

AperTO - Archivio Istituzionale Open Access dell'Università di Torino

Back to public: rethinking the public dimension of institutional and private initiatives on an urban data platform

This is the author's manuscript

Original Citation:

Availability:

This version is available <http://hdl.handle.net/2318/1646137> since 2019-02-24T19:37:21Z

Publisher:

IEEE

Published version:

DOI:10.1109/ISC2.2016.7580813

Terms of use:

Open Access

Anyone can freely access the full text of works made available as "Open Access". Works made available under a Creative Commons license can be used according to the terms and conditions of said license. Use of all other works requires consent of the right holder (author or publisher) if not exempted from copyright protection by the applicable law.

(Article begins on next page)



Towards We-Government: Collective and participative approaches for addressing local policy challenges

Grant Agreement number: 693514

Back to public: rethinking the public dimension of institutional and private initiatives on an urban data platform

Lucia Lupi, Alessio Antonini, Guido Boella, Claudio Schifanella, Luigi Sanasi

claudio.schifanella@unito.it

IEEE International Smart Cities Conference (ISC2) 2016

<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7580813&isnumber=7580726>

Licensing information

Access to this publication is ensured by the IRIS UNITO repository at <http://hdl.handle.net/2318/1646137>

Full Reference

L. Lupi, A. Antonini, G. Boella, C. Schifanella and L. Sanasi, "Back to public: Rethinking the public dimension of institutional and private initiatives on an urban data platform," 2016 IEEE International Smart Cities Conference (ISC2), Trento, 2016, pp. 1-8.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement number 693514.

Back to public:

rethinking the public dimension of institutional and private initiatives
on an urban data platform.

Lucia Lupi, Alessio Antonini, Guido Boella,
Claudio Schifanella, Luigi Sanasi
Dept. of Computer Science
University of Turin
(lupi, antonini, boella, sanasi, schi)@di.unito.it

Abstract — Currently, both private and institutional actors are using the most common social networks to promote the public dimension of their work, but only big players can afford large investments for spreading their initiatives, practices or building a participatory process of any kind. The existing social networks have several limitations: they have been modelled on a personalistic logic centred on the individual and on his/her private life. On the other hand, information about initiatives and actions of public interest are shattered in institutional and private websites making impossible to depict what is happening in the city. This contribution addresses the design a public platform for public initiatives, opened to any kind of public players, from citizens to institutions, from non-profit organizations to companies. We present the outcomes of the scenario analysis and the participatory design process, showing how general requirements have been translated in design principles and functionalities available in the platform FirstLife.

Keywords—*social network; public platform; participatory design; neighbourhood scale.*

I. INTRODUCTION

A. Scenario

Complexity and richness of life in urban environments is given by the interaction of different players in the city, structured in different forms over time and space. Not only activities of institutional actors such as local authorities, universities and public agencies have an impact at urban scale, but also activities and initiatives of all those private entities such as associations, voluntary organizations, community groups and companies. These are crucial in determining the quality of life and well-being in the city, the level of social and economic integration and the effectiveness of public programs. Then, the public dimension of private services and initiatives is complementary to policies implemented by institutional actors because private actors act as public players at urban level [1,2,3,4].

Currently, both private and institutional actors are using the most common social networks to promote the public dimension of their work [5] because those platforms offer the opportunity to disseminate information and engage people at a seemingly affordable cost [6]. Indeed, sharing visions, decision processes,

project results, and activities, is a need increasingly heard from any public players, but only big players can afford large investments to spread initiatives, practices or to build a participatory process of any kind [7].

The existing social networks have several limitations [8,9,10]:

- a personalistic logic centred on the individual and on his/her private life,
- purposes other than support the coordination of different player in the city for public goals,
- relationship dynamics based only on personal connections,
- a global perspective, not focused on the local scale which is still the main scale in which we live and act.

