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THE URBAN INFORMATION TOOLKIT:

enabling collaborative work
around issues related
to urban everyday life



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KaToHan



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FOREWORD

The Urban Information Toolkit was first developed in its Finnish version in autumn 2013 as part of our scenario-based workshop around the theme of urban information for the KaToHan project (Kaupunkitieto ja toiminnan hallinta – Urban information and governance) we were involved in. The concept of urban information (*kaupunkitieto* in Finnish) we were using in our project was fuzzy to start with. For some, it meant all types of data related to the urban environment or urban activities. For others – and this became apparent in our interviews with urban and environmental activists – the concept was much wider. Urban information also meant one's own knowledge of the city, which can be translated into useful hints, ideas and workarounds. Such knowledge is currently shared between friends but is also transformed into information shared online, lately especially on social media platforms. This personal knowledge of the urban is often ignored by those promoting ideals of an efficient city based on the use of quantitative data.

THE AIM OF THE URBAN INFORMATION TOOLKIT was to facilitate collaboration inside very heterogeneous groups of people that are nonetheless interested, in their own ways, in urban data and information. For our first workshop, we invited urban, environmental, and open data activists, app developers, researchers, as well as our official KaToHan project partners: the Helsinki Region Transport Authority (HSL), the Helsinki Region Environmental Services Authority (HSY), the Helsingin Energia energy company (Helen), Siemens and the Santa Margarita IT service SME. The toolkit proved to be a useful tool during the

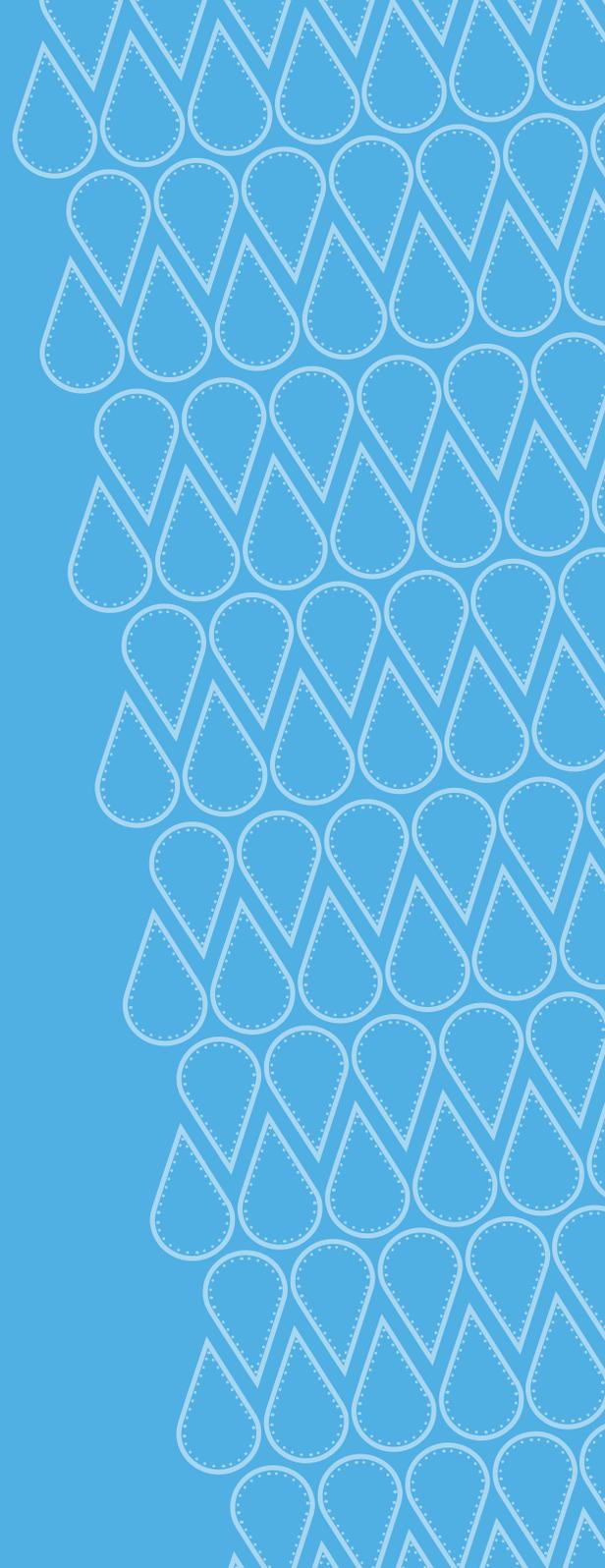
workshop, which brought together more than 30 participants from the different groups mentioned above. The aim of this publication is to act as a guidebook and source of inspiration for whoever wants to engage heterogeneous groups in discussing urban information and in coming up with new ideas for its development and use. As it is, the toolkit is grounded in the current realities of the city of Helsinki, its people, and the array of information technologies in use there. We hope that it will trigger the interests of others in creating Urban Information Toolkits for other cities too.

WE WANT TO THANK Tekes – the Finnish Funding Agency for Innovation (through the Kaupunkitieto ja toiminnan hallinta project, KaToHan) and the Aalto Media Factory (through the Urban Media Prototyping project, UMPro) for providing funding to carry on and disseminate this work.



1.

INTRODUCTION



1. INTRODUCTION

The increased combination of urbanisation and digitalisation worldwide has brought with it many speculations on the future of cities, with the concept of “*smart cities*” standing at the forefront. In fact, the term “*smart city*” is fuzzy. It has been and is still being used by big information technology companies such as IBM, Siemens or Cisco mostly to promote their own technology-centered visions of future cities (Greenfield, 2013). It has also permeated the language used by cities too – often in a self-congratulatory way – as a way to label and promote themselves (Hollands, 2008). Big data and ubiquitous smart urban infrastructure seem to hold the promise of more efficient cities that would operate in real-time. It is argued that with such efficiency comes sustainability and attractiveness. Such visions were quick to draw a plethora of reactions. Blog posts, manifestos, books and collections of articles are challenging the technocentric smart city, especially in how it has forgotten the citizens (who are the smart ones) and urban culture (Hill, 2013; Greenfield, 2013; Townsend, 2013; Hemment & Townsend, 2014).

Climate strategist Boyd Cohen recently ranked Helsinki as one of the 10 smartest cities in Europe (Cohen, 2014). Interestingly, what made Helsinki smart was its effort in opening various municipal datasets for use by developers. This approach is embedded in the recent strategy of the city that aims for more transparency, increased democratic practices and citizen participation. As such, Smart Helsinki is taking some of its smart citizens into consideration and offering them resources for the production of new services and tools. However, what about those who are not necessarily so technology-savvy as to be able to tinker with open data?

The work we report in this publication is part of the ongoing wave of reactions against the technocentric vision of big corporate players and the efficiency-driven smart city. We aim to take citizens, their everyday life and their digital practices as a starting point for understanding alternative meanings to urban data, information and technology. The main question we ask and seek to answer is how can we bring forward a more citizen-generated understanding of urban information in a way that it can be productively linked to the needs of various actors, such as citizens, corporate players and city officials? How can we spark and sustain collaboration between these actors?

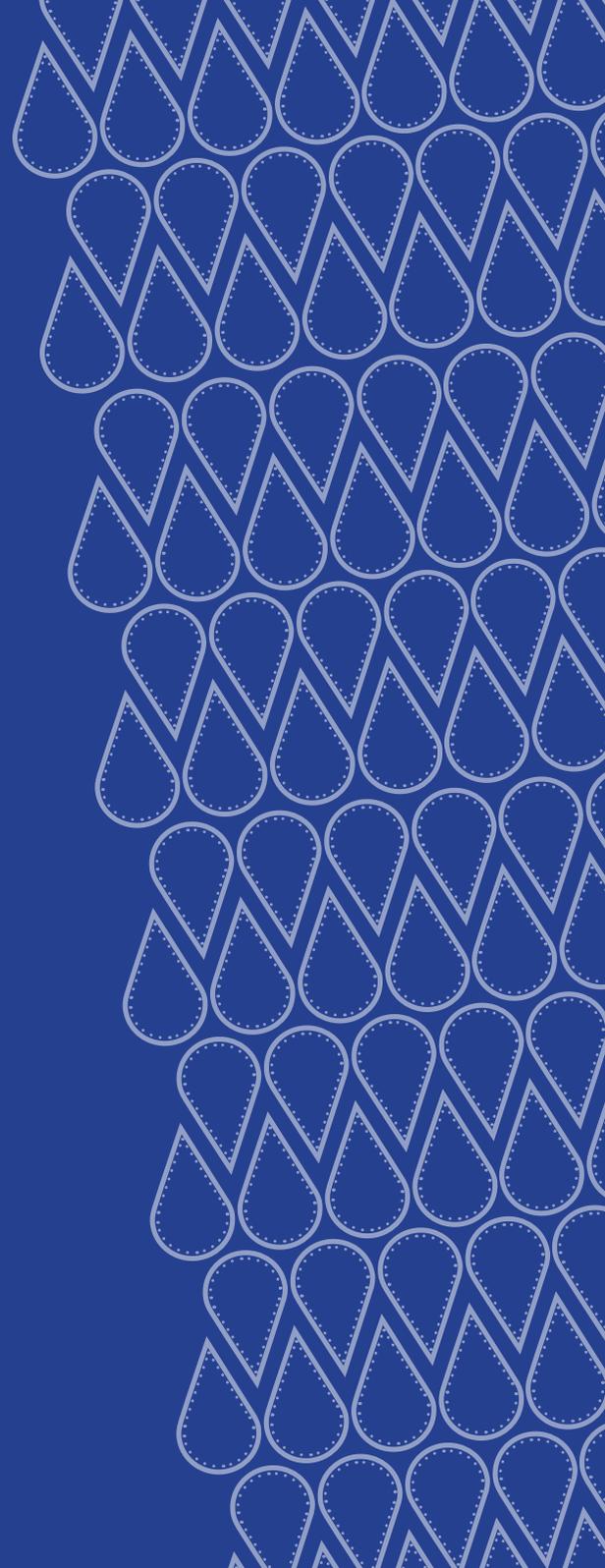
In the following, we will start by presenting the grounding work for the Urban Information Toolkit, which consists of a series of interviews and a mapping exercise undertaken with active citizens interested in urban, environmental, or technological issues. We then move to introduce the toolkit itself, explaining its different components. We also report an example of a concrete application context where we used the toolkit as part of a half-day workshop organized around the theme of urban information in Helsinki in autumn 2013. We then describe the main results of the Helsinki activities, and conclude with proposals for a more sustainable process and the way it can be integrated to activities of companies and municipalities interested in the topic of urban information and willing to take a citizen-centered approach to smart cities.

