*Lupi (2017): Co-design of use patternst o rethink offline activities through civic technologies In: Proceedings of 15th European Conference on Computer-Supported Cooperative Work - Exploratory Papers, Reports of the European Society for Socially Embedded Technologies (ISSN 2510-2591), DOI: 10.18420/ecscw2017-to-be-added*

# Co-design of use patterns to rethink offline activities through civic technologies

Lucia Lupi
Department of Computer Science, University of Turin
Interuniversity Department of Regional and Urban Studies and Planning, Polytechnic and University of Turin
*lupi@di.unito.it*

**Abstract.** In this paper, we describe one of the methodologies used to co-design a civic platform oriented to support local project and activities carried out by different stakeholders operating in the city. Combining storytelling, gaming and sketching, we defined with them a set of use patterns to integrate social network technologies in offline activities, highlighting the strong connection between analogical and digital tools.

## Introduction

Cities are the working environment of a plurality of stakeholders acting in the same space with different operational protocols, organizational or contextual constraints, and competing goals. Designing an urban platform intended to be a shared virtual space for coordination, cooperation and collaboration among public administrations, local institutions, civic organizations, businesses, and citizens is still an open challenge (Evans-Cowley 2010, Gordon 2016).

The methodology reported in this paper is included in a broader research program aimed to design and develop a civic social network called FirstLife by following a participatory approach in an agile development framework (Kautz 2011, Ferrario 2014). FirstLife is a web platform intended to offer a digital workspace associated to a map-based interface to support local projects and

initiatives implemented in the city at different scale from the building to the urban level. The main goal of the platform is to design a new type of social network, focused on the public dimension and impact of the actions and choices of every player acting in the city, both from the public and private sector. (Antonini 2016, Lupi 2016) The direction is to find which solutions can be implemented to create a collaborative system where collective and network sociality (Wittel 2001,Haier 2003, Foth 2008) can be combined in the places where we live and work consolidating online and offline interactions and collaborations.

In order to understand how a network sociality based on individuals needs and expectations can be conciliated with a collective sociality based on shared goals for local organizations and groups, we involved in the process mainly members of public administration, citizens organizations, business, local institutions (vigoda 2002). This choice had been motivated by the need to explore the relationship between constraints and opportunities of using a social network platform for members of structured organizations to share information about their everyday activities and to understand the links and overlapping among different organizations (Sharp 1999, Eric 2011, Horkoff 2016).

The on-going participatory process for the development, testing and iterative evaluation of FirstLife is specifically oriented to design the use patterns that can be implemented on the platform to support a variety of activities and projects performed by different type of users in real world. Consequently, the output of the participatory process is not about the design of interfaces or specific features, but on the use patterns to be addressed and facilitated on the platform by improving usability and defaults settings. Indeed, the framework is the one of a co-design process aimed to define a future use of the platform, or rather a use-before-use, taking into account social and organizational constraints that can affect its future adoption.

Following, we explain how we combined storytelling, gaming and sketching activities to make easier for a single organization focusing on its internal workflow implemented for a specific type of activities or projects and defining how it could be translated in platform object and contents. At the same time, the comparison of internal and external workflows had been used to open a dialogue between different organizations to understand how the integration of the platform in their everyday activities could support collaboration practices (Coughlan 2002, Holtzblatt 2014).

# Methodology

The methodology reported in this paper is the result of a progressive refinement of workflows representation during a series of 25 workshops involving about 350 participants in six months, from May 2016 to July 2016 and from October 2016 to January 2017. Each workshop involved about 15 people

belonging to a single organization or a group of homogenous organizations (such as citizen associations grouped in a local consortium).

The goal of the workshop is explained at the beginning to avoid misunderstanding about the role of platform and researchers and to encourage participant in giving their contribute for the development of a tool useful for their organization and other people sharing their same needs.

The workshop facilitators team includes a designer of the platform with experience in requirement elicitation and process analysis and an expert in community engagement and training. The language used to communicate with participants excludes a technical vocabulary of the computer science domain and partially integrates the one of the operational domain of participants to support a cooperative attitude and a continuity between offline activities and content production on the platform.

Workshops last from two to three hours, organized in four steps that can be synthesised as follow:

- Collection of user stories focused on a project
- Presentation of objects and rules of the platform
- Recombination of the collective user story based on objects and rules of the platform
- Use of the platform to represent the project.

