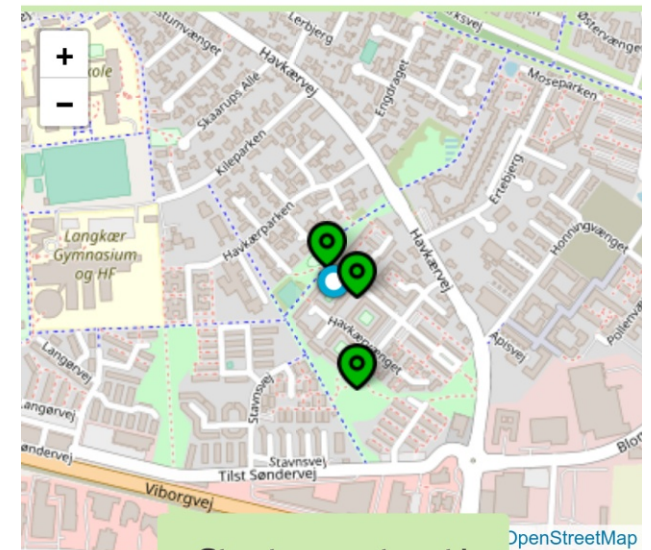
sign, how ideas can be produced, implemented and co-exist on an online web-tool, and how the knowledge produced through change can be generalized and embedded in the tool itself.



The Ka'Vi website

The Ka'Vi website is a tool for collectively ideating and organizing change in a local scale. The website is structured around the notion of ideation spaces, geographically delimited physical spaces for which a virtual representation exists in the form of a dedicated

The Ka'Vi Front page



Seneste nyt

page. The front page of the website gives a geographic overview of ideation spaces near the user, and shows the latest happenings within the spaces. While each space is available from this page, users will most likely first encounter an ideation space directly, linked by a sign.

Each ideation space contains a collection of ideas submitted by people. New ideas can be created as clones of established templates which are accessible across spaces. Templates structure an idea by asking central questions and providing relevant information and suggestions for accomplishing it. When first created, all visitors can contribute to the idea in the form of text and image messages. Finally, the previously mentioned templates can be created and edited on the templates page. This allows for the accumulation of knowledge by letting people change or submit new templates for ideas they have brought to fruition.

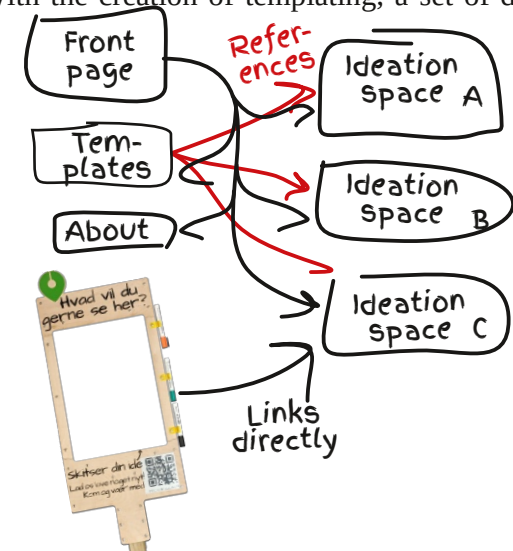
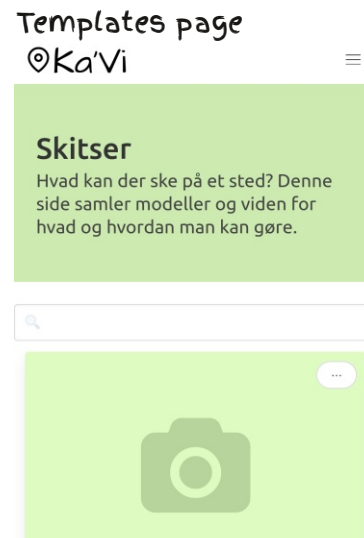
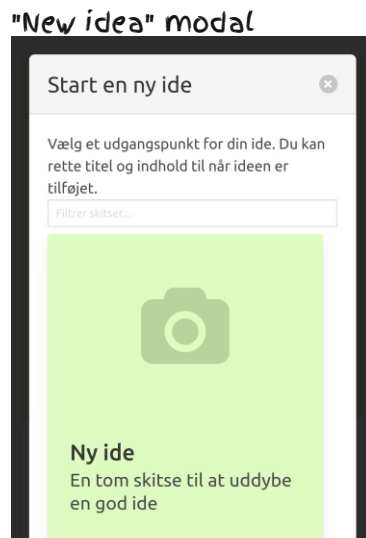
Technical basis