Moreover, the deep fragmentation of information about initiatives and actions of public interest in many institutional websites and community portals makes difficult the representation and documentation of what happens in the city, and the opportunity to create synergies among all local players to work together towards common objectives. All information is public, but access to information determines a big difference between what is potentially public and what people recognize as something of public interest and use as common goods.

There is not a theory about what is public or public utility concerning information that effectively addresses this problem in qualitative and not quantitative terms, offering solutions on how to enhance the contribution of the citizen engagement in its structured forms.

We are tackling the shared need to make visible the actions of all local player at urban level enhancing their contribution to the community well-being through the development of a public platform designed to engage private and institutional actors in:

- being part and promote public initiatives,
- sharing information about neighbourhood life and sensitive topic at local level,
- coordinating and implementing initiatives oriented to a participated urban regeneration.

This work has been produced as part of the research activities related to the project “WeGovNow!”, financed by the Horizon2020 programme.

B. Research questions

Design a public platform for public initiatives, opened to any kind of public players, from citizens to institutions, from non-profit organizations to companies, requires considering many issues:

1) What can we consider public or of public interest? In addition, how to enhance the community and local dimension of private initiatives and public programmes?

2) How the public dimension of subjects and projects/initiatives affects the design requirements of a technological platform?

3) Which are the methodologies to engage local players in the design process of a new platform and in its use for their public goals?

C. General approach

After we formalized the problem at a theoretical level in its three aspects, we worked at the same time on technological development and engagement process.

We developed a map-based web app focused on data context filtering and entity creation. About user identity verification, we are planning to exploit the civil registry and systems such as SPID, the Italian authentication system for digital identity. Moreover, we integrated a business management tool in order to build integration middleware between existing tools, for instance local authorities issue management systems. The development has followed an agile methodology with very fast sprints in order to implement and test new features according with the workshops timing.

The platform is meant to exploit geographical data from local authorities or crowd-based project such as OpenStreetMap. The platform implements the idea of spatial and temporal closeness as measure of relevance through a map and a timeline, but it does not fall in the web GIS applications. In particular, the platform addresses “civic media”, a new kind of media oriented to public social reality, participation and civic engagement.

We set the participatory process involving citizens and structured bodies as public players with their own networks, competences, projects and visions of the city. We have detected their needs, but we worked trying to find the common elements among a wide range of requests and translating them into simple-to-use features. After, we verified the suitability of the platform in meeting the citizens’ expectations and the usability of the platform functionalities to support local initiatives and projects.

D. Contribution

In this paper, we are going to present the development path of the public platform called FirstLife¹, designed and implemented by the research group Social Computing of the Computer Science Department, University of Turin, and currently tested in the city of Turin.

¹ FirstLife can be found at <http://firstlife.di.unito.it/>, a sandbox can be found at <http://test.firstlife.di.unito.it/>

We are going to explain how we translate the outcomes of the problem analysis and the participatory design process into design principles and functionalities available in the platform.

E. Paper structure

We structured this paper in a section focused on methodology and three sections about the solutions we have chosen regarding context, process and objects, or rather the three aspects we consider to design a platform intended for a public use and with a public utility.

In the methodology part, we explain how we defined analysis context, design requirements and engagement models. In the following sections, we present the interpretative framework, design principles and functionalities related to the implemented solutions.

II. STATE OF THE ART

We are addressing the problem of how to build a generalist public platform for community urban life. In order to make something general enough to meet a wide variety of needs and expectations, we did not choose a topic, a target, a purpose, and users’ interaction protocols. This approach had consequences on both research and practical aspects. Indeed, how could we rigorously address this challenge proposing something new? We looked at the problem from an orthogonal perspective, considering the transversality as the key to overcome both the personalistic logics of existing social networks and the fragmentation of information from different sources. In other words, we chose to develop a multi-actor, multi-purpose, multi-thematic platform, where:

- we represent all and only what is of public interest, excluding the private dimension of personal relationships, interests, opinions;
- we consider all players, but only for the part of their activities having a direct impact on the community life in a public dimension;
- we take into account each player as incorporated in a series of real networks (professional, institutional, organizational, neighbourhood networks) that can be overlapped and the relevance of which is space-based and variable over time.