The starting point of each workshop is a storytelling session about a recent project, an on-going or planned initiative or ordinary activities. The oral representation is combined with a physical representation of the "story" on a board where the main points of the workflow and the changes collaboratively elaborated are represented in an extemporary sketch of the project made by the facilitator. The collective user story is built in a collaborative way, starting from an initial version of the first participant telling his version and adding, editing, removing new parts and elements to the general schema of the project with the contribution of other participants.

In this phase, the focus is on the internal dynamics of the organization, roles of participants in the projects, sequence of activities and their timing, needs and expectation related to the external relationship with other organizations such as the local administration or specific citizens groups, etc. The output is a sketch representing in a simple way the management of the internal activities within the established hierarchy and protocols, the touch points with other stakeholders acting in the same domain or area, the communication needs and channels of each participant involved in the project.

The second step is the presentation of the current features of FirstLife as objects and rules to combine. Objects correspond to the platform entities such as places, stories, news, groups, and events, in addition to the main elements as the space represented by a multiscale map with its geographical units (buildings, city clock, neighbourhood, districts, city boundary) and the time represented by a

global calendar. Rules correspond mainly to the type of actions allowed on each entity (creation, editing, collaborative building through sub-entities, etc.) or relations that can be set among a group of elements such as parent-child relation (e.g. a group in a place, a story associated to an event, some news related to a group over time, etc.).

Before getting the hands on the platform and starting to use it, it is necessary to understand what the logic behind the user actions is, get used to the type of contents and their combinations, and finally derive the possible applications of the platform functionalities in a specific case study. Using analogical tools to explain how a technological platform works is an effective way to engage people with a low digital literacy, but still interested to understand and improve the impact of their activities thanks to new media. Moreover, it helps in creating an informal and productive environment to analyse limits and opportunities of the platform structure without focusing on interfaces and subjective evaluations of the graphic of elements.

In the third part of the workshop, facilitators give five groups of cards to participants. Cards have different colours for each type of platform entities: places, stories, news, groups, and events. The goal is going back to the multi-perspective story defined before, and find how to represent it in the space and over time by using the platform entities. The use patterns can be multiple in reference to the role of each participant in the organization or coordinated among different members of a group. The use pattern can be imagined as opened to the contribute of external organizations or not. Participants can work in groups of three or four people on a single use pattern extracted by the general story, or all together in defining the restitution of the main parts of the story.

This task requires an important abstraction effort, but the initial drawing of the project workflow giving a general framework to the participant proposals contains it. At the same time, rethinking a workflow on the basis of flexible and aggregate entities in space and time usually lead to highlight new elements in the story and explore the operational context from a different point of view, enriched by ideas, constraints and use patterns defined by other groups in the same workshop.



Figure 1. Groups working to define their use patterns based on the platform rules and objects.

The final part of the workshop is reserved to use the platform as support tool for:

- the internal coordination for the project implementation on a time-location based platform,
- the participatory documentation of project activities through a collaborative building of events and groups related contents,
- the consolidation of the local network around an organization by representing partnerships and common initiatives with other stakeholder operating on the same domain or area.

Already knowing logics and rules of the platform, participants can focus on the experimentation of FirstLife by building their project using the platform entities and functionalities. In this step, users evaluate also the usability of the platform regarding the intuitiveness of interfaces, the effort to learn how to accomplish basic tasks, the feedback of the platform in case of unexpected actions and errors, the help in making easier team activities implemented before by using other tools, analogical or digital.

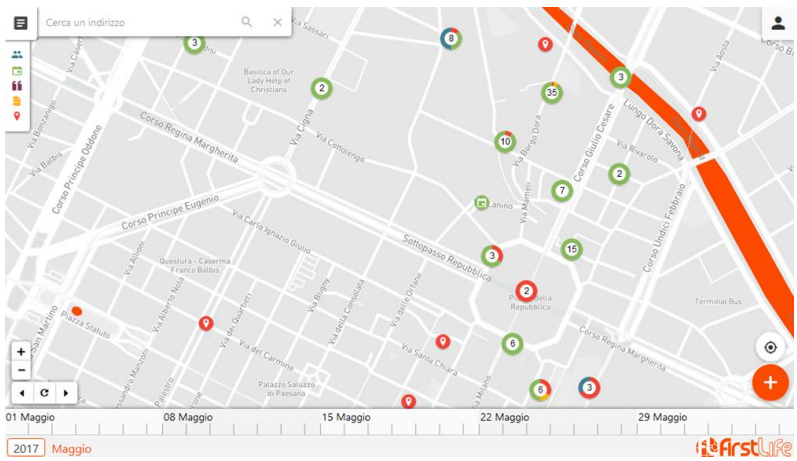


Figure 2. A screenshot of the use pattern “Festival of the popular culture”: 130 events organized by 130 activators, single or in group, and coordinated by a local organization. The festival lasted 6 days and events was distributed in three neighbourhoods.