The Ka'Vi website was built using Codestrates [5] on the Webstrates computational media platform [15]. Using Webstrates allowed for a radically different development approach from

traditional web development. Because computational media does not need to make a distinction between the contents of a page and the data structure behind it, and therefore has no need for translation, it is possible to avoid creating backends, databases or other explicit models for structuring the content of a site. Combined with the features of Webstrates that continuously keep pages synchronised between browsers, all development can focus on just directly creating and assembling the elements of pages. This makes for a highly malleable structure, in that no parts of the page is forced to be adhere to a system model. Computational media has the subsequent consequence that viewers of a page have a shared view by default. Where e.g. social media platforms use their data-page separation to generate page content specific to the logged in user, a Webstrate per default centers its content, making individual customisation the active exception. While this works well for a website that centers spaces easily represented in documents, it makes traditional ideas of data-ownership and authentication very difficult to implement.

Developing the website

In its original conception, the Ka'Vi website was structured quite differently. In place of spaces, ideas would have their own geographically and structurally isolated space. I reworked this, recognising that all ideas concerning a specific space must acknowledge each other. Isolating ideas can create an internal illusion of agreement and produce unnecessary divisions between lines of thought. From this, the ideation spaces were created as a way of forcing participants to recognise different views, and make room for each other. Based on personal correspondance with Morten Nielsen, I worked to broaden the focus of ideation from making physical change to broad activities, and on the concept of templating. Considering that ideas could be of a broad nature led to a rewording within the project to recognise this scope. Templates were created as a method for knowledge to propagate between ideas. Because the concept centers the reproduction of itself, knowledge needs to accumulate. Through templating, successfully implemented ideas can be turned into a guide for others to follow along within new idea spaces. With the creation of templating, a set of default



templates were created: The blank idea, the recipe, and the knowledgebase. Following Escobars model of a particular concern [10:185], the blank idea template, intended to be the base structure for all future ideas, asks a set of pertinent questions to produce a detailed conceptualisation of the situation.

The Ka'Vi Sign

The Ka'Vi Sign is a wooden sign with an acrylic glass window in the middle. In a stenciled font, the sign asks "What would you like to see happen here?", and prompts the reader to answer by sketching their idea onto the world through the window pane using the whiteboard markers attached to the sign. Finally the reader is prompted to *join the creation of something new* through a QR code link pointing to the matching online ideation space.

The frame of the sign is made of 6 mm plywood, sandwiching a 3 mm pane of extruded acrylic and 3 mm mdf. All parts have been laser cut.

The three layers are assembled using M5 nuts and bolts. The signpost is made from a 5x5 cm garden pole cut to provide adjustable height. Small 3d printed clamps hold a set of three regular whiteboard markers.