As far as we know, we have not yet found similar approaches that we can be compared with. Following, we are going to present briefly relevant approaches, platforms and projects relevant for specific choices and features we made.

A. User and information management

As general approach on most of the existing platforms, citizens as individuals and collective bodies, even when they are structured institutional players, are being considered in one-to-one relations.

Here we present two platforms intended for public information from and for single isolated subjects.

Geokey (<http://geokey.org.uk/>) is a system to build community maps that can be used to document groups activities. Geokey is meant for fast personalization, it is not

intended to bridge information from different sources/actors or as coordination tool for coexisting groups.

Ushahidi (<https://www.ushahidi.com/>) is a crowd-based mapping system focused on crises and emergencies at local scale. It is an open source platform for data collection, management and visualisation of alerts and reports. Ushahidi is focused on collecting individual reports about facts somewhere at some time, in order to set an emergency response.

In real life and real society, relevance, reliability and visibility of all players in a public dimension is related to their networks (structure, extent, permanence) and the effects of their actions [1].

B. Community life

In the last years, many research and entrepreneurial projects addressed the local community's needs. After years of global village, now the focus is back on the neighbourhood scale to enhance material and immaterial resources at local level.

For instance, we present two platform developed for two very different contexts: the closed US communities and the European urban scenario.

Nextdoor (<https://nextdoor.com/>) is an American private social network at neighbourhood scale, oriented to connect citizens resident in the same area in a closed community such as fenced complex. Information are not public outside the circle, where each prospective user must be invited by an other user already registered. The community model is collaborative but not inclusive or opened, for instance, to temporary residents or tourists. In addition, there is no space for structured actors and their contribution to the community well-being.

My neighbourhood (<http://www.my-n.eu/>) is a local platform founded as research project by the European 7th framework programme and tested in many European cities. My neighbourhood provides a virtual space to discuss about topics at local level (not necessarily local topics), to share local news, to send private messages to other users. It provides also an exchange market for goods associated with a matchmaking system for services. The platform is designed for citizens, business and associations, but the role of the decision making (local authorities) is limited to read the data and know which the community needs are.

Discussing topics at local level is not necessary addressing local topics. Moreover, we need to promote real actions to activate real change, disarming the debates of global topic at local level and preventing further divisions within local communities.

Being open about local resources is also important for inclusiveness in dynamic societies. If the dissemination model is bounded to being part of an "inner circle", we promote status quo increasing the relevance of resistant static players.

C. Smart citizenship

What means being engaged and proactive in smart cities today? Citizens are being challenged in proposing solutions,

discuss proposals, voting and choosing, providing information (being sensors) for administrations and fellow citizens. We consider three main models [11]: 1) the consulted/voting citizen, 2) the informed/informing citizen, 3) the human sensor.

For instance, LiquidFeedback (<http://liquidfeedback.org/>) is a platform for proposition development and decision-making. In LiquidFeedback, there are a collective moderation and voting protocols helping users to build iteratively a common proposal voting each contributions. A strong point of LiquidFeedback is the transparency of the process: votes are public and voters' identity is checked with the help of local authorities.

The other approach is based on citizens as public monitoring agents. Improve my city (<http://www.improve-my-city.com/>) is a platform to connect citizens and local authorities but limited to issues reporting and management. It is intended as a tool for local governments seeking collaboration with their citizens in identifying problems and requests, complaints and suggestions. In Improve My City, citizens cannot make proposals or document their activities finalized to improve the city.

The city sensing approach exploits users as moving "sensors" in order to collect environmental information such as noise pollution or traffic [12]. Traffic platforms are emblematic examples of that: citizens are human sensors, they provide and consume information about traffic using their mobile devices. The "sensing" is focused on quantitative aspects rather than involving users in order to access to the semantic of social structures and networks.