We hope that this publication and the Urban Information Toolkit will be useful for anyone interested in exploring urban information, its role in urban culture, and the design and development of new technologies, media and services, from a citizen perspective. Our aim is to provide a set of resources for our partners and other interested stakeholders to use, adapt, and further iterate. We welcome ideas for improvement and concrete suggestions, for example in the form of new elements for the toolkit or different ways of using it.



MAPPING PRACTICES

*Approaching urban information
from a citizen's viewpoint.*



2. MAPPING PRACTICES: APPROACHING URBAN INFORMATION FROM A CITIZEN'S VIEWPOINT

We decided early on to take citizens' perspective on urban information into consideration in order to complement the strong organization-driven viewpoint present in the KaToHan research project. To achieve this we decided to apply the mapping practices approach, which we had used in previous research projects (e.g. Naukkarinen et al., 2008), and which builds on ethnographic-based participatory design (Blomberg & Karasti, 2013). We first started by sampling possible participants and chose to involve urban and environmental activists, as well as app developers from Helsinki, as they are pioneers regarding the use of urban data and information. We hypothesised that urban and environmental activists would be able to relate concrete examples of creating and using information in their activities and app developers would have already experimented with certain types of data and information.

We contacted several organizations with an open call for participants. In the end, eight urban and environmental activists belonging to organizations such as Helsingin Polkupyöräilijät ry (Helsinki Cyclists Association), Ilmastovanhemmat ry (Environmental Parents Association), Prototype Helsinki (a network of urban activists and change makers) and Dodo ry (an environmental association), as well as mobile app developers and app hobbyists volunteered to share their knowledge and practices with us. The majority of the participants were females (2 participants were men), and the average participant age was around 30 years. Each of the participants was invited for a one hour session with us, which included a short interview and a timeline exercise in mapping practices related to urban infor-

mation. The interview part tackled what is the meaning and role of urban information for the participants, and the timeline exercise looked into the participants' everyday life from the viewpoint of their interaction with urban information.

After the interviews and mapping sessions were conducted we analysed the material gathered by identifying several main themes defining the interaction of citizens with urban information in terms of what is the type of urban information we are talking about, how it is accessed (through what interfaces), from where it is accessed (sources, services and tools), where does the interaction with this information happen (in what location and context), and where is it sent to or saved in the case that it is generated by citizens? Furthermore, we also identified ideas that the participants have articulated during the mapping sessions.

1 WHAT IS URBAN INFORMATION? The term "*urban information*" can be understood in many ways, and the content varies greatly. The mapping of practices brought into attention that many citizens see their own experience-based knowledge as a type of urban information that is equally important as the one provided by organizations, or is quantitative in nature. The urban information that citizens create, utilize, and share can be anything from maps, weather forecasts to research statistics – online and offline.

2 HOW IS URBAN INFORMATION USED? Urban information practices are enabled through the use of an interface, which can be manual, digital, personal, or public. Smartphones and tablets increasingly serve as access points to urban information, however, at the same time there exists a group of citizens who refuse – for various reasons – to use such mobile devices. Some people still rely solely on traditional media or computers to access and interact with urban information. A more technical interface into urban data, often used by ap-

plication developers, are application programming interfaces (API) which despite not having a tangible manifestation, are key tools in this area.

3 FROM WHERE DOES ONE ACCESS URBAN INFORMATION? Users access and manipulate urban information in different contexts and via a myriad of sources, services, and tools. For example social media (most often Facebook, also Twitter), accessed via a computer or a mobile device, is one of the most popular ways of accessing online information. Such channels make it possible for citizens to get information that has already been curated into a collection of some kind. They are places where citizens' own knowledge can be easily shared. Additionally, the amount of urban information-based services that organizations provide online is constantly increasing. Currently, mobile apps, such as the popular HSL Route Finder or the weather forecast, are seen as one of the most convenient ways to provide urban information to citizens. Finally, it is important to remember that interaction between people also happens offline, for example reading circles, snail mail and email correspondence as well as message board discussions and traditional pinboards all play a role in the circulation of urban information.

4 WHERE AND IN WHAT SITUATIONS DOES ONE NEED URBAN INFORMATION? Citizens use urban information in multiple places and situations: on the go and at home; some even in bed, before going to sleep. Some people are continuously online searching for or sharing information with their mobile devices, while others make the effort to restrict their use of digital tools. The analysis of the mapping outcomes also pointed out that there are situations where information is needed, but is not yet offered, like on recreational areas or on spots where people wait, such as bus stops. Some participants suggested that urban information should be brought forward

more clearly to the citizens. For example, information on how easily one can save energy could be distributed in places where citizens have time to familiarize themselves with the matter, like in the metro or trams.

5 WHERE CAN ONE SHARE URBAN INFORMATION WITH OTHERS? Citizens have the need to share their own knowledge towards organizations and city officials. Until recently there has not been many opportunities for citizens to communicate with the officials, though this is slowly changing with an increasing amount of new services, so called “*systems for complaining*” (Hill, 2013), such as Korjaakaupunki.fi (fix the city) and Pitäiskö fiksata, fiksaus.metrolive.fi (should it be fixed), currently in use in Helsinki. These are services where citizens can point out their observations regarding the maintenance of the city space. Other channels where citizens can share their own knowledge, towards city officials and other citizens, include web pages, service phone numbers, and for example email. The problem with many one-way communication channels is the lack of response, which often leads to not using the channels in question, as citizens do not know if their messages reach the right people or not.

6 WHOSE URBAN INFORMATION IS IT ANYWAY? The ownership of the information is a topic generating much debate: the information is in many cases produced by citizens in one way or another, for example energy consumption numbers, but it is being administered by organizations. Who has the right to distribute, use, or manipulate this information, when it is not completely clear who owns it in the first place? The matter was discussed in the mappings, but no final answers to the issue were found. It is, however, something that should be kept in mind when working with urban information or data.

In general, urban information can be official (coming from official actors and organizations) or unofficial (coming from the

citizens). Moreover, certain commercial actors can also provide urban information (for free or as a paying service).

7 IDEAS REGARDING THE USE, DISTRIBUTION, AND MANIPULATION OF URBAN INFORMATION! The mapping sessions showed that citizens have a wide variety of needs for urban information, both at the personal and professional levels. Every participant felt that urban information should be brought to the citizens in bigger quantities than now, and also in a wider scale. Participants had several concrete ideas how to distribute information, and what kind of information could be found useful, or simply interesting, among citizens. Citizens' ideas were divided under five themes: “Visualizing information” deals with how to best present information for the citizen. “Accessibility of urban information” includes ideas on how to bring all the urban information available closer to citizens' everyday life. “Local urban information” ideas recognize the need for neighborhood-level information. “Citizen's knowledge” includes ideas how to better use the experience-based knowledge citizens have. “Combining information” is about the need to have different sources of information available at the same time and combined together to address the particular needs of each individual.

In general, the mapping exercise showed that urban activists and app developers are aware that there is a wealth of urban information available. However the biggest challenge for them is to access the information, both as private and professional users; it may be in a form that is difficult to understand (for example information on wind conditions in Helsinki), or is not accurate enough (information on air quality, which is currently in Helsinki measured every 30 minutes and only in certain measuring points). Also the interface used to access information plays a great role, and several participants questioned how much extra effort should citizens deploy in order to access

information by themselves? Couldn't it be brought to them via some public interface? Finally, it was interesting to notice that the mappings brought forward a dichotomy between the role of the participants as activists, hobbyists, and professionals, and their own everyday practices. All of the participants were very dedicated to their fields of interests, and had a wide knowledge of the subject of urban information as it relates to their own needs. On the other hand, the timeline exercise pointed out that in their personal life the knowledge that urban information brings (e.g. in terms of saving energy) is not used to its full extent, meaning that the personal and professional life do not collide in terms of urban information. So far, the type of urban information the participants use the most seems to be something that benefits and is tightly linked to their everyday life, like the weather info or public transportation timetables or routes.



3.

THE URBAN INFORMATION TOOLKIT

The Helsinki Urban Information Toolkit consists of several elements that can be combined to generate discussion, ideas and perhaps even evaluate proposals. To date, we have created: 1) a card deck, 2) some example personas, 3) a design stage, 4) annotation stickers, and 5) a summary form.

3. THE URBAN INFORMATION TOOLKIT

In order to share our insights and offer concrete starting points for discussions and ideation sessions with a wider group, we translated the observations gathered from the mapping practices exercise into the elements of an “Urban Information Toolkit”. Design toolkits are commonly used in user-centered design to facilitate collaborative design activities (Kimbell, 2013; Huybrecht et al., 2012; Halskov & Daalsgård, 2006). The aim of this particular toolkit was to provide tangible tools that are grounded in empirical data collected in Helsinki, and that can be used to facilitate discussion and ideation between members of heterogeneous groups interested in the topic of urban information. We particularly wanted to bring forward the ways urban information is understood and handled by citizens in their everyday life in order to provide a counterpart to the more techno-centric view of urban information prevalent in various organizations and in the current ‘smart city’ discourse in Finland. As it is, the Urban Information Toolkit can be used in workshops, scenario building events, or paper prototyping sessions. It is a tool to help generate new ideas and at the same time it also acts as a reminder of important themes surrounding the development, use and appropriation of urban information. The Urban Information Toolkit is also highly context specific. The use, availability, and type of urban information varies greatly between cities in Finland, let alone in international context. The whole process of mapping urban information practices has to be followed before one can create another city-specific toolkit.