Developing the sign

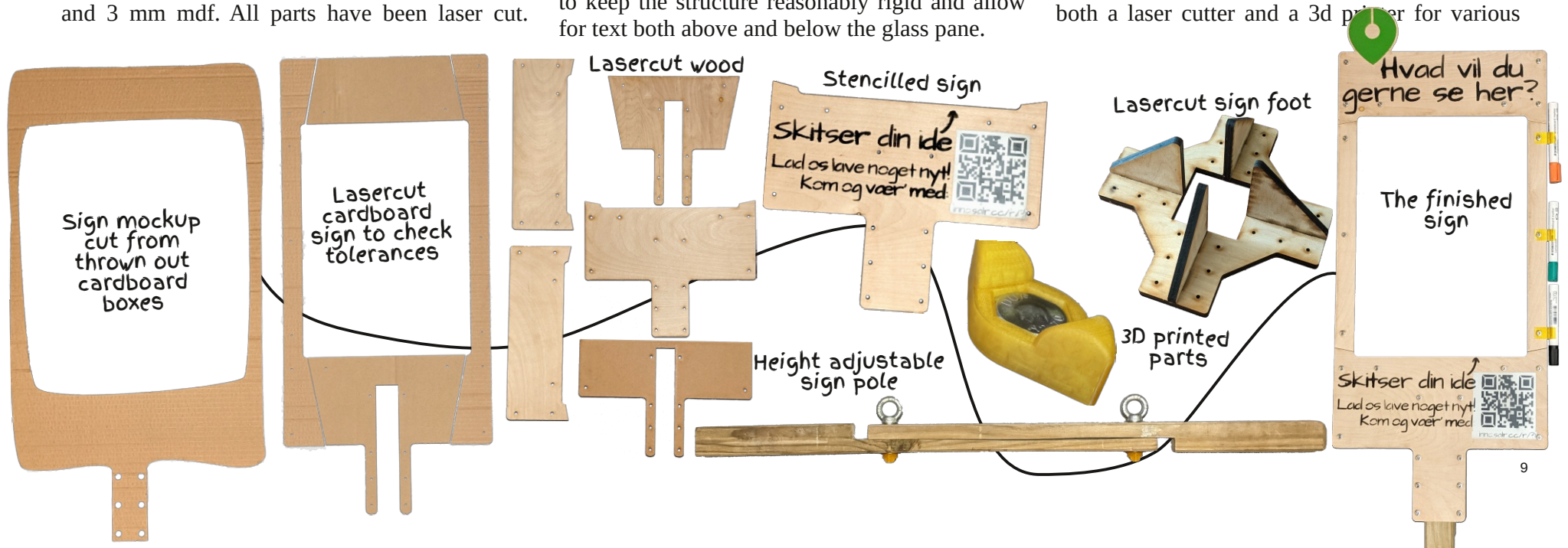
The sign started out as a primitive digital sketch on top of a photo. To get a practical feeling for what an appropriate size and shape of the sign could be, I laser cut an outline of the sketch in scrap cardboard. From this I concluded that the initial size of the sign was awkwardly large, that the organic shape of the original sketch clashed with the precision of laser cutting, and that cutting the entire sign in a single piece was both wasteful and impractical. The final size of the sign was derived from the most commonly available size of acrylic glass, being able to cut two panes from a 750 by 500 mm sheet with minimal waste. The frame of the sign was sized to keep the structure reasonably rigid and allow for text both above and below the glass pane.

I iterated through a series of sign text combinations to arrive at a most clear and concise combination. From this I laser cut stencils to spray paint the text onto the sign. As a last moment addition, I added space at the top sign plate for stenciling a map marker.

My two main focuses through the design of the sign was on high accessibility in production and use, and on the expectations and actions invoked by the sign: How can I minimize the barriers for building and interacting with the sign, and how can the sign appear unimposing?

Accessibility

To make production accessible, I actively selected materials for the sign that were relatively cheap and broadly available from hardware stores, and for construction to be possible using common tools. While the sign can be produced using only a jigsaw, a drill and a pair of pliers, my reference design makes use of both a laser cutter and a 3d printer for various



parts. While these tools are not common in peoples homes, they have become generally available through makerspaces and the like. To maintain the signs as a malleable and changing form, I have documented the production of a sign in a custom ideation space. Contrary to publishing complete instructions, my intention with this is to encourage variation and discussion.

Fragility and vandalism

Fragility has been a central question in the design process of the sign. Public infrastructure regularly takes an imposing, rugged form, made of stainless steel sheets and tubes, and anchored strongly in place. Through their design, these objects appear inevitable and unchangeable. In comparison, the Ka'Vi sign is quite fragile. The sign can easily be disassembled if not just broken, and nothing stops the markers from being stolen. Standing in a lightweight wooden foot, the sign is easily moved and presents itself as negotiable and temporary. If street signs, transformer boxes and bus stops are regularly vandalized, what chance of survival does this sign have?

