DESIGNING FOR FEW AND SCALING-UP FOR MANY

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ABSTRACT

A new generation of public services is emerging from the crisis of traditional welfare systems. The new services are based on the activation of citizens and stimulate their participation in the definition of their needs and new solutions.

The new services also require a new approach to design that is based on the direct involvement of local communities. They are often developed through pilot initiatives, from which interesting cases of social innovation are emerging. The success of this approach however, depends on the possibility to scale-up such initiatives to a scale that would ensure the economic sustainability of the new services. The logic to scale-up such initiatives, is different from the diffusion mechanisms of the most known geographically independent social networks. This paper reports the experience in two EU funded projects in which new social networking application have been created, with the aim of scaling them up to extend the users' base. The findings from those projects suggest that scalability of the new services depends on the definition of a clear structure, in which role, competence and value creation potential must be clearly defined.

INTRODUCTION

Broad social, economic and demographic changes are challenging the existing public services and are now calling for a significant review in the way they are organised. The balance between active and passive population is changing; this is stressing the welfare system. The need for a new approach to public services is becoming very evident. The new approach must provide user-driven and highly customised solutions (Cabinet Office, 2007).

The focus on personalisation is in turn suggesting a new perspective, in which public services are no longer the result of top down intervention, but rather the outcome of an active participation of citizens into the process of deciding their own needs and priorities and using any possible resources, including their own personal knowledge and social links to solve them. The availability of new information channels is facilitating such processes, in particular it is creating the conditions for activating hidden or latent resources, such as the citizens' own knowledge, their time, their social links.

Several cases have been presented (Meroni and Sangiorgi, 2011), in which designers have collaborated with public authorities to promote such new approach. Those cases were working on mechanisms of cohesion and social interaction among local communities, thus proposing an approach in which the solution was not coming from public services but from the citizens themselves, the public authorities being just a facilitator in the process of identifying and developing the solution.

This is also the approach of the two research projects reported in this paper, the EU-funded *Life 2.0* and *My Neighbourhood*. Both the projects used a participatory approach in defining a structure for a networked community, which will support the cooperation of citizens living in the same area. In particular the *Life 2.0* project was proposing this participatory approach to communities of elderly people, which are notoriously unfamiliar with new ICT tools and particularly reluctant to access the most diffuse social networking applications.

The design of a new social networking instance however, was not the only problem addressed by the two projects. Indeed the brief for the two projects included the definition of a strategy for the expansion of

those solutions to a larger area, in order to create the conditions for their economic sustainability. This second aspect was less defined by the existing cases. The literature on social networking initiatives (Leadbeater, 2008), (Tapscott and Williams, 2006) is in fact not specifying how this expansion may happen and is often assuming that successful community solutions could be extended according to a logic of *wildfire* expansion, the same logic that underpinned the success of the most known social networks. The projects reported in this paper are in fact identifying some critical issues that would hinder a wildfire expansion. In order to support the scalability of such solutions such issues should be addressed through specific system architecture.

LITERATURE AND THEORY
The two projects discussed in this paper refer to three problematic areas:

- The need for a new approach to welfare systems, and more specifically to public services
- A new design approach, that support citizens' participation; and
- The question of scalability for initiatives that have been initially development on small pilots, based on citizens' participation

The need for a new approach to public services has been emphasised in several studies. Broad social changes are transforming our society: some of the old social problems welfare states were facing, such as unemployment, or ageing, are exasperating, whereas new social needs are emerging, due to social phenomena, such as migration and changes in the family structures. Such changes are putting pressure to the welfare states. The crisis of the welfare state has been analysed focusing on the unbalance between active and passive populations (Esping-Andersen, 1996, Esping-Andersen, 2002). The traditional welfare state is seen as a passive institution, which does not address the increasing dependency of large parts of the population. In order to address this pressure on the welfare state a new "active Welfare state" (Vandenbroucke, 2003) has been considered, in which social spending in public services could be replaced by "social investment", based on large participation of citizens in the definition of new solutions for the emerging problems.