1) The CARD Deck

The Card Deck illustrates a series of citizens practices related to urban information. These were collected during mapping practices sessions with urban activists and app developers in Helsinki in autumn 2013. The card deck is not meant to cover every single aspect of urban information, however those that are included are tightly rooted into citizens’ everyday lives; what kind of urban information they need, want to use, and are interested in.

The card deck translates some of the insights gathered in the mapping exercise into 50 cards classified in six categories: WHAT, HOW, WHERE, FROM WHERE, and WHERE TO. A card can belong to one or more categories simultaneously. In addition, the deck includes IDEA cards meant to be used for inspiration, as well as the WHOSE INFORMATION category card that emphasize the aspect of property. There are also several empty cards in each category, which can be used to write down one’s own thoughts and ideas to supplement the deck. In the following we will present each category in more details.

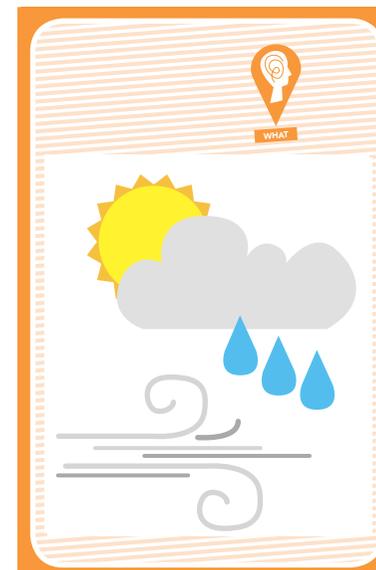
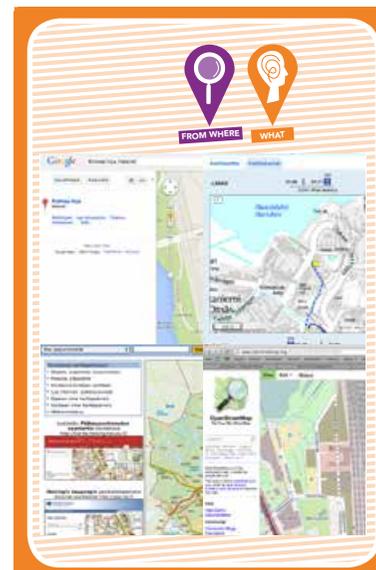
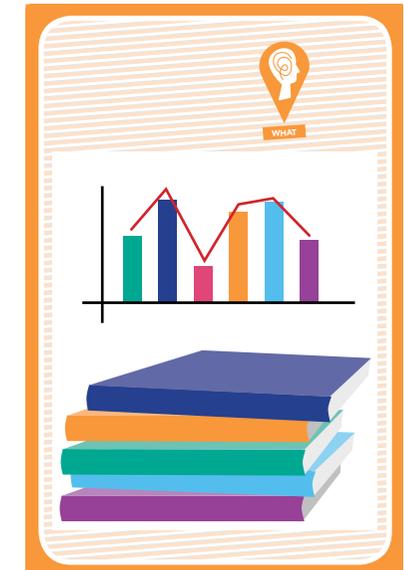
THE
CARD
DECK

THE “WHAT” CARD CATEGORY is about the kind of urban information citizens need and/ or use (What kind of urban information does one need/use?). Urban information needed and used by citizens is extremely diverse, but the most common is information about weather conditions, one’s location and route information.

Information about weather conditions is important to the citizens. It has an impact on e.g. clothing and timing. Information on wind conditions would be useful for cyclists, because headwind affects the travel time (unlike traffic jams), but at the moment it is not available in a useful manner. Information regarding outside air quality interests many, but currently it is not local enough.

Google Maps, The HSL Route Finder, kartta.hel.fi, and Open Street Map for example, make it possible to know where one is, what is the straightest or shortest route to where one wants to go, and where and how to find places of interest. The most used map service is Google Maps, although the company’s commitment to personal privacy might be questionable. A relevant question to ask is “do I want Google to know everything?” The Helsinki Regional Transport information service about exceptional situations (HSL Poikkeusinfo) is handy when unexpected disturbances in public transport happen.

In addition to urban information accessed via specific services, there is also a great need for research data, especially if one wants to gain more in-depth and trustworthy knowledge about specific conditions or issues. Additionally, citizens’ own experiences serve as a good source of information, for example, knowledge about routes, metro stations and their facilities, accessibility information, calmness of spaces and places. However, citizen’s own knowledge seems to often be left unused, or shared only via social media with like-minded people. Could it be better distributed, and even reach organizations and official actors that might benefit from it.



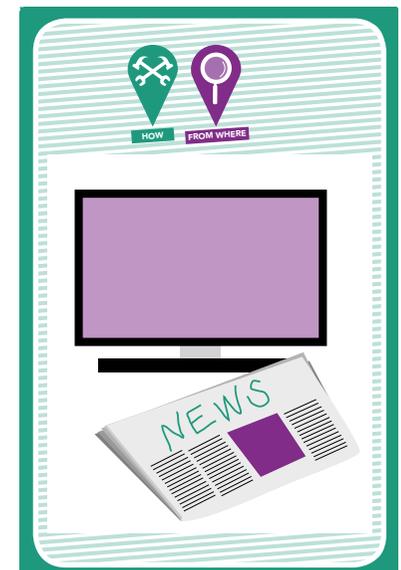
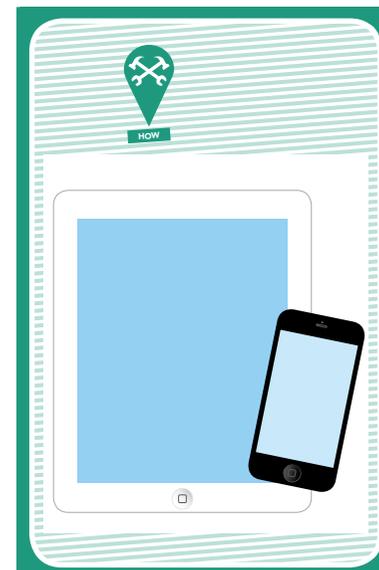
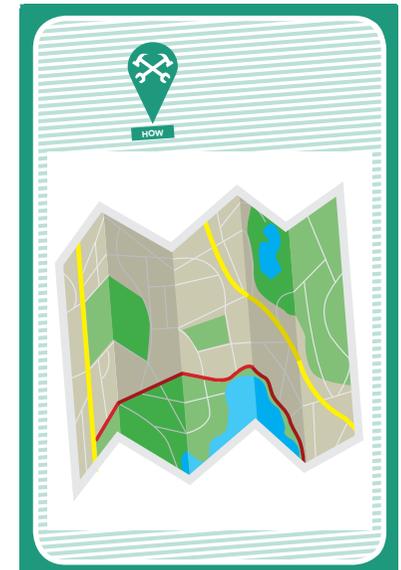
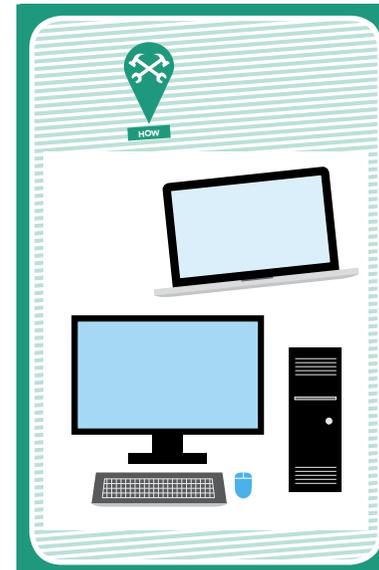
THE
CARD
DECK

THE “HOW” CARDS portray different interfaces that citizens use when they access urban information (How does one access urban information?).

Most of the interfaces used are technical devices, such as computers and various mobile devices. A desktop and/ or a laptop computer are found in every home, and they still are the most common tools for searching and using information online. Mobile devices enable real time interaction with urban information in urban space. Many people in Helsinki are using smartphones constantly. The smartphone battery life is a problem, as it often does not last the whole day, even if it is charged every night. Various operating systems also cause issues: independent app developers are not able to produce several different applications to be compatible with every single operating system. However, not everyone owns a smartphone, or even wants one! Text messages and phone calls can be sufficient as means to contact people.

Application-programming interfaces (APIs) were mentioned by the more technically savvy. They play an important role in making it possible to tinker across platforms with urban information, and for example, create interesting mashups.

Finally, urban information is not accessible only in digital form. Interfaces such as paper maps and traditional media are also important. For example a paper map is a trustworthy tool in any context: there is no battery to run out, and no reflecting screen... On the other hand, a paper map has to be dug out from the bottom of the bag and unfolded, and it can get wet...

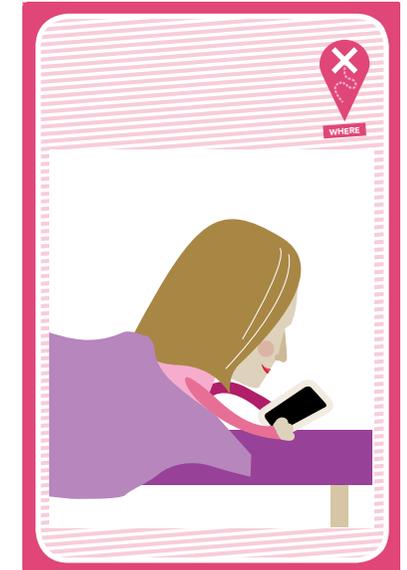


THE
CARD
DECK

THE “WHERE” CARDS portray examples of situations and places where citizens use urban information (Where does one need/use urban information?)