New paradigms of smart citizenship are shifting the focus from a pervasive use of high-tech devices to digital technologies enabling the social innovation [13]; or rather, people transforming their environment and cooperating through technological platforms.

III. METHODOLOGY

A. Definition of the analysis background

Define what is public or of public interest is a problem we faced focusing our attention on the impact and results of activities, projects, and shared data at local level, rather than considering the status of local players who promoted those actions. Indeed, the public utility of programmes implemented by local authorities and public agencies is taken for granted, but not necessarily they respond to the priorities perceived by citizens. Conversely, acknowledge the contribution of private initiatives to the improvement of community life is the first step to encourage public engagement and consolidate local networks and co-production processes that usually meet basic needs at a neighbourhood scale.

In order to design a platform intended for a public use and with a public utility, we analysed the above-mentioned problem breaking it down in the following aspects: context, process, and objects. In our analysis:

- Context is a set of pre-existing relationships among all players at local level, their networks and the global results of their combined actions on the community life;
- Process is a set of subjects directly involved in initiatives on the territory, users indirectly affected by those activities, the chain of actions and effects on both groups towards a common outcome in relation to their objectives/needs;
- Objects are the process outputs or, in other words, the information produced in relation to actions and data shared within the network.

B. Design requirements

Design requirements of a technological platform to enhance the public dimension of all players activities at local and community level can be divided into two groups: user management requirements and content management requirements.

User management requirements, for what concerns the user modelling aspects, include:

- Authentication, or verification systems of the user identity and validation options;
- Authorization, or allowed actions for users in relation to their roles in their specific context (citizens, public bodies, organizations, companies, etc.);
- User profile dataset, seen as a set of data requested to users in the registration form and relevant as public data, methods for tracing users' activity on the platform, and options to use such information.

As regards the management of the relationship among users, we considered:

- Kinds of relationship and connections among users;
- Reciprocal actions among users, divided into symmetric or asymmetric actions;
- Roles of user, declined in different types, depending on whether we consider an individual or a collective user.

Content management requirements we studied can be synthesized in:

- Definition of platform entities suitable to represent the public dimension of all actors and actions;
- Properties and functionalities of entities (types, levels, categories, filters, recommendation systems, queries, tools and customization options);
- Potential uses of entities available on the platform (logics, dynamics and control mechanisms offered to users).

C. Engagement models

The engagement of local players in the design process of our platform has been structured in three phases, followed by a fourth step of finalizing and spreading the use of the platform through their existing networks.

In the preliminary phase (June 2015), we organized a living lab opened to public and private actors (associations, local authorities, university, companies and professionals) to

collect and define needs, expectations and demands related to a new web application intended to support real communities and co-production processes at a local scale.

In this occasion, participants have worked on five topics: services accessibility, group coordination, local promotion, events management, and activities documentation. We have organized mixed team with members belonging to different sectors of (third sector, university, municipality, professionals, etc.) and we have invited them to take into account perspective, competences, roles, needs of others. We started to build and spread the awareness about the limitations of the existing social network in relation to public goals and collective actions, and we collected inputs to orient the FirstLife developments.

As second step of the participatory process, we carried out a verification protocol on our design choices. Within the framework defined by the principles of public utility and public interest of the platform and the requirements previously defined at a theoretical level, we asked for an assessment about the social acceptability and usability of the platform features implemented on the basis of our design choices from the perspective of the usage scenarios of each player.

In this phase, lasting from June 2015 to March 2016, we organized a series of meetings reserved to people interested in FirstLife or we were collaborating with. We presented the current status of the platform, we tested new functionalities and we collected suggestions or critical aspects related to the platform usability. Another important goal of this phase was to gather uses cases from our potential user, in order to model features to be responsive to the expectation and needs expressed by local players.

In the third phase, started in April 2016 and still on going, we have launched the experimentation by organizing a number of workshops where we work with groups on how to use the entities and functionalities available on the platform in connection with some scenarios proposed by participants. Those scenarios are related to their roles, activities at local scale and public goals. We are considering both homogeneous groups with members characterized by similar objectives and ways of acting in a public dimension (local authorities, private actors, non-profit organizations) and mixed groups of different types of players linked by acting on the same neighbourhood or city area.