The new welfare approach has been largely discussed in social sciences (Esping-Andersen, 1996, Goul Andersen et al., 2005, Jensen and Pfau-Effinger, 2005, Sabel and Zeitlin, 2003, Svallfors and Taylor-Gooby, 1999, Taylor-Gooby, 1999) but has also inspired a debate on the role of designers in supporting such change (Cottam and Leadbeater, 2004b, Manzini, 2005). In the perspective of a new welfare approach new projects have been created, that were supporting users' participation in defining their own needs and priorities in order to address them with new solutions (Manzini and Meroni, 2007, Thackara, 2007)

Citizens' participation was a critical principle of this approach. This principle was not only changing the role of public institutions, but also the nature of the action of designers. The new approach requires a perspective shift from top-down interventions to facilitation initiatives that support bottom-up solutions. This leads to a change in the way public administrations are designing and developing new services. The new perspective requires that new services are designed *with* or even *by* citizens, rather than been designed *for* them. This perspective shift has important implications on the way new solutions are designed and developed. Several cases have been proposed to suggest a new approach to co-designed solutions The prevention of social diseases, for instance, has been addressed with solutions that could generate *communities of co-creation* (Cottam and Leadbeater, 2004a), that could stimulate citizens' participation by using the tacit knowledge stored in social links within a deprived community in the Kent County Council. The result has been the creation of *active mobs* that motivate people to exercise, thus supporting healthier lifestyles. A similar approach was used in Bolton to improve the interface between the healthcare systems and type-2 diabetes patients. (Cottam, 2007).

Winhall (2011) is also proposing experience prototypes, that enact a simulation of the service, giving a vivid representation of the service for the users, that would also be able to *enter* into the prototype and contribute with tacit knowledge. In the same contribution, Winhall also points out that the challenge for service designers is to "design transferable structures and components that will allow a service to grow or to be replicated nationally". She therefore introduces the question of **scalability** for the new solutions, i.e. the question of the transition from the pilot/prototype phase to a mature phase, in which the service is developed to a level of economic sustainability. The author mentions the needs for a service model and a case for investment to support such process but she does not provide clearer indications of an approach to scalability; in fact the literature on this question is not particularly rich.

Scalability is commonly used in industrial production, information technology, and management disciplines to indicate the ability of a system to accommodate an increasing number of elements or objects or to process growing volumes of work (Bondi, 2000). The concept is less defined in practice related to public services or social innovation. In this area the term has been associated with the notion of the impact of transformational projects, programs and good practice (Concilio et al., 2013). When talking about social intervention some authors focused on the taxonomy of scaling-up. Uvin (1995) for instance, includes in the taxonomy the quantitative expansion (more people involved), functional expansion (more functions and services attached to the original project), institutionalization (extension of the project influence to political levels) and organizational consolidation. This

process progresses from *entrepreneurial initiatives* to *task teams* to *implementation organizations* and finally to *program institutions*. The progress represents a gradual increase in the complexity of the organizational structures, however the authors that discuss this process (Uvin et al., 2000) do not specify the structure on the basis of which the organisation could be scaled up. Who are the stakeholders? How can participation be supported beyond the small-scale case? What is the role and contribution of each actor to support participation on a large scale? A further contribution in this direction is proposed by Manzini and Rizzo (2011), who propose a typology of design tools that stimulate, communicate, and enable users' participation and co-production, in order to amplify local processes from small to large scale. Finally the author of this paper (Morelli, 2007) suggests that the structure of scaling-up could be inspired by designers' familiarity with industrial production, where the principles of reproducibility, codification of knowledge, and subdivision of labour are at the basis of large scale production.

The two projects described in this paper extended the participatory approach from the development phase to the scaling-up phase, exploring the possible architecture of scalable services, based on citizens' participation.

DATA AND METHODS
The Life 2.0 project was a 3 years long project, started in 2010 with the purpose of generating an online platform of location-based and social networking services that could help elderly people between 65 and 75 years old maintaining a high level of independence in their daily life. The project was carried out in four pilots in Aalborg (Denmark), Joensuu (Finland), Barcelona (Spain) and Milano (Italy). In each pilot a group of 30-40 users was involved in the project.

Although users' participation at all stages of technology development is a common practice in research on Human Computer Interaction, the problem in this project was to engage a group of people that was traditionally very diffident towards ICT. This group has traditionally been excluded from most research and technical activities related to the development of new ICT (Blat et al., 2011). The strategy to approach elderly people and to win their trust was to approach *proxy* groups (i.e. elderly people with whom the research team had previous contacts, as happened in Barcelona and Joensuu) or to involve a municipal training centre that elderly people were already attending, thus using existing social links (as happened in Aalborg). In some of the pilots (Barcelona and Aalborg) the project used existing aggregation points; in Joensuu and Milano, instead, the aggregation point was created for the project, using the space of a library that was perceived as a "neutral" aggregation space. The ethnographic work was based on interviews and direct observation. Starting from this work the researchers engaged users by discussing with them the results of the observation synthesised in *life stories* i.e. scenarios of everyday life.