Urban information is often needed everywhere, even when people are on the go. Those with mobile devices and a mobile internet connection can access it anywhere. Currently there is only little urban information available for citizens in public transit, except for occasional weather forecasts on screens in the metro and trams. More information should be made visible as public transportation vehicles as well as stops are a good place to distribute information.

It is also important to remember that much of the search for urban information also happens at home, for example searching for route information, timetables, opening hours, locations, and accessibility information... Many people still check their mobile phone or tablet in bed before going to sleep. Would that be a good moment to be reminded to check one's energy consumption for example?

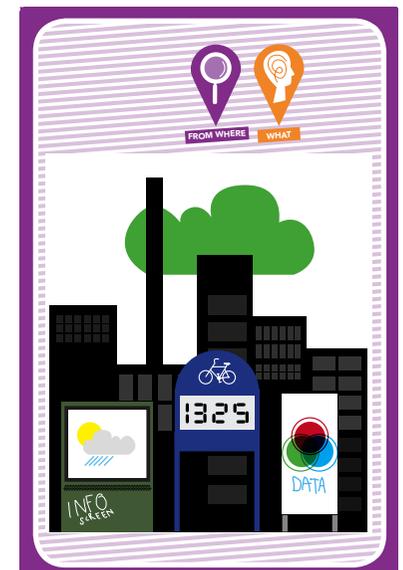
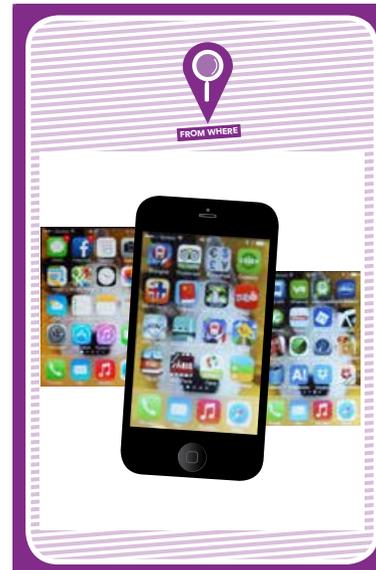


THE
CARD
DECK

THE “FROM WHERE” CARDS refers to the sources of urban informations (From where does one access urban information?). Examples include urban information services often produced by organizations, such as the Helsingin Energia’s Sävel+ service for monitoring one’s energy consumption or the Helsinki Region Transport’s Journey Planner. Sävel+ is not so much in use because environmental activists who are already aware of their energy consumption don’t need to use it, whereas others, who might benefit from it, stumble upon the service’s weak usability and the fact that one needs to go through many steps before starting to use it casually. The Helsinki Region Transport’s Journey Planner on the other hand is highly praised for its usability and ease of use at home or on the go. This service enables to search for public transport routes and timetables, and it also serves as a map. Additionally, it has a handy cycling and walking feature that can be used to find out what is the straightest or fastest route by bike or on foot. It also gives information on bike lanes and elevation, which is not considered as a very important feature by expert cyclists because they already know them, though might be useful for less expert cyclists.

Other examples in this category include mobile applications, which are popular with smartphones users. There is a plethora of mobile apps that handle maps, air quality data, information about transport, social media... Applications are easy to download, especially the ones that are free. But are there already too many applications around, when all services have their own apps and smartphones are already full of applications?

Whereas there is a great amount of urban information distributed via personal digital services. Public screens are sometimes used, but they still remain very much an advertising tool. A good example of an alternative way to provide urban information was done in the form of an art project: “Green cloud” was a community art project by Dodo ry, Helen and Pixelache. The citizens’ actions had a real time impact on the size of a green cloud installation, which changed according to their energy consumption.

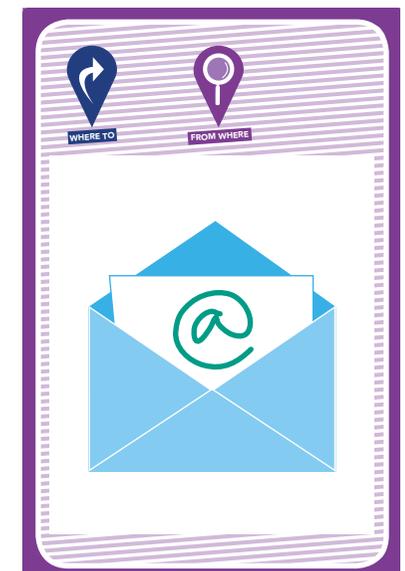
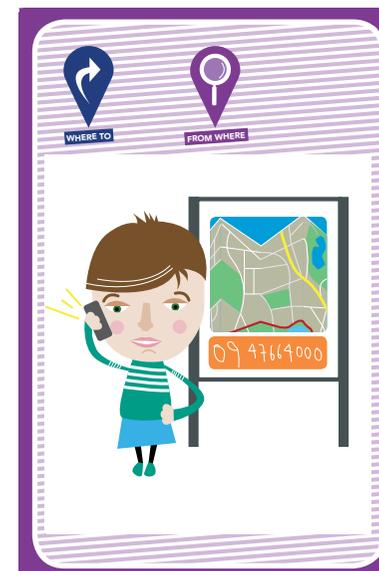


THE
CARD
DECK

THE “WHERE TO” CARD CATEGORY refers to services and platforms where citizens can share their own information (Where to share urban information?)

People’s own knowledge about the city can become shared urban information. Such knowledge can be generated and shared through social interaction in real life, for example through discussions, reading circles, tips and other peer-to-peer information sharing. However, the knowledge generated or shared in this way often stays only inside the group of peers. E-mail is also an important channel to share information, however, for many, social media seems to be the channel of choice. A growing amount of urban information is nowadays shared over social media, and special interest groups are formed.

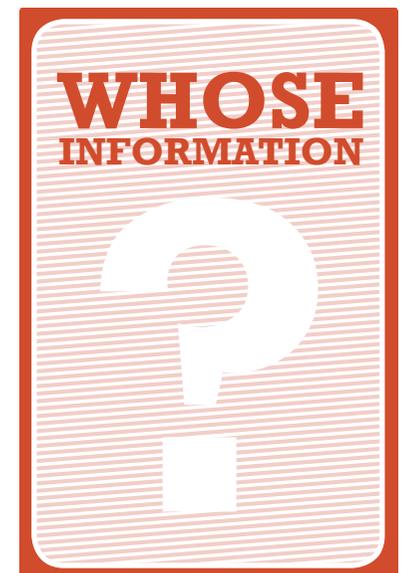
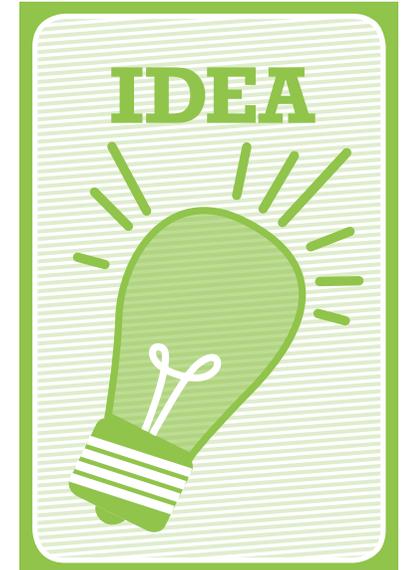
Not many services exist where citizens can share urban information with officials, but they are slowly increasing in Helsinki. Some even work in a two-way fashion, meaning that citizens can share their urban information, and at the same time they receive feedback from officials.



**THE
CARD
DECK**

THE “IDEA” CARDS present a variety of ideas collected from citizens regarding the different types of urban information and its distribution, sources, use, and accessibility. For example how to bring urban information closer to citizens’ everyday life, and what kind of information sources would actually be useful. The idea cards also brings forward the kind of information that can help to enjoy, act, and survive in a city.

THE “WHOSE INFORMATION” CARD CATEGORY reminds and aims to generate discussion of the ownership of information, which is sometimes unclear and ambiguous.



2) The PERSONAS

Personas are an analysis and presentation format that builds realistic and evocative portraits of people (potential or actual users) grounded in the personalities, realities and anecdotes of real people. Personas have been popular in user-centered design, ever since Cooper's description of personas in 1999 (Cooper 1999).

The Helsinki toolkit includes three "personas" that present citizens who use urban information in multiple ways. The three personas reflect the Finnish context and carry characteristics gathered from the different people we had collaborated and interacted with. The personas act as an important reminder of what are the various everyday needs of citizens for urban information, beyond the jargon used by organizations. These three personas are a starting point for working with the toolkit. More personas could and should be added to the mix.



THE
PERSONAS**Mary Mobile:
a housewife who uses
public transport**

Mary is a housewife who lives in a 50's apartment building in Herttoniemi, Helsinki, with her husband and their two year old child. She is an active participant in neighbourhood initiatives, and also a member in an environmental organization. She uses public transport, mostly metro and buses, but sometimes also trams when in the center of the city. Mary recycles, saves energy, and is interested in the microgeneration of energy, which she wants to know more about, and follows discussions about in Facebook groups. She does not own a smartphone, but is nevertheless active online, both through her personal life and through her organizational activities.

WHAT KIND OF URBAN INFORMATION DOES SHE USE?

weather, routes and timetables, maps, news, own knowledge, opening hours, playground locations, urban harvesting map.

WHERE DOES SHE USE INFORMATION?

at home, on the go and in public transit if there is information available.

HOW DOES SHE ACCESS INFORMATION?

computer, traditional media (magazines, morning TV show).

WHERE DOES SHE GET INFORMATION FROM?

social media, especially from Facebook, e-mailing lists, peer-to-peer, urban space.

WHERE DOES SHE SHARE HER OWN KNOWLEDGE?

in Facebook groups, writes a blog in environmental organization's website, e-mail.



THE
PERSONAS**Neil Neighbor:
an allergic cyclist**

Neil is a student who lives near the city centre. He cycles everywhere until the snow comes. If the weather is really bad, he uses public transport: metro or tram. As an allergic, he suffers from the street dust in springtime, and he doesn't know how to avoid that. Neil owns a smartphone and actively uses its applications on the go and at home.