During the workshops, we invite participants to think about what people usually mean by public or private information, appropriate and inappropriate uses of most common social networks, parallelisms and divergences of global virtual life and local daily life. Then, we work with them on two different lines: thinking yourself in the space (of your neighbourhood or your city) and thinking yourself trough time (permanence, transiency, continuity, discontinuity). Our objective is to contribute in creating awareness about the importance of the public dimension in the everyday activities of everyone. Consequently, which are the specific context and features of FirstLife and how to use it.

The step four is in progress, at the same time we are continuing the experimentation phase. It consists in two parts:

1) using FirstLife as a tool in ongoing or programmed projects of different type of players (especially public entities and non-profit organization),

2) activating participants in becoming “territorial agents” to disseminate FirstLife (approach, logics and goals) within their personal, professional, and civic network.

Meetings and workshops are documented through of reports aimed to translate needs and concerns raised by participants in inputs about interfaces usability, utility of existing functionalities and suggested improvements, acceptability of policies implemented for users and content management. Changes made to the platform features from one release to another are the result of this inputs translation process.

Following, we are going to explain the solutions we developed for FirstLife to address the problem of how to design a platform intended for a public use and with a public utility in its three aspects: context, process and objects.

IV. CONTEXT

Context analysis is a complex problem, which can extend indefinitely, resulting in an enormous amount of factors and data related to each other and in a myriad of specific cases making difficult to establish a general framework. The interpretation of the context and elements we consider in its analysis influence our choices about scope, design and platform functionalities, not only the implementation of specific technological solutions.

A. Scope

In order to establish the scope of a public platform, we started from our definition of the context as the set of pre-existing relationships among all players at local level, their networks, and the global results of their combined actions on the community life. Then we decided to consider only the aspects of those relationships, networks and actions having a public relevance, leaving aside all their private components as personal connections or shared private interests.

Moreover, we oriented the platform development toward a multipurpose and multi-thematic application to take into account a wide variety of topics, activities, projects and initiatives on which different actors work to build an integrated urban community.

We assumed the geographical relevance as guideline because we are interested to offer a tool to enhance actions and goals of community players at a neighbourhood or city scale, and in this perspective the space value is predominant compared to any theme.

For this reason, the design principle we have taken has been to set the relationships among users on spatial proximity and on acting together at local level, instead than friendship or leader/follower links.

B. Design principles

The choice to focus our attention on spatiality has determined a map-based main interface and has influenced the definition of content and user management requirements. In

compliance with the objective to give visibility to the public aspects of local actions carried out by all local players, we decided that all contents are public without prefiltering the information to make available for users. The management of visible information is performed on a geographical basis, using a set of temporal bounding boxes depending on the scale of interest, without relying on ranking algorithms or recommendation systems based on users' social connections. In this way, user-profiling mechanisms are in conflict with the platform aim and user management requirements are limited to the authentication and authorization protocols. The management of the relationships among users is led back to interactions on contents because contents are the expression of a joint action or a shared need in the community, therefore representative of social relationship among users.

C. Functionalities

The platform scope and these design principles impact on functionalities we have to develop in a public utility perspective, but also on features we choose to exclude from the set of functionalities available in FirstLife, leaving aside standard services offered by other platforms.

For instance, the user context, or what we know about the user, is defined by his/her identity and the actions made at local level and documented on the platform. We do not ask for personal information (gender, age, origin, religion, political opinion, marital status) and we do not make the user to retrace his/her network of personal relationships on the platform.

The functionalities we offer to the user for selecting his/her context of interest are based on spatial attributions, temporal factors and thematic filters.

In detail, we provide:

- bounding boxes diversified in geometry for each zoom level on an interactive map;
- a timeline with a granularity of intervals ranging from submultiples of hours to years;
- multiple categories systems based on spatial or functional classifications or related to the accessibility level, operative characterizations, etc.