Furthermore users were engaged in other activities such as *geocaching* (Aalborg) computer training (Barcelona) that were testing their real attitude towards technology. The observation of those activities was then compared with their comments to scenarios of future use of mobile technologies, often revealing that elderly people tend to underestimate their technological capabilities.

"*no, please, do not leave me alone with that mobile phone, I prefer my old Nokia, with the usual buttons*". (72 y.o woman at the workshop in Aalborg March 2011, she was asked if she would have used a smartphone in her daily life after a geocaching session in which she had no problem using a smartphone for finding the way to the cache)

At the end of the first phase the design team developed an online prototype, running on the Web and on Apple Ipad, which included three main components:
Announcements: for people to offer help or request help from others. The nature of such help is usually very different: it can range from solving IT problems to proposing a walk together to the church or supermarket.

Events: here local organizations (the local church, activity centres, associations and clubs) can post announcements of initiatives and events in the neighbourhood

Market place: for local businesses to post ads or services such as special menu of the day or special offer of the week to elderly people in the area.

Figure 1 Screens from the Life 2.0 platform

The research team developed a fully functioning prototype, that elderly people could use to organise their everyday life (Figure 1). The design team offered assistance with weekly meetings with elderly people, in order to answer to technical questions and also to register the way elderly people were using (or misusing) the various elements of the platform, thus eliciting changes and new developments. The prototype ran for circa 15 months. The weekly meeting were used not only as a helpdesk for users, but also as an opportunity to record any fails, incorrect use, changes required to the developers. At the end of each meeting in the pilots the technical issues were reported on an online report system and discussed in weekly technical meetings. The researchers also had access to a back-office, to get statistical data about usage of the platform (including access and number of posts).

Beside the technical aspects, the research team used regular meetings to understand the mechanisms that would support or hinder the participation of users. The most relevant ones were the need to close and protect

the network, the need for trust and the need to create relevant content.

The participants insisted that the platform should be closed to external users, therefore a local administrator was in charge of contacting new participants personally, before giving them access to the platform. The users emphasised that this was a reason for them to prefer this platform to Facebook.

> *This (platform) is better because it is closed. Facebook is open, I do not know who I am talking with, where is this person, why should I tell him about my life? (75 y.o. woman at the final workshop with users, 2. October 2013)*

The platform was also open to local organisations, associations, clubs, churches, that could post relevant events, thus creating content that could make the platform more interesting to the users. Local businesses were also contacted to offer their services. However each of those organisations had to be approved by the administrator.

The My Neighbourhood project is a 30 months long project started in January 2013, that aims at generating a platform of services to support social innovation and aggregation initiatives within neighbourhoods. Like Life 2.0, the project is running in four pilot locations: Aalborg (Denmark), Birmingham (UK), Lisbon (Portugal) and Milano (Italy). Some of the pilots locations started by addressing specific problems: in Birmingham, for instance the focus was on the migrant community, in particular on women in this community, with the aim of creating initiatives to facilitate their integration; in the team in Aalborg, instead, focused on people with minor brain injuries, which are living independently, but need some assistance to support their social life (the municipality is already offering support concerning their functional and physiological needs). The aim of the Aalborg team was to activate any possible resources in the neighbourhood area (relatives, neighbours, voluntaries) to support this weaker social group. For this reason the ethnographic research in those areas mainly regarded the observation and interaction with specific subjects. In ethnographic approach in those location was similar to the one used in Life 2.0, with interviews, direct observation and workshops to discuss use scenarios. In Lisbon and Milano instead, the team worked with the local population for the definition of initiatives that could improve the quality of life and local business in the areas of Marbella (Lisbon) and Quartoggiaro (Milano). For this reason the researchers approached the population in public meetings, where wishes, interests and needs (WIN) could be discussed.

The results of the observation in the four pilots were translated into technical requirement for a platform that was launched in September 2013 and used as a prototype. The My Neighbourhood platform is articulated in a number of main sections:

Challenges where citizens can place their ideas about new initiatives.