In their Aesthetic Theory of Vandalism, Allen and Greenberger argue that vandalism occurs because the act or result of destruction is aesthetically appealing [1]. From this perspective, the sign neither appears as a challenge or as a particularly interesting target for destruction. Beyond aesthetic qualities, it is also worth considering relation as an important quality for destroying and destroyed objects (As e.g. discussed by Fisher and Baron in their equity-based model of vandalism [11]). In my



Vandalism to make simple structures more complex [1]



Vandalism as rejection of authority [11]

material choice and production (i.e. wood and stenciling), I have actively attempted to distance the design from associations to the municipality or other authorities, as to not make the sign a target for misplaced retributive action.

Cohesiveness between sign and web

As established, each sign plays the role of a physical manifestation of an ideation space bound to the given location. Understanding this relation is essential to making the project comprehensible to people. To accomplish this, I tried to build cohesion between elements. While the form and scale of the sign changed, I kept

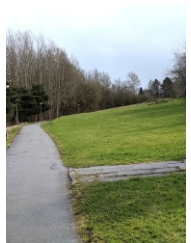
the vertical aspect ratio to maintain an association between the sign, the smart phone screen most participants would access the Ka'Vi website through, and the picture users would take of the glass pane. To strengthen the connection between website and sign, I reused the same typeface across the website title and the sign. I further reused the map pin icon to stencil the sign. Recognizing that people building their own sign may want to reuse their existing cans of spray paint, I took this opportunity to let people select custom colors for their ideation space, being reflected on the page, in the front page map and on the sign itself.



Map pin and typeface, same across sign and website



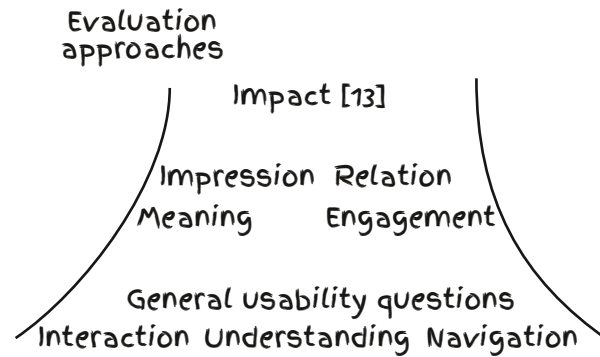
Aspect ratio maintained



EVALUATION

Since the Ka’Vi concept and implementation is presented as a vertical slice, there are many different approaches to evaluating it. In their article, Hsu and Nourbakhsh propose that an interactive system should be evaluated by the impacts it makes, asking whether the system is influential. However, as the authors note, this is difficult to evaluate due to the nature of wicked problems. Their suggestion then is to ask how the system can be influential and whether the community believes it to be. [13:33] These questions can be approached in evaluation with domain experts and with in-situ evaluation of lower level goals, such as whether the project is capable of bringing people to engage with it, participate in ideation in turn leading to collectively organized change. Supporting these goals are low level usability questions: Can people understand the purpose and interaction of the sign and website? Is interaction with the sign possible? Can people navigate the website successfully?

Ka’Vi was evaluated in three steps: First a simple in-lab usability evaluation was conducted to catch and remedy significant gaps in understanding and interaction with the sign and application. Second, an in-situ evaluation was conducted in a public space, to get impressions from members of the public. Finally an expert evaluation was conducted with Morten Nielsen from SUMO with the intent to evaluate the applications potential for making an impact. The results of these evaluations are presented in the following sections.



Studio usability evaluation

Ka’Vi was evaluated in studio with two other students. The intention with this evaluation was to verify the basic interaction with the sign and website. In the evaluation, participants were asked to go through the process of walking up to the sign, sketching an idea, opening the website and contributing to a new or existing idea. After this would follow a casual exploration of the rest of the website. While the focus was on evaluating functionality, comments on how the participant understood and conceptualised the parts of the project were welcomed. The studio evaluation brought many smaller insights.