WHAT KIND OF URBAN INFORMATION DOES HE USE?

routes and timetables (the most important is to get a straight route from a place to another), weather, own knowledge, lunch menus.

WHERE DOES HE USE INFORMATION?

at home, on the go.

HOW DOES HE ACCESS INFORMATION?

computer and smartphone.

WHERE DOES HE GET INFORMATION FROM?

social media, traditional media (online radio), mobile apps (maps, routes).

WHERE DOES HE SHARE HIS OWN KNOWLEDGE?

discussions in Facebook groups.



THE
PERSONAS**Connie Consumer:
a house owner
who drives a car**

Connie lives with her family in a house in a suburb, 20 kilometres from the center of Helsinki. Their house is heated with electricity. She also has a fireplace in use during winters to reduce electricity bill. Connie drives to work to the city center every day, and it takes 30 minutes one way. She also drives her two kids, who go to primary school, to their hobbies several times a week.

WHAT KIND OF URBAN INFORMATION DOES SHE USE?

weather, news, experience based knowledge about morning traffic, experience based knowledge on their own electricity consumption (compares also numbers in electricity bills, because the heating uses so much energy).

WHERE DOES SHE USE INFORMATION?

at home, on the go.

HOW DOES SHE ACCESS INFORMATION?

traditional media (the local newspaper, morning TV show, radio when driving), computer at work, iPad at home, smartphone.

WHERE DOES SHE GET INFORMATION FROM?

webpages and e-mails, social interaction with people (tips from neighbors, other parents, colleagues), with smartphone mainly uses e-mail and weather applications.

WHERE DOES SHE SHARE HER OWN KNOWLEDGE?

e-mail, mainly work related information.



3) The DESIGN STAGE

The stage is a physically shared element for group work where the rest of the elements of the toolkit are placed. In concrete terms, it is a big sheet of paper divided by a timeline drawn in its middle, some drawing materials (pens, markers, etc.) and a theme (which is written down).

The timeline provides a concrete starting point for working on urban information from a citizen perspective. It is used to keep track of a person's day, for example one of the personas included in the toolkit. It can be used for placing annotations and a selection of cards from the card deck, in such a way that they relate to the chronology of the persona's day. It is possible to explore the persona's normal day or a specific situation that would disturb the persona's day. The design stage helps in starting the discussion and documenting it in a shared / visual way to all present. Choosing a particular "theme" helps give direction to the discussion and keep it on track.

4) The ANNOTATION STICKERS

The design stage is complemented with a set of annotation stickers to help participants structure and write down their own thoughts regarding urban information and the personas, and to place them in relation to the persona's day on the timeline.

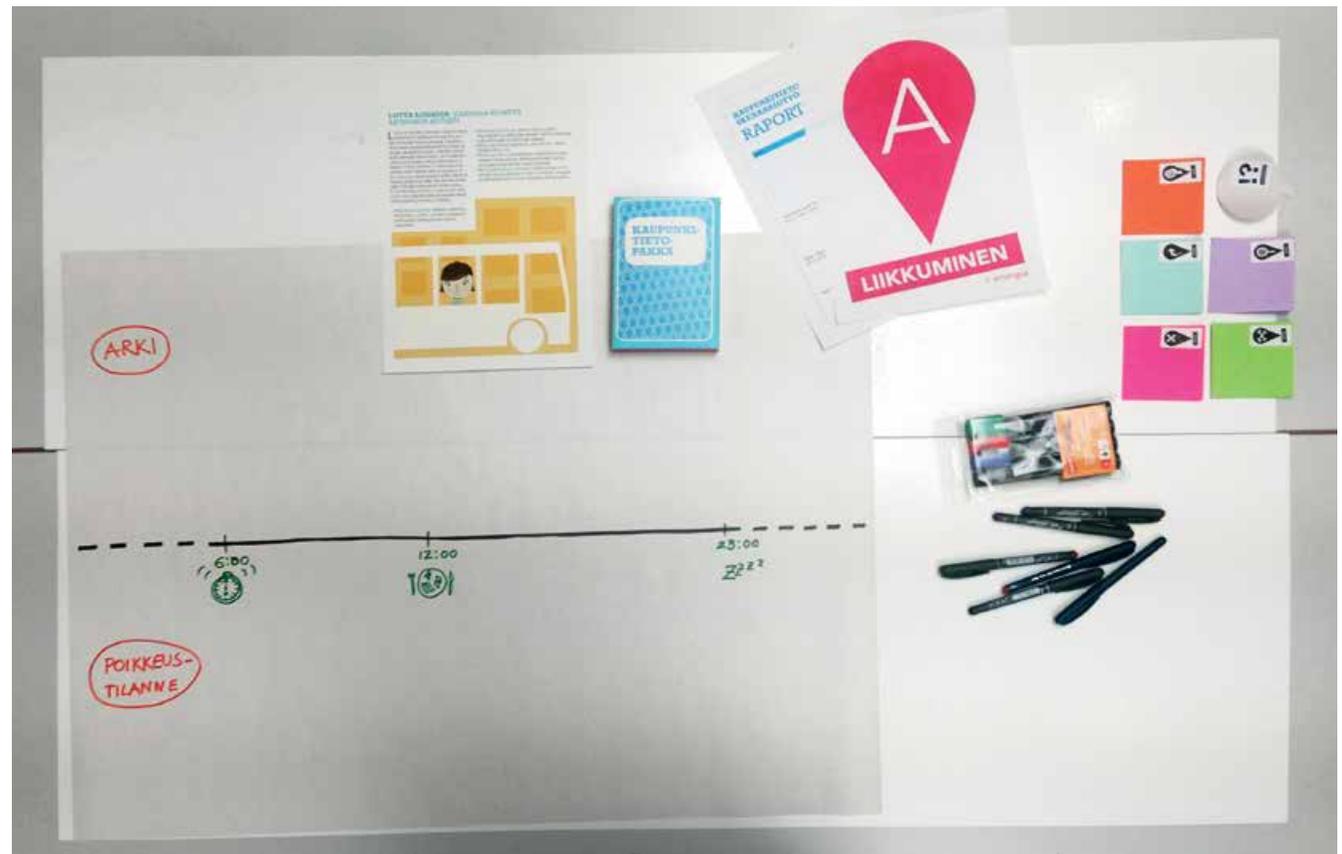
The annotation stickers we have used were Post It notes labeled with the same categories as the card deck – WHAT, HOW, WHERE, FROM WHERE, WHERE TO, as well as an additional sticker marked with category COMMENT.

5) The SUMMARY FORM

This is a simple A4 form for noting down thoughts, ideas, results that have come up while using the toolkit. The summary form can be customized, for example if it is used to document the outcomes of a workshop where the toolkit is used.



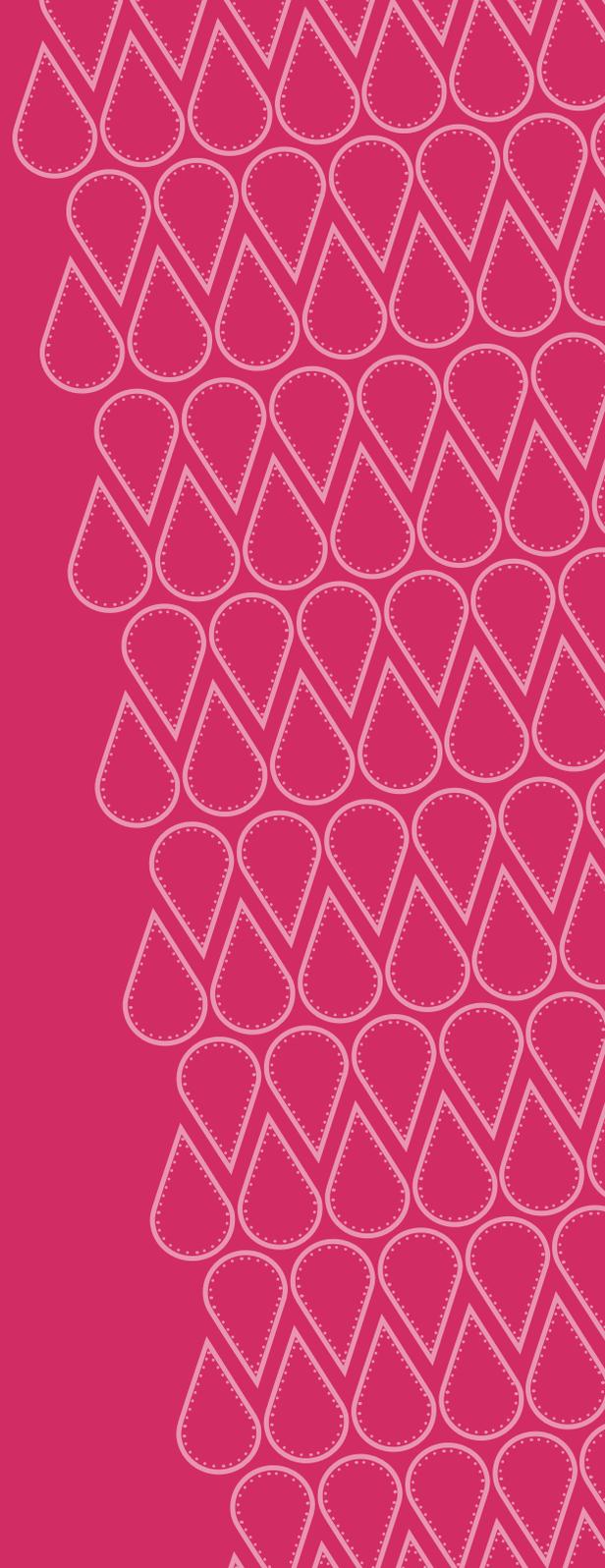
The card deck can be downloaded at tyokalupakki.media.taik.fi





4.