Events to announce relevant events happening in the neighbourhood. The events will also be visualised on maps

Blog used by some communities to post stories, thoughts and discussions

Market Place, to exchange goods and services among citizens

Places to point relevant places on the neighbourhood maps. The maps also reports some places by categories, such as shops and restaurants that are accessible by disable people

Communities, those are subgroups formed in neighbourhoods on the basis of common interests or needs

Members, the list of all the members of the neighbourhood.

The website also offers the possibility to work out aggregated statistical data, that can be used by municipalities for decision making or participatory budget initiatives. Finally a gamification element has recently been introduced, that should award the most active users. Unlike Life 2.0 the My Neighbourhood technical part is being developed by a single technical partner, which facilitates communication of technical requirement and prioritisation of technical development, although this causes a higher workload on the development team.

The test phase of the prototype is still running; the researchers in the pilot teams are actively involved in the development of the platform, creating relevant content that can attract more users and registering any possible new requirements for further technical development.

EVALUATION OF THE PROCESS
The process outlined in the previous section could be evaluated from two different perspectives: a first perspective concerns the user involvement in the development of the technical aspects of the platform; a second perspective is instead focusing on the role of users in the value-creation process.

From the first perspective the above-mentioned projects do not offer relevant contributions to knowledge, because the involvement of users in the development of new IT application has been largely studied (Ehn, 1988, Shuler and Namioka, 1993). In the two projects, in fact, users and developers were working on two different logical and geographical locations. Notably the logical distance between users, often unfamiliar with IT and the research team sometimes causes mismatch between users expectations and the technical possibilities the team can see in the project.

The second perspective is possibly more important, because the process of value creation was entirely in the hands of users: once the working prototype was created it was up to the users to understand how this could be

used to generate new content, promote events, participate to initiatives, propose debates. The users are in fact *in se* the first value for this platform, because the higher is the number of participants the more relevant the platform becomes in the eyes of new users, public administrations and local businesses.

Figure 2 The Main page of My Neighbourhood

Both the projects developed high fidelity prototypes (Figure 2), in order to avoid that imperfections, errors and mistakes could discourage the users from using the platform again. The reaction of the users to the wireframes (in Life 2.0) and early versions of the interface (in both the projects) were usually positive, but they were much less lenient when using the platform, when their level of engagement was much higher and they were dealing with contents relating to their own life.

The prototypes also gave an opportunity to verify the relevance of some key factors, such as trust, relevance, closure to external users, that are important for the success of local initiatives and introduce other relevant issues related to the way those initiatives could be scaled up to become economically sustainable.

DISCUSSION

My Neighborhood and Life 2.0 have been developed with the aim of creating initiatives that support local communities, however both the projects have been designed with the perspective of scaling up the initiatives to larger contexts. This section will discuss how the structure of the two projects defines roles, competences and value contributions in the perspective of scalability.

After the large diffusion of big social networks, such as Facebook or Twitter, that are geographically-independent and only link people on the basis of logical links a new generation of services is emerging, that aims at supporting or *augmenting* existing social links in local areas. This is the case of initiatives such as meetup.com, or socialstreet.it, as well as the two projects described in this paper. Those platforms are complementary, rather than alternative to real life social

interaction and tend to work on the most intimate and personal dimension that social proximity can support.

The projects emphasised some fundamental difference of those networks from the larger geographically independent networks: some factors life **relevance, trust and closure** are critical for users to prefer those platforms, and therefore they are essential in the value creation process.

The content proposed in the platforms is complementing the daily life of participants, for this reason its **relevance** is a critical requirement. Users filter the information in the platform according to their relevance for the daily life. This is especially true for elderly people who are not familiar with IT, nor with online social network, therefore they prefer to dedicate their attention to social links in their *real* life. Only the information that has local or personal relevance is considered as valuable.

Relevance could be measured in terms of attention (e.g. time spent on a page, number of returning visits to a page); in this sense the platforms can also be considered a marketplace in which information-based service offers meet the user's attention. As with many other online platforms, attention is the internal currency in the exchange of information (Davenport and Beck, 2001). Relevance increases with participation of other users and other relevant local stakeholders, such as local authorities and local businesses. Users themselves are a value for the platform and create value with their presence on it. The geographical contiguity is also crucial in those platforms, because of the possibility to create links between online and physical life, online interaction and offline meetings. In order to be successful and attract a reasonable number of users, the platform has to keep a strong link to a physical, local environment.