Through a bounding box, users sees and interacts with content within their geographical area of interest. By using the timeline, users can choose a period of the past, present or future to be explored in its content. Users can choose a single category or a set of them to select a theme or a class of entity to visualize.

The platform does not provide private messaging services to avoid the construction of a private context between two or more users.

In order to prevent the creation of a context based only on users' preferences, we have chosen to allow users to share their perspective on entities (places, events, groups, news) in a structured framework, not limited to the expression of a personal opinion about a topic. For the same reason, we do not rely on ranking algorithms to present the most popular content to the user, but we decided to set up an alphabetical, temporal or spatial display order, with the option to establish a pre-set of preferences.

We do not perform an automatic customization of interfaces based on user profiling analysis because we assume that each user can access to the platform for a wide range of reasons related to his/her personal, professional, or community role.

V. PROCESS

As a part of the problem to define what and how a digital platform of public utility is, we have considered a process as a set of:

- subjects directly involved in initiatives on the territory,
- subjects indirectly affected by those initiatives,
- the chain of actions and effects on both groups towards a common outcome in relation to their objectives or needs.

A. Interpretative framework

From our point of view, we intend initiatives as a time-series of interconnected actions associated to georeferenced entities on the platform.

Then, we classified users in active and passive subjects. Active subjects can be divided into first level users, including all players promoting and implementing territorial initiatives and documenting them on the platform, and second level user, which are recipient and amplifiers of those initiatives by participating and sharing their experience on the platform. Passive subjects are not directly involved in specific initiatives but, if bounding box, period and theme of them match with the user context, there are the preconditions to upgrade from a passive status to an active one.

Lastly, we introduced the concept of common outcome because we have considered public dimension and results of the combined actions of all players at local level having an impact on the community as a whole. Indeed, although each subject acts on the territory accordingly his own objectives or needs, visions and perspectives shared within a community, as well as stratification and consolidation of urban-scale interactions among different types of players, determine an outcome that is public and therefore common.

B. Design principles

The tight interaction among all player at urban-scale and the possibility for each user to hold active and passive roles in the platform led us to decide two essential design principles:

- Users are divided into individual users (citizens) and collective users (including public administration sections, private or non-profit organizations, companies) in order to recreate a context adherent to the real society where everyone act in a personal capacity or as representative of a legal entity;
- All users have same tools and options to document their initiatives on the platform, interact with other users and contribute to improve the life quality in the city by promoting material and immaterial resources at

a neighbourhood scale, implementing local projects in coordination with other players and sharing information of public utility and social experiences in a public dimension.

Our classification in active and passive users determines the need to create a partition system of users in order to:

- enhance and support the initiatives of first level active users by offering them an operational environment to coordinate the actions within a group;
- aggregate content related to the sharing of views and experiences of the second level active users;
- present organically local initiatives to passive users.

The general design principle of having only public content accessible to all users, revised in view of the common outcome, has brought us to study a theory of content visibility based on filtering systems instead than set private content sections. Consequently, the partition system of users based on groups do not affect the complete accessibility of data.

C. Functionalities

The registration of individuals and collective users in FirstLife is carried out by using two different registration forms. In the first case, we require only name and email contact, while in the second case we ask also for an identification code such as the identification number of the organization or a VAT number, needed to identify unambiguously the legal entities registered on the platform.

Functionalities available to users for publish content on the platform allow everyone to create new georeferenced entities (places, events, news, groups, post), edit or cancel them, and integrate information entered by other users sharing a new point of view.

The partition system of users has been implemented by developing a set of functionalities reserved to groups, and specifically the option to create a customized map including all the entities related to the group activities. This group map can be exported to external websites, in order to document and promote the group initiatives on institutional/community portals and other social networks.

Groups are open content and visible on the map, with an administrator (who created the group) and each user can apply to be allowed to join the group and actively participate to the group activities, as discussions, projects, events, etc.