USING THE URBAN
INFORMATION TOOLKIT



4. USING THE URBAN INFORMATION TOOLKIT

The Urban Information Toolkit can be used in different ways. It can provide inspiration for single users or groups working together. It can also be used as a supporting tool in workshops. So far, we have used the toolkit as part of a half-day workshop that we organised in Helsinki in autumn 2013. We marketed the workshop as the “Urban Information scenario building workshop” (“*Kaupunkitieto-skenaariotyöpaja*” in Finnish). We wanted to test the workshop and toolkit format as a means to spark collaboration between heterogeneous groups of experts, amateurs and professional amateurs (proams) interested in urban information. Our aim was to bring forward a more citizen-generated understanding of urban data, information, and technology, in a way that can be productively linked to the needs of other stakeholders, such as corporate players and city officials.

We invited various professionals as well as active citizens interested in urban information. We particularly targeted members of our KaToHan project partners organizations (HSL, HSY, Helen, Siemens and Santa Margarita), the groups of active citizens that we had contacted for the mapping exercise as well as their associated networks, Open Data activists and App developers, as well as other researchers. We used various channels to market the workshop, most notably e-mails, Facebook and Twitter. Registration for the workshop was open to anyone interested. We nonetheless limited the number of registrations to in order to keep the event easily manageable. We used the online platform Eventbrite for the registration.

The workshop gathered 36 participants interested in learning more about urban information and finding possibilities for



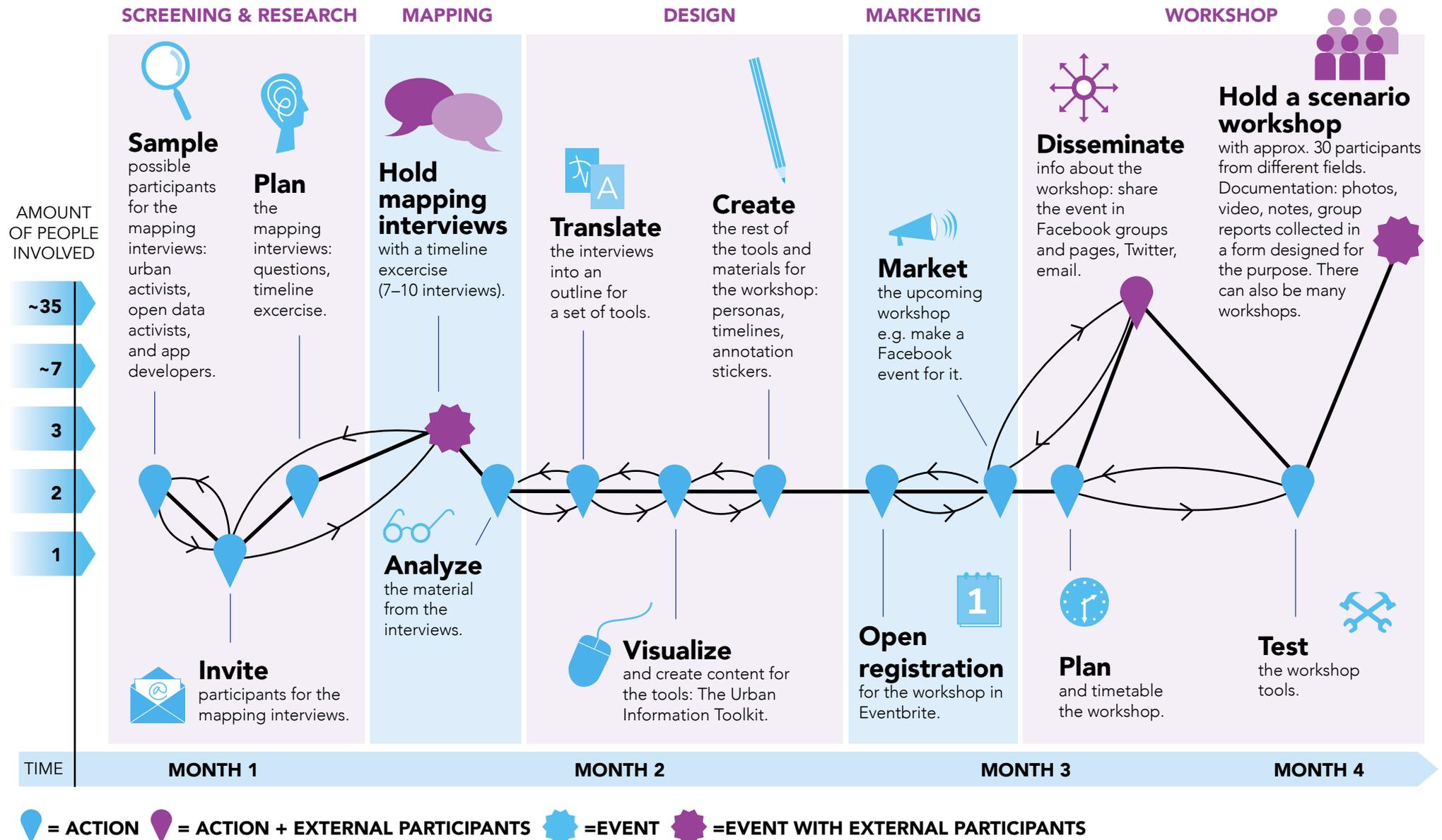
collaborations and the building of new ideas and action points for the future.

Based on the participants' interests and backgrounds we created 5 different discussion tables (A, B, C, D and E) and gave each of them an Urban Information Toolkit. In order to keep with the spirit of collaboration in heterogeneous groups, we insured that each table included members of the different representative groups. We asked the participants to start by

introducing themselves to one another and sharing their personal aims regarding the workshop. Each table was then given the task to start working by building a scenario from the perspective of a particular Persona and a relevant theme (mobility, energy and air quality) that had been assigned to them. As a first step, we asked participants to visualize a day in the life of their assigned Persona, drawing on practices and situations found in the deck of cards, and to annotate with notes and the cards themselves the timeline placed on the provided design stage. The second step involved a special situation scenario in Helsinki (e.g. a catastrophe or extreme weather) and discussing how to make the persona's life easier in this special situation. Each table could use the resources at hand as well as their own expertise in order to envision ideas and applications of urban information that would target the special situation. At the end of the three hours, each table summarized their results by writing on the summary form their group's best idea, how this idea could be implemented, and what challenges it faces. The workshop was wrapped up by a joint discussion session and voting for the best ideas.

The workshop format that we have followed in Helsinki is one example of how the Urban Information Toolkit can be used as a tool for facilitating discussion and collaboration in heterogeneous groups. We have chosen to hold one workshop only, but this was because of time constraints. In other situations, it might be beneficial to host a series of workshops. In our case, the preparation of the workshop had to be closely integrated to a series of marketing and promotional activities, which expand the screening and mapping activities started at the beginning of the research process (see Figure 1 on page 25). If working with a ready-made toolkit (e.g. the Helsinki one), the initial screening and mapping activities are not needed, but the marketing and promotional ones are. Those undertaking them must then research what relevant communities or individuals would be targeted for the workshop(s).

Figure 1





5.

SOME RESULTS
FROM HELSINKI

5. SOME RESULTS FROM HELSINKI

The five groups that were formed during the workshop also came up with a variety of ideas, mainly for future services around urban information. The results reflected the background of the participants, their personal and/or professional interests, as well as the personas that we had assigned for them. The results per table can be summarized as follows:

TABLE A, PERSONA MARY MOBILE: URBAN SCREENS FOR A VARIETY OF LOCAL URBAN INFORMATION

The idea was to embed standard, robust modular screens in places relevant for people in their everyday life, such as bus stops, but also in building entrances. Anyone can buy and install urban info displays and is able to connect/configure them to appropriate urban info feeds, such as locally relevant general information (bus stop schedules, air quality information, and information about any kind of special situation or disturbances) or information specific to a housing consortium or a neighborhood, which would be generated by residents and other local stakeholders. The screens need to be powered by different sources (battery and electric grid) to warranty their continued availability. Their hardware is developed in open hardware spirit so that different manufacturers can provide them.

TABLE B, PERSONA CONNIE CONSUMER: AUGMENTED AND RESPONSIVE PERSONAL MOBILITY JOURNEY APPLICATION

This idea was about a mobile application where one's planned or ongoing journey through the city is augmented (automati-

cally or on demand) with information about the surroundings e.g: air quality, spread of infections, happenings etc.

TABLE C, PERSONA NEIL NEIGHBOR: COMBINED OFFICIAL AND PERSONAL, EXPERIENCE-BASED INFORMATION

This idea is about enabling the possibility to aggregate and combine urban information from both official and citizens sources.

TABLE D, PERSONA MARY MOBILE: EASY SERVICE FOR NON-ACUTE EMERGENCIES

A sort of 112 online service in plain language for non-acute emergencies where an assessment of the situation can quickly be done, joining a taxi car pool for emergencies can be arranged, and a certified nurse can be ordered.

TABLE E, PERSONA NEIL NEIGHBOR: "MOBITRANSIT" AN INTEGRATED SOLUTION FOR PERSONAL MOBILITY

The idea is to expand the current Mobitransit app (www.facebook.com/mobitransit) by enabling aggregates of personally relevant existing urban information, from various sources in order to best plan ones routes and navigate through the city, by combining cycling and the use of public transportation. Such aggregates of relevant information could already be created by using Tweetdeck (about.twitter.com/products/tweetdeck), where one chooses relevant Twitter sources – i.e. specific users and hashtags – to follow.

