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Digital Mobility Data for Urban Planning

- Format** Two-hour workshop with the cividi team
- Location** Zürich, cividi office
- Output** Dokumentation of the ethical values that guide cividi's action
Potential proposal for possible longer-term cooperation
- Follow-Up** Ethical Mapping Toolbox
Responsibility Workshop
Trust Workshop

The Zürich-based start-up SmartUse, along with its pioneer project *cividi*, is a driver of innovation in urban planning and civic tech. Urban space should be used and developed more intelligently through digitalisation. This is driven by the datafication of public spaces. What are the ethical concerns associated with this innovative approach?

cividi wants to digitally expand the analogue city through the analysis of diverse data sources, thus creating added value for decision makers and civil society. For instance, *cividi* is designing instruments that visualize mobility patterns of residents. An accompanying platform is being developed through which openly available data packages can be made actionable. The aim of the start-up is to demonstrate how people interact with their urban environment and thus contribute to evidence-based, participatory, and collaborative urban and spatial development.

Evidence-based

cividi wants to help shape future urban and spatial development of cities through data analysis. For this purpose, statistical, commercial, and crowdsourced data on mobility patterns are being analysed and visualised. For example, *cividi* can identify and visualize which regions of the city are more or less frequented in order to optimize infrastructure investments through data-driven analyses.

Participative

cividi encourages inhabitants to make their data available in order to actively participate in urban planning. The evaluation of data can reveal which places inhabitants visit particularly often and where effective improvements would be most appropriate and/or effective in regard to the design of public spaces. In this way, the right to an attractive and healthy living environment could be ensured for all.

Collaborative

On the one hand, *cividi* cooperates with authorities that conduct urban and spatial planning. On the other hand, *cividi* uses commercial data on mobility, which is generated by companies such as Swisscom, but also through crowdsourcing projects such as Bikeable.ch. *cividi* is convinced that data only become meaningful when they can «flow», i.e. are publicly accessible for evaluation, and become visualized. *cividi* thus interacts with a broad network of start-ups, academia, architects, large companies as well as activists of the open-knowledge and open-data movement.

Leading values

cividi's actions and products do not occur in a vacuum, but reflect the interaction between technology and society. Which values should innovations be based on in order to shape a city of the future?

Inclusion

Traditional democratic instruments only have limited representation of all individuals affected by a decision-making process. Thus, people without citizenship are not usually granted the right to participate, even if they are also impacted by urban planning. cividi wants to counteract this deficiency: The spatial behaviour of people who are excluded from the direct-democratic process are also included through mobility data and can be utilized in participatory evaluations. In addition, mobility data may also be used to represent a large number of people who have not been politically involved in the past, but who carry a smartphone with them every day. Their behaviour should also shape future urban planning.

Efficiency

Investments in public space are also financed by the public sector, which is why optimal use of these resources is desirable. cividi is convinced that evidence-based urban planning is efficient and profitable. The aim is to create a space that is aesthetically pleasing and lends wings to the inhabitants' creativity, as well as ensures the well-being and health of the community.

Transparency

On the one hand, the goal is to enrich urban planning with a tool that transparently presents data on movement in public space and thus contributes to better decision making. On the other hand, the algorithms developed by cividi are transparent: The entire codes are made publicly accessible. This transparency is intended to help build trust in the application of cividi.

Ethical Risk Areas

Following the collection and discussion of cividi's leading values, the workshop focused on identifying risk areas that might be associated with cividi's products. The following ethical questions were identified and discussed:

Representation / Equality

Data can contain biases because not all people are represented the same; data are by nature «superficial». *Data bias* stems from non-representativeness due to demographic differences in the use of devices. Thus, there is a risk that misleading conclusions will be perpetuated if certain data packages are used for urban development. The team has thought about this and tries to increase representativeness by using data from multiple sources, including passive and active crowdsourcing data.

Voluntary Consent

It is possible that some user data is collected without the knowledge of the subjects or are used for unforeseen purposes. This may jeopardize the privacy of users and their freedom to govern their own data. Consent procedures are a challenge that the team aims to resolve. In order to mediate the ethical risk, cividi relies, among other things, on the implementation of data protection guidelines such as the GDPR. The team is also committed to ensuring that the questions associated with voluntary consent are discussed by responsible higher-up agencies. As a result, they seek to put the right process in place that balances ethical, legal, and practical concerns.

Participation

cividi sees itself as a platform that improves social participation and representation in processes that affect everyone. Participation biases reflected in data pose a possible risk for the company with unforeseeable consequences that may arise from the application of the data packages - e.g. at the level of reputation or exclusion of individuals. The team does not yet have an internal solution for addressing issues related to patterns of unequal participation. The team believes they should develop such solutions by applying a diverse set of perspectives (sociological, legal, technological). Therefore, cividi seeks partnerships with other start-ups to help identify and mitigate risks related to participation.

Responsibility analysis

On the basis of the values and risk areas discussed, the participants jointly determined two aspects for which cividi assumes responsibility.

cividi assumes responsibility for...

... being transparent.

cividi is transparent in regard to its algorithms and its work process. The goal is that these remain comprehensible, and thus reproducible, in order to promote open participation. This should also increase trust in the company and its objectives. At the moment this is strategically enforced by publishing algorithms and work processes on the platform. In this respect, it was observed that keeping up this transparency approach could potentially be challenged by future commercial objectives of the company.

...being proactive about user privacy.

The team members of cividi have the responsibility to be proactive in relation to their values and risk areas. This means that they are not satisfied with simple answers to privacy questions, but are always critically re-assessing the value of privacy for cividi.

cividi does not take responsibility for...

...quality of the crowdsourced data.

The team discussed that they do not take responsibility for the behaviour of the data providers. However, cividi is responsible for producing compatible and integrable data packages.

... the further use of the data packages provided by cividi.

The team wants to make the data packages that serve as the basis of their analysis publicly available. However, it is challenging for them to take responsibility for the possible misuse of those data packages.

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