Some aspects of the website were visually difficult to decode. When loading a web page using codestrates, the document initially shows the raw HTML of the page, before it is properly rendered by javascript. This initially confused the participants, and was more severe on older phones because of the slower load time. Because of the smaller screens of the phones and the potentially high information density of the pages, participants had some trouble navigating aspects of the website. Examples of this included not being able to distinguish ideas from each other, and recognising a search field as a

title input because the necessary context was not recognisable without scrolling. Based on this feedback, parts of the interface were made smaller in the phone view to have a better overview.

Participants had difficulty understanding the purpose and function of the templates. One participant was highly confused by how the *recipe* template used a cooking metaphor, when she was ideating about planting flowers on the roadside. She further found the “*What are the consequences*” question of the idea template to have odd connotations in an otherwise upbeat context. Based on this feedback, the recipe template was reworded to be more generic, and the questions of the idea template were explained further.

Bringing sketches into the website proved troublesome when not indoors. The semi-transparency of the whiteboard markers became more apparent under the intense sun, this further complicated focusing on the sketch when taking pictures. The phone cameras would automatically focus through the window pane,



and because the distance to the background is generally larger outside, the sketches would become unrecognisably blurred. While it is possible to compensate for this by manually focussing on the frame of the sign, there is no way to compensate for visibility, and there is no simple fix to make it possible to just snap a picture and submit it.

Finally, the evaluation also brought forth several technical issues: Editing titles was difficult because of challenges with touch-and-hold selection on specific elements. Because participants immediately were able to contribute to the idea-space, none considered or sought out logging in as part of their exploration, at least until this resulted in a feature bugging out. Based on this feedback, title editing was improved through automatic selection and completion, and login was enforced when necessary.

On-site evaluation

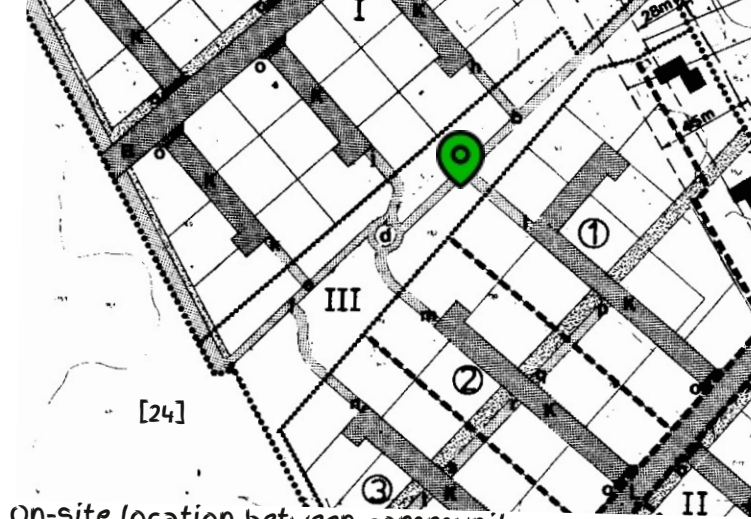
Without proper care, it is easy to capture a blurry picture of a reflection



The 27th of may, I set up the Ka'Vi sign in a public space in Tilst on the outskirts of Aarhus. The space, owned by the municipality but maintained by the previously discussed HOA, is located between an area of social housing and an area of privately owned single-family housing [24]. A regularly used bike path passes straight through the area. Because of this, many different groups of people pass through the space. People living in the area often walk their dogs here, while students of the local schools pass through twice daily. Here, my plan was to approach people walking by, to ask them about their relation to the space, what they would want to see happen to it, why they thought that had not happened yet, and how they could be engaged in implementing that change. What actually ended up happening did not follow this plan.