Regarding practical aspects related to our theory of content visibility, we have structured FirstLife as a container and a display for all entities. From this choice derives that group members can see exclusively the group content using a filtering system, but a general user not included in the group can see all the content on the general platform and the group content because they are not private or reserved content. The same logic is applied to sub-groups: the members of a group can see all the content of each sub-group and the member of it can use specific filter to isolate only the sub-group content.

The logic followed on other platforms is the opposite: content produced by a private group is visible to its members, but not to a general user because the platform shows and makes accessible only a part of the content that contains.

VI. OBJECTS

Objects are the processes outputs, and from our point of view, information shared on the platform. Thus, we defined the characteristics of the information as public object on a platform of public utility as followed:

- information have an author or an explicit source for open data, because non-anonymity is a prerequisite to act in a public dimension as a public player;
- information is always associated with a specific time, because we have to consider the entire range of possible transformation in the city and in the society, we need to avoid the assumption of static and invariable data, and we have to be general;
- information is always geolocalised because spatial relationships describe our context.

Starting from the context and process analysis, we had to select which types of information have a public significance and are suitable to represent the complex set of actions and interactions among public and private players operating in the city. We have taken into account:

- Places, intended as outdoor spaces and buildings that are landmarks in our neighbourhood and in the city, as well as being containers of all public activities;
- Facts, divided into events and news, the first ones conceived as results of a structured series of activities and the second ones seen as a simple update on something that happened;
- Memory, expressed through viewpoints associated to places and facts, but also through narrative and / or documentary insights related to an experience or a project;
- Collective actions, related to a temporary or permanent association of subjects to implement projects or initiatives toward a common goal.

A. Design principles

The entities we have as platform objects in FirstLife are:

- Place, defined as an element belonging to the physical structure of the city, characterized by spatial attributes and integrated in a functional classification system;
- Event, including each activities or series of activity associated to an interval of time, as for instance micro-events, periodic occasions, spontaneous initiatives;

- News, short instant texts associated to a specific time, limited to information of public utility and focused at neighbourhood level;
- Post, longer texts that can be classified in stories, reports, and articles;
- Group, intended as an operational unit finalized to discuss a topic of public interest at local level, to coordinate actions among multiple players, to prepare or implement initiatives and projects.

Places, Events, News, Posts and Groups are first level entities or, in other words, objects that are the minimum complete information unit, structured by sub-entities, connected to other first level objects by spatial and functional relationships and that can be add directly on the map.

Second level entities are objects dependent from the first level entities, potentially created by a user different from the author of the first level entity in which are included, with independent time sets, and a flexible structure designed to represent the different user views.

Although the main interface of our platform is made up of a map, by using first and second level entities, we cut the mapping action from the content creation, leading users to share the responsibility of public information.

B. Functionalities

We have considered Schema.org as de facto standard to design functionalities and features of our entities and structure them on FirstLife, taking into account widespread logics and common sense in using web entities.

The functionalities associated to our first level entities are:

- time sets, valid from/valid to and periodicity;
- geolocalization, each point is expressed by latitude and longitude in GeoJason format;
- relationships, including part of, news of, about of, location, association to a group;
- flexible structures, with title, text boxes referable to descriptions and/or comments, images, external URL, tags, categories belonging to multiple sets of classification.

Second level entities are:

- descriptions, multiple for each entities, created by different users, and associated to an ordering system based on the relevance of the description;
- comments, short text listed according to an ascending temporal order;
- image galleries, composed of images added by different authors and temporally ordered.

VII. CONCLUSION AND FUTURE WORKS

A. Contribution

In this article, we addressed the problem of defining and implementing a public platform to support, visualize and document public actions of all local players at urban scale.

First, we presented the outcome of the analysis of what we can consider public or of public interest. Our analysis has been divided in study of context, process and objects.

Then, for each aspect of the problem, we explained which solutions we implemented to meet the design requirements related to the public dimension of data and activities to be taken into account. We defined them at a theoretical level and engaging people in a structured participatory design process where each player has been involved not as individual, but with his/her own networks and goals.