# Results and conclusion

Each workshop has been organized as a multiphase path where participants was supported to explore individual and organizational rules and perspectives, external constraints and common guidelines to operate on a shared platform as individuals and members of a structured group for a common goal related to a specific project.

We collected around sixty use patterns in 25 workshops, but the analysis of results highlighted recurrent patterns in organizations of the same type, such as local associations or small business. Nevertheless, this approach provide the opportunities to study how a general platform with civic purposes can become a

shared workbench for different type of stakeholders implementing community and local activities in the same area. Indeed, starting from a limited set of objects and rules, the expressivity of the platform in representing a wide range of city projects has been stressed to its limits and help in opening a dialogue among users groups with needs sometimes conflicting.

The mix of analogical tools to prepare the approach with a digital platform is still an experimental way to combine co-design activities of use patterns, requirement elicitation, training, and user testing tasks.

Inputs collected during this series of workshops, combined with the output of other participatory activities carried out during the first two years of FirstLife, lead the development team to work on five subsequent releases of the platform improving its usability and the set of functionalities to better meet users expectations.

# References


Antonini, A., Lupi L., Boella G., Buccoliero S., & Schifanella C.. (2016). Collaborative Multi-Perspective Urban Knowledge and Civic Media A Never-Ending Design Challenge. In *The Sixth International Conference on Advanced Collaborative Networks, Systems and Applications* . Barcellona: IARIA.

Coughlan, J., & Macredie, R. D. (2002). Effective communication in requirements elicitation: a comparison of methodologies. *Requirements Engineering*, *7*(2), 47-60.

Eric, S. K. (2011). Social modeling for requirements engineering. Mit Press.

Evans-Cowley, Jennifer, and Justin Hollander. "The new generation of public participation: Internet-based participation tools." Planning, Practice & Research 25.3 (2010): 397-408.

Ferrario, M. A., Simm, W., Newman, P., Forshaw, S., & Whittle, J. (2014). Software engineering for'social good': integrating action research, participatory design, and agile development. In *Companion Proceedings of the 36th International Conference on Software Engineering* (pp. 520-523). ACM.

Foth, M., Choi, J. H. J., Bilandzic, M., & Satchell, C. (2008, October). Collective and network sociality in an urban village. In *Proceedings of the 12th international conference on Entertainment and media in the ubiquitous era* (pp. 179-183). ACM.

Gordon, E., & Mihailidis, P. (Eds.). (2016). *Civic media: Technology, design, practice*. MIT Press.

Hajer, M. A., & Wagenaar, H. (Eds.). (2003). *Deliberative policy analysis: understanding governance in the network society*. Cambridge University Press.

Holtzblatt, K., & Beyer, H. (2014). Contextual Design: Evolved. *Synthesis Lectures on Human-Centered Informatics*, *7*(4), 1-91.

Horkoff, J., & Yu, E. (2016). Interactive goal model analysis for early requirements engineering. *Requirements Engineering*, *21*(1), 29.

Kautz, K. (2011). Investigating the design process: participatory design in agile software development. *Information Technology & People*, *24*(3), 217-235.

Lupi, L, et al. (2016) "Back to Public: rethinking the public dimension of institutional and private initiatives on an urban data platform." Proceedings IEEE International Smart Cities Conference ISC2 2016.

Sharp, H., Finkelstein, A., & Galal, G. (1999). Stakeholder identification in the requirements engineering process. In *Database and Expert Systems Applications, 1999. Proceedings. Tenth International Workshop on* (pp. 387-391). Ieee.

Vigoda, E. (2002). From responsiveness to collaboration: Governance, citizens, and the next generation of public administration. *Public administration review*, *62*(5), 527-540.

Wittel, A. (2001). Toward a network sociality. *Theory, culture & society*, *18*(6), 51-76.