In the time I had the sign set up, none of the people passing by paid any attention to it, and when I began approaching them many either actively or passively avoided communication. One person put in their earbuds as I approached, while others returned my greeting and then dropped eye contact. People were busy going about their day and clearly just did not care to deal with whatever was going on, and I had no intent to uncomfortably impose on that.

The single exception I managed to bring into conversation was a middle-aged man from a single-family house out walking his dog. When I asked, he had clear visions for the space. What he wanted was an expansion of the existing playground facilities, possibly adding a basketball field, and putting up timed lights such that kids could play in the afternoon through the



On-site location between community housing and private parcels.

dark months of the year. When I asked why that had not happened, he argued it was a question of politics, money and participation. Being actively involved in the HOA, he recognized the management of the association had grown very insular over the years, making it difficult for new people with different ideas to get involved. With so few people engaging, there was little interest in doing more than just maintaining what

Setup for the on-site evaluation



currently is. That the privately owned housing had turned into what he termed a *silver jubilee neighbourhood* further lessened the general interest in his wish for better playground facilities.

While this evaluation did not go to plan at all, it gave several blunt but very important insights: 1) The social context is essential for the successful involvement of others. From the results of the evaluation, I speculate that people need some precondition for engaging with such questions. A stranger approaching you is not a good one. The single person I managed to speak with was clearly already engaging with these questions, making him interested in talking about it. A more appropriate context might be one where people are deliberately not in a rush, like a playground or dog park. 2) The existing culture and history around a space can not be understated and must be taken into account when engaging with it. Speaking with the dog owner who had lived here for many years revealed how the tensions around the HOA were not recent disagreements, but long standing grievances that had shaped how people engaged with each other and the area.

Expert evaluation

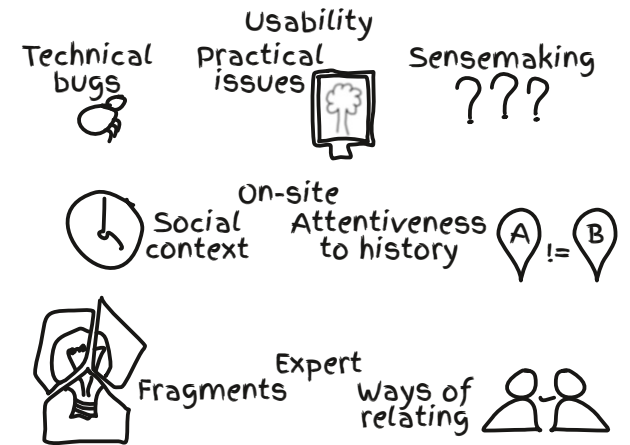
On the 30th of may I evaluated the prototype in personal communication with Morten Nielsen. The evaluation started with a presentation of the prototype, which led to a discussion of its form. This then evolved to a broader discussion of relating beyond the existing structures of associations and the like, and how best we could build tools for these other forms of relating.

Nielsen first noted that the ideas of the concept in their current form are very textural, structured and heavy, somewhat like posts on a forum. Further, while ideas could travel further as templates, they were still strongly placebound. Was this desirable? As an alternative, Nielsen suggested that ideas could instead be treated as small fragments of ideation that may reoccur or travel across spaces. In their assembly, these fragments could lead to something more concrete. I recognized this approach too could lower the threshold for participation to just asking a single question, instead of multiple complex ones.

The evaluation then evolved to a discussion of ways of relating and how established forms are quite reductionistic. The association is a way of building relation that is structured around a shared identity, e.g. home owners or soccer players. This is quite different from the relating that occurs in groups of people centered around getting things done: The relating that occurs in the yearly neighbourhood cleanup day is quite different from the association that organised it. Even further is the relation of people in their everyday practices crossing paths, e.g. randomly meeting at the garden waste site, or sharing a glance of exhaustion at the windswept bicycle path. Because we tend to focus the first kind of relating, maybe because it's more structured and palpable and therefore more easily modeled, we end up reproducing this structure and thinking through its terms. I recognise the Ka'Vi project is somewhat guilty in this regard too, still expecting and needing some form of organisation to form around more or less

stabilised ideas. In this regard, the evaluation helped set a future direction for the Ka'Vi project. One better suited for the fleeting experiences, ideas and relating of our everyday lives.