Whereas these five suggestions are not in any way groundbreaking, the discussions that took place while they were presented brought forward relevant concerns related to urban information:

- » There is a variety of hardware / interfaces to keep in mind, not just the ubiquitous mobile phones.
- » There is a need for diverse types of urban information – how

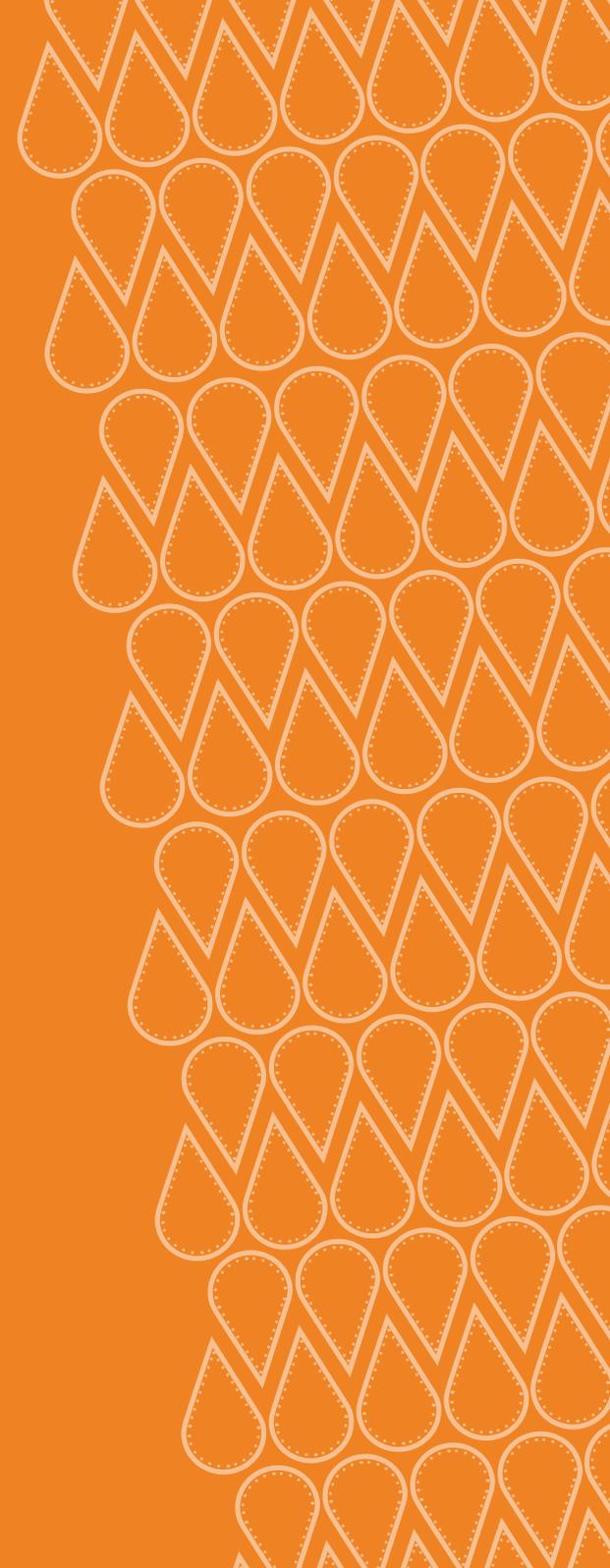
- to encourage creators and providers to share their own?
- » There is a need for shared standards in urban information.
- » Sustainability and business models are big challenges: How to commercialize, scale or even sustain services based on urban information, who should pay/fund them, and why?
- » Digital tools for accessing urban information need power! There is a need for alternative energy supply sources, especially in emergency situations.
- » There is a need for new visualization paradigms to facilitate comparisons, understanding, and contextualization of urban information from different sources.
- » More support (e.g. funding) for developing urban information related ventures (start-ups, social enterprises, service providers, etc) is needed, beyond ideation and initial experimentation.
- » Challenges of doing work and integration across organizations remain big.
- » More capacity building for public sector up-to date service and IT procurement process is needed.

AFTER THE WORKSHOP HAD TAKEN PLACE, we asked all the participants to fill a feedback form. We also later discussed the workshop and its results in more details with the other researchers and the members of the KaToHan project partner organizations. Most of the workshop participants said that they had appreciated the workshop and got something out of it. The Urban Information Toolkit was also deemed useful and its visual appeal was praised. Most participants stated that what they expected from the workshop was mostly to connect and network with people they don't usually interact with. The workshop format and group work was good for that. It was also clear that most participants felt that there is a need for more interaction between communities that so far have not interacted together, for example around the topic of urban information.



6.

MOVING FORWARD:
THE PROMISE AND
CHALLENGE OF SUSTAINABLE
COLLABORATION



MOVING FORWARD: THE PROMISE AND CHALLENGE OF SUSTAINABLE COLLABORATION

We have situated this research around the need to build a more nuanced view of smart cities, which would take a citizen-generated understanding of urban information into consideration. The research questions that have guided our work were the following:

How can we bring forward a more citizen-generated understanding of urban information in a way that it can be productively linked to the needs of various actors, such as citizens, corporate players and city officials? How can we spark and sustain collaboration between these actors?

To answer these questions, we have turned towards an ethnographic-based participatory design approach (Blomberg & Karasti, 2013). We have reached out to active citizens in Helsinki, and gathered with them, through a collaborative mapping exercise, insight into the way they understand and deal with urban information in a mundane fashion. We have then used this material to create the Urban Information Toolkit, which was used as a collaborative work tool in a workshop with a heterogeneous group of actors in Helsinki (see Figure 1 on page 25). We have then asked the participants for feedback. As a result, we can say that by grounding our research in qualitative data collected through mapping exercises and interviews with active citizens, and by translating these results into an easy to use toolkit, we have provided the means for heterogeneous groups of actors to better understand how citizens relate to urban information on an everyday basis and what are their needs.

Additionally, by approaching various actors and inviting them to a workshop where we have enabled and facilitated collaborative work, we have sparked collaboration between groups of people who had not yet interacted together, despite similar areas of interest. It was clear, from the participants' comments, that there is a strong need for such networking opportunities and collaborative work opportunities.

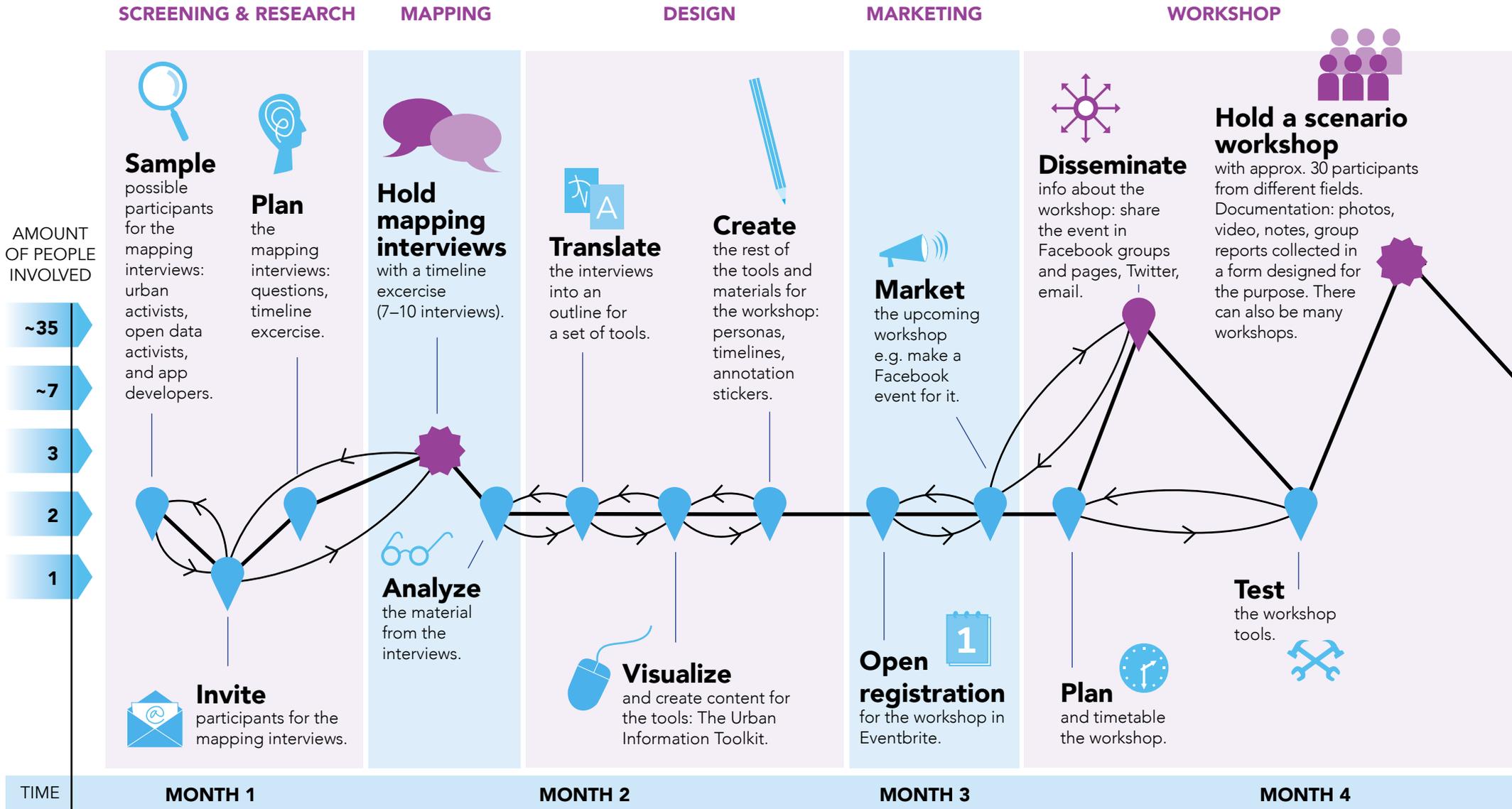
As a result of the work reported in this publication, we can say that user-centered and participatory design activities are well suited for activities that aim to challenge the understanding of smart cities and urban information. The workshop format provided a good means for bringing such a heterogeneous group together and it was a format that is understandable to all. The toolkit provided a "boundary object" that facilitated communication and collaborative work.