This work comes under the research on smart cities, increasingly focused on the social aspects of innovation, rather than on technological aspects. We contribute pursuing the development of a technological instrument as a multimedia crowdsourced platform based on map, which besides being the product of a participatory design process, wants to support effectively the action of all community players at local level, helping them to integrate and enhance the public dimension of their activities.

B. Open issues

The evaluation of the effectiveness of a multi-purpose, multi-actor and multi-thematic platform oriented to the public dimension of community activities implies numerous difficulties. Indeed, we cannot consider the usefulness of a specific feature included among the platform functionalities, but the global outcome resulting from the use of the platform by all the local player. Do the platform actually improves the life quality at neighbourhood level? Has it made local initiatives more successful? A social network excluding the personal dimension has it helped citizens and structured subjects to become more involved in the city public life?

The answers to these questions cannot be referred to a strictly quantitative survey concentrated on the technological aspects, but to a global assessment after a significant period of experimentation and use of the platform by a large number of users. Indeed, our work is in progress, improving technological development and engagement strategies at the same time.

C. Future works

We are developing two branch projects of FirstLife on wide ranging themes as sport and food, involving a number of actors active in these domains, from academia to local producers.

We programme to increase the number of collaborations with local authorities, public agencies, and non-profit

organizations in Turin and in other municipalities in order to make FirstLife known and used.

We are going to extend the use of the platform as civic media for collaboration agreements about the shared management of commons between public administration and citizens in the municipality of Turin. FirstLife will support the coordination of citizen groups to prepare their project proposals and the administrative procedures managed by the municipality technical divisions. In addition, the entire process will be documented in terms of activities, events, people involved, and impacts of projects.

In the project "WeGovNow!", founded by Horizon2020 programme and started in March 2016, we will integrate FirstLife with other platforms for e-democracy, community mapping and trusted market place. The aim of this project is to develop a European platform to support a new type of relationship between public administration and citizens, towards a better integration of public services and bottom-up initiatives.

REFERENCES

- [1] Castells, Manuel. "The new public sphere: Global civil society, communication networks, and global governance." *The American Academy of Political and Social Science* 616.1 (2008): 78-93.
- [2] Linders, Dennis. "From e-government to we-government: Defining a typology for citizen coproduction in the age of social media." *Government Information Quarterly* 29.4 (2012): 446-454.
- [3] Noveck, Beth Simone. *Wiki government: how technology can make government better, democracy stronger, and citizens more powerful*. Brookings Institution Press, 2009.
- [4] Vigoda, Eran. "From responsiveness to collaboration: Governance, citizens, and the next generation of public administration." *Public administration review* 62.5 (2002): 527-540.
- [5] Coleman, Stephen, and Karen Ross. *The media and the public: "them" and "us" in media discourse*. Vol. 9. John Wiley & Sons, 2010.
- [6] Brants, Kees, et al., eds. *The media in question: Popular cultures and public interests*. Sage, 1997.
- [7] Torres, Lars H. "Citizen sourcing in the public interest." *Knowledge Management for Development Journal* 3.1 (2007): 134-145.
- [8] McQuail, Denis. *Media performance: Mass communication and the public interest*. Sage, 1992.
- [9] Sobaci, Mehmet Zahid. "Social media and local governments: An overview." *Social Media and Local Governments*. Springer International Publishing, 2016. 3-21.
- [10] Zavattaro, Staci M., and Arthur J. Sementelli. "A critical examination of social media adoption in government: Introducing omnipresence." *Government Information Quarterly* 31.2 (2014): 257-264.
- [11] Lee, Jungwoo, and Hyejung Lee. "Developing and validating a citizen-centric typology for smart city services." *Government Information Quarterly* 31 (2014): S93-S105.
- [12] Borga, Giovanni. "City Sensing." *Milano IT: Franco Angeli* (2014).
- [13] De Waal, Martijn. "The city as interface. How new media are changing the city", Paperback (2014).