Themes of evaluation



DISCUSSION AND REFLECTION

In *Designs for the Pluriverse*, Escobar argues for an ontological design as a means of disassembling the one-world world to make space for new understandings and ways of being [10]. Through my work with this project I have attempted to heed this call by rejecting established channels of change and renewal in favor of the locally organized, and by broadening my perspective on what community and relating is and can be.

At the same time, this intent has been a significant challenge for my work process. Because I have experienced and been taught a

technology optimistic, product and problem-oriented design tradition (thoroughly described by Dubberly [8]), my assumptions and regular approaches were hindrances for meaningfully engaging with the issue. I am a child of what Escobar terms neoliberal globalization, and letting go of that is hard work.

From impact to empowerment

On this background I make the insight, that it is more meaningful to understand this project through processes instead of solutions. Solution-thinking, however well intended, is a central part of the rationalistic one-world thinking Escobar criticizes. In my evaluation, I introduced making an impact as the highest level criterion for evaluation. This perspective is solution-thinking. On reflection, I find the project far more meaningful as an attempt to understand the processes that exist, those that could be, and what opportunities there are for bringing them forth. Instead of focusing on making an impact, it is more relevant to look at the empowerment and sense-making emerging from the process of engaging people in change. Whereas *impact* postulates society as an abstract model that we can transform into a better state, *empowerment* involves looking at the people and activities that concretely are, and helping them flourish. There is not a single impact that could be, but countless possibilities hiding right beneath our noses.

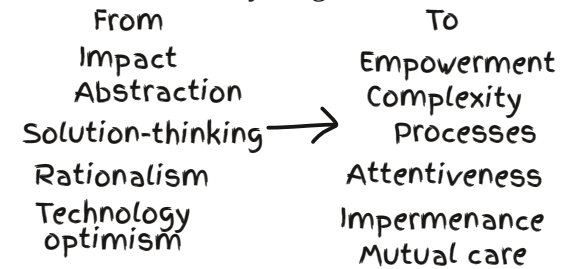
Returning to the original design question, it is worth interrogating what I mean by “*how do we empower*”. From this perspective, empowerment is not something bestowed by the designer, but something that design can make visible and play

into. In this way, technology switches roles from an actor shaping the world, to a tool with which we can enact change. This is not a technophobe rejection of the possibilities of technology, but a rejection of technology optimism.

From abstraction to complexity

Another insight from this project is the fact that social complexity is simply not something we can abstract and solve. Technology optimism has shaped us in such a way we expect to be able to observe a problem, formulate and build a solution, and then walk away, content that our job is done. What we need to realize is that the future is not technology, it’s people and the world they live in, just like it’s always been. In the 70’s the UTOPIA project showed a model of researchers bringing their expertise in technology to practitioners, expert in their field. Not to claim to solve their problems for them, but to assist in democratically bringing about new ways of being amid a labor crisis [9]. Looking to modern examples, Björgvinsson et al. demonstrate the participatory design process applied outside the workplace [3]. This project too deals with a crisis (of sustainability) that can not be solved through product or solution thinking, but through which we must transition together as people. I did not apply a participatory design approach in this project, and it shows. What I however argue, is that this project manages to highlight a fact of technological development and innovation that we are usually capable of ignoring: If we want to meaningfully improve peoples lives and not just optimize them for the premises of what currently is, we need to concern ourselves with the actual

people our work involves, not just the abstracted user. As a field, in research and education, we need to stop valorizing “technology wizards” and start recognizing care for others as a foundation for everything we do.



Future work

Within the current form of the Ka’Vi concept, there are many aspects worth exploring further.