However, although collaboration inside a heterogeneous group of people was deemed important and was even successfully launched, the challenge of sustaining this collaboration was not met. What happened was that most participants expressed an interest in keeping in touch with the others after the workshop was help. They wanted to receive the contact information of all participants and be informed of any results we come up with. We therefore asked everybody if it was possible to share their e-mails with the others. As we got positive responses, we decided to send the preliminary results to all participants by e-mail. However, we did not manage to upkeep the nascent network. The main reason was the lack of time and resources allocated for this in the KaToHan project. Moreover, none of the participants expressed any interest in actively maintaining the network and we didn't manage to transfer the leadership of maintaining the network to anyone else.

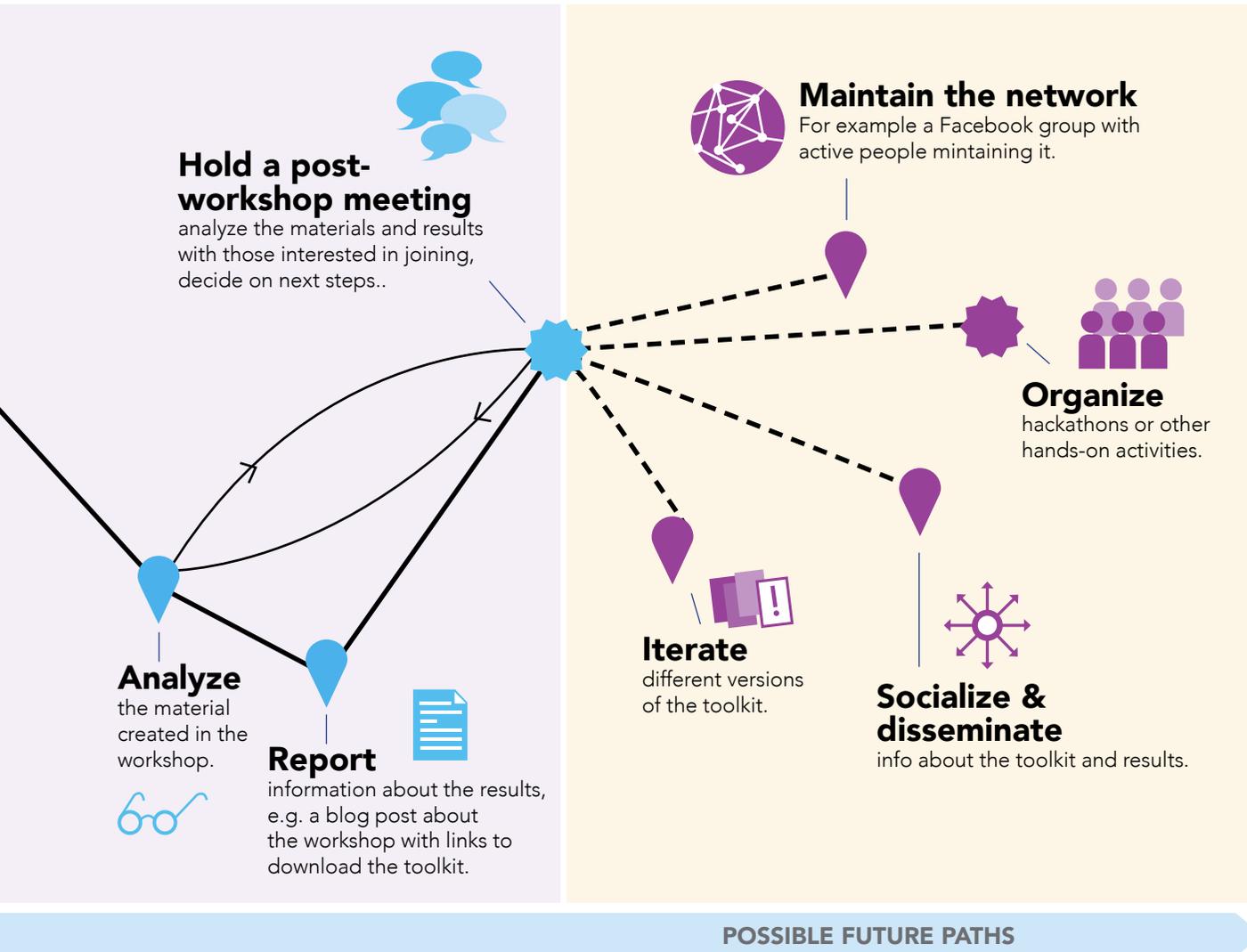
The difficulty in creating sustainable and working partnership beyond designer and research initiated staged activities is a known challenge (Botero & Saad-Sulonen, 2013). It is nonetheless extremely difficult to handle within the context of

short-term funded research (Kommonen & Botero, 2013). We can nonetheless propose some activities, based on some of our previous work as well as work done by others, which can take the networking and collaboration started in the workshop further. These include creating groups on social media (Facebook is popular in Finland), organizing hackathons (Briscoe & Mulligan, 2014; Horelli et al., 2013), and disseminating best practices (see Figure 2 on pages 30–31).

Figure 2



**NETWORK MAINTENANCE, HACKATHON,
DISSEMINATION & BEST PRACTICES**

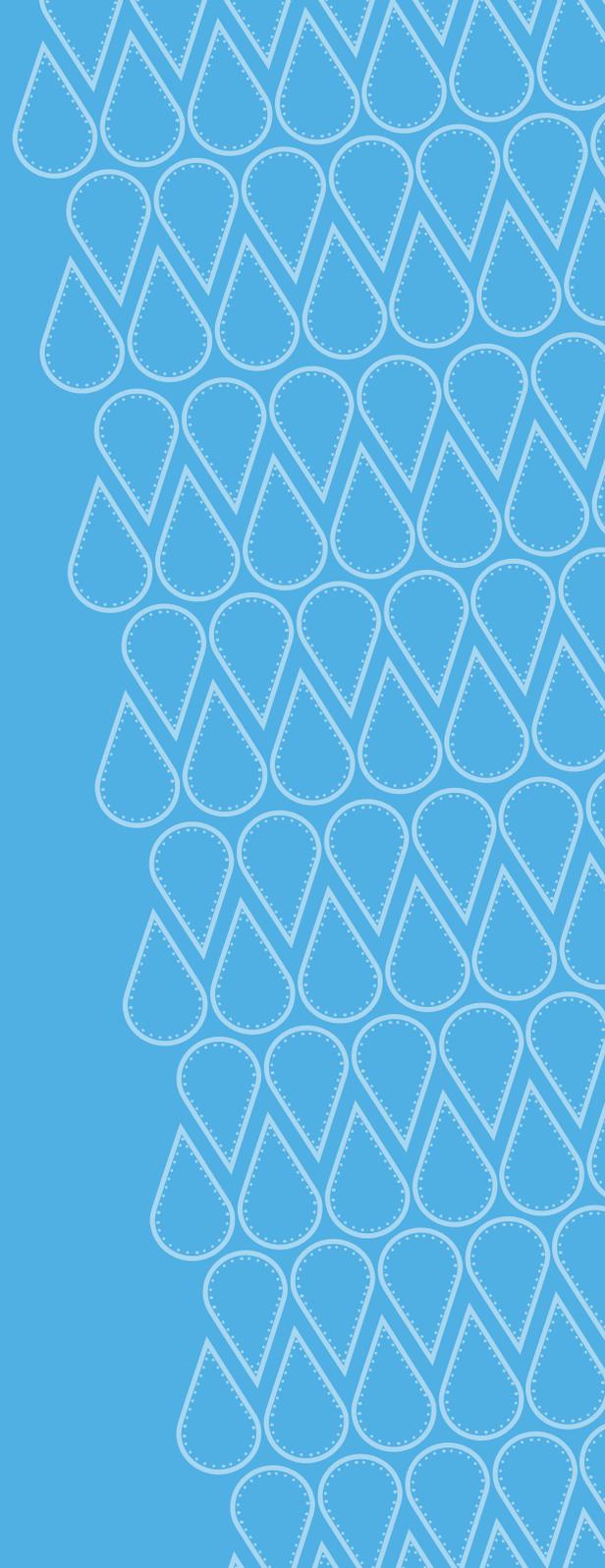


FINALLY, WE WANT TO END THIS PUBLICATION with a few suggestions for industry and city authority representatives, who would be interested in integrating a citizen-centred approach to urban information to the activities of their company or municipality. The suggestions are based on Figure 2.

- » If operating in Helsinki, there is no need for the initial research and design-based steps of the process, because the work has been done and the Helsinki Urban Information Toolkit is available for free download here: <http://tyokalupakki.media.taik.fi>
- » One workshop or a whole series of them can be organized around the theme of urban information and the smart cities. It is important to have someone facilitating the workshop.
- » Marketing is extremely important. Companies and municipalities need to involve their communication unit or public relations person to market the workshop(s).
- » Marketing and communication in general is also very important after the workshop(s) in order to ensure that the results are transmitted to all participants and that the network formed is maintained. It is important to involve the communication and PR people in that. Furthermore, the results should be integrated to executive reports to be shared with decision-makers in the organization or the companies.
- » It is important to keep in mind that the so called smart cities cannot be about technology only. They are about people, their everyday life, and their everyday (digital) practices. In order to develop innovative solutions that have a strong potential to be embraced by citizens, it would be important to approach citizens early on, get to understand their existing practices and needs, and enable genuine collaboration in shaping together the urban/digital environment and services related to living in it.



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The aim of the Urban Information Toolkit is to provide inspiration or facilitate collaboration inside heterogeneous groups of people that are interested in urban data and information. In this publication, we give an overview of our motivation to come up with such a toolkit, which is very much linked to our desire to bring forward the need for a citizen-centered approach to smart cities. We also explain the methods we have used to develop the toolkit, and report an example of a concrete application context where we used the toolkit as part of a workshop in Helsinki in autumn 2013. We conclude with proposals for ways the Urban Information Toolkit can be integrated to activities of companies and municipalities interested in the topic of urban information and collaboration with citizens.

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