The platform is also influenced by the condition of some social groups participating in the platform. Such groups are still elaborating the transition between real presence in a geographical environments and social representations in *abstract systems*. Giddens (1990) emphasised how this transition is related to the presence of **trust** mechanisms. Giddens however, was not explicitly referring to online interaction. The literature on trust in online environments mainly focuses on the mechanism of interaction within online communities, (Hsu et al., 2007, Subrahmanyam et al., 2008, Jinjuan Fenga et al., 2004) whereas the link between online and offline interactions has hardly been considered. The projects described in this paper reveal that some of the most diffused trust building mechanisms in online environments, may not work properly when users are geographically close. Users involved in the two projects, for instance, prefer not to use the most common reputation and rating systems, because of the fear to judge or being judged by people they know well. In the case of Life 2.0 the problem of ensuring trust was addressed by the presence of an administrator or a

centre, or a *gatekeeper,* which makes sure that all the participants are known and can be identified by a person. This person also mediates between users in order to prevent personal or direct conflicts. The same approach has been used in My Neighbourhood, for the most vulnerable categories of citizens, such as disabled persons. This approach though, is having implications on the possibility for the platforms to be open to new users and to be scaled up.

The presence of a *gatekeeper* to ensure trust implies that the platforms can only expand through communities, or closed circles, whose dimension depends on the number of personal acquaintances the gatekeeper can have. When the circle develops beyond that number a new community has to be created, in order to keep the desirable level of trust. This implies a development by relatively **closed circles (**Figure 3**).** A *wildfire* expansion, similar to the expansion model of geographically independent social network, would be less realistic for such local communities.

Figure 3: The Life 2.0 diffusion model

From local communities to large diffusion: the structure for scalability.

Life 2.0 and My Neighbourhood represent hybrid social networks, in which online and physical presence in the local context are equally relevant. This links participation in the platform to physical proximity. However the platform could only be economically sustainable if it can be scaled-up to reach a larger users' base. The economic support to the platform usually comes from institutional stakeholders, like local administrations, or from local businesses. Those different roles outline the systemic architecture that would support scalability.

The architecture of the communities created in the two projects is based on the following key elements:

Citizens define the content in the platform, their presence is itself a value, because their numbers and their participation will attract new citizens and stakeholders.

Community providers, i.e. trust gatekeepers and moderators. They is particularly important in communities of vulnerable citizens, such as the

disabled, but is also important in any community to guide and encourage the input of new content on the platform.

Institutional stakeholders, like municipalities, which have the role of building trust and adding institutional content.

The platform technical provider is a company with the technical skills and capabilities to maintain the platform, solve any technical problems, and update the platform. The platform provider may not be local.

Local business will provide local and personalised services to the platform, their access fee should provide the financial support that contributes to the economic sustainability of the platform.

Event Organizers, or **Hubs** are the organizations around which the local everyday life of a neighbourhood is usually based. Hubs include local associations, training centres, sport clubs, and churches. They aggregate people and have the capability to understand and interpret the needs of a local area.

The architecture of the network is based on a specific definition of the competences/knowledge of each stakeholder and its capability to add value, in terms of contents, aggregation, incentive to participation, technical support (

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Actor	Type of knowledge	Value added
Citizens	Personal /tacit	Attention / content
Community provider	Social /aggregative	Aggregation
Hub /associations	Content related	Events / content
Technical providers	Technical	Technical solutions
Local businesses	Service /market related	Personal / locally relevant market offers / money
Institutional stakeholders	Connective	Trust /financial support

Table 1: The architecture of localised online platforms.

It is worth noticing that not all stakeholders are necessarily focusing on the same geographical context. Local businesses, for example, may need a larger customer base than a single community, whereas

municipality may have interest in the platform only if they are replicated all over the municipal territory. This generates a *local ecology* in which actors with different perspectives support the cohesion of the community, and possibly its reproducibility. On one hand the gatekeepers defend the borders of the communities, thus ensuring relevance and trust, on the other hand local business and municipalities *bridge* different communities. The diffusion of such platforms cannot just be based on the expansion of users, but must be supported by the reproduction of such ecology in different local contexts.

CONCLUSION

The lesson learned in the two projects concerns the way design action in local contexts could be extended from a prototype level, involving a limited number of users, to large scale. This lesson is being validated at the moment this paper is being written, when new neighbourhoods are being created by citizens or associations that were not included among the initial promoters (My Neighbourhood project).

The extension of a participatory approach from small pilots to a larger population should be based on the specification of the structure that would support scalability of such initiatives.

The