Communication barriers

As noted early in the design process, the associations that manage local public spaces may impose a significant language barrier by only communicating in Danish. All textural content of the Ka’Vi project is currently written exclusively in Danish from sign to website, which is exclusionary towards non-speakers. While a simple ‘fix’ might be to implement computer translation on the website, a broader question arises of how to manage the many communication barriers of language, technology and ability. This strengthens the argument for promoting visual and personal communication, and further exploring the languages of sketching and collaging.

Authentication, moderation, notification

The established questions of authentication, moderation and notification remain mostly open. In an online application with user-contribution it

is generally acknowledged that some form of moderation is necessary and because of that authentication to enable it. It is also generally accepted that notifications of activity are useful for maintaining communication, also requiring some form of authentication. While I, as noted in the design process, did not consider these things to limit the scope of the project, these questions are indeed highly relevant for this unique form of hybrid offline-online communication: Authentication may become a huge barrier to participation if the first thing you see is a sign up form. For this type of application, is it possible to shift this barrier further back until people have found meaning in the application and are willing to spend the effort? In the hyperlocal setting that is Ka'Vi, could it be possible to avoid traditional authentication altogether through geographically based authentication and mutual respect? Could

moderation be accomplished the same way?

Real world involvement

As noted in the Evaluation, I have not yet been able to evaluate the project on a significant scale in a real world setting. Properly accomplishing this would require a significant reworking of the implementation (and likely the concept). Recognizing the experiences of the on-site evaluation, redevelopment could meaningfully occur through a proper participatory design process together with engaged locals from an area of the city undergoing change or redevelopment.

Beyond the current Ka'Vi

As explored in the evaluation, the current web-implementation of Ka'Vi still presents a relatively high threshold for participation with its large and text heavy template and idea concepts. As part of a further development process, it would be meaningful rethinking these concepts for as light initial participation as possible. One way this might be accomplished could be through soliciting idea fragments, as produced in the ideation process of the sign, rather than fully fledged ideas. This could take the form of just a single sentence or image. Having experienced this first bit of involvement, these idea fragments could then lead into an assembly process of putting together fragments (and possibly their owners) to actively build a shared idea.

CONCLUSION

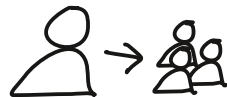
If we are to manage the crises of our time, we need to implement radical changes to our society and way of thinking. Within HCI, multiple

authors have highlighted how the current focus on user persuasion to change consumption is simply not enough. So, how can technology help transition society into new ways of thinking and being? In this project, I have attempted a first step in this direction through a design to engage people in ideating about and stewarding their local public spaces: Ka'Vi is an ideation space for imagining and implementing local changes. The project consists of a physical sign connecting to a virtual space. Placed in public, the sign calls on people to sketch ideas on their environment through an acrylic window, and to ideate about what could be. The sign further links into a virtual representation of the space, that allows for further asynchronous ideation between interested parties, structured around the notion of shared ideas. Evaluation of the project brought forth the importance of being attentive to the social contexts of a given setting, and highlighted a need to further minimize the threshold for participation. The project further suggests future work in rethinking standard technology constructs for this context, and engaging directly with existing communities for change to further develop the Ka'Vi concept. The insights from this project points towards a need to challenge the many presumptions we make, from the abstraction of people into the user, to the tendency of solution thinking, and the rationalistic mindset these presumptions stem from. If we want to build technology that can exist outside the limitations of the market, we need to loose our aversion to the complex human and concrete aspects of life.

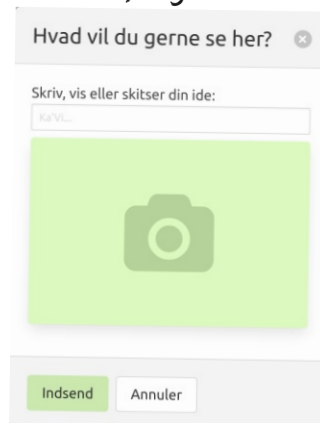
Future directions



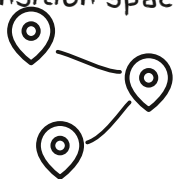
Rethinking the "user" for local web-tools



Idea fragments



Participatory design in transition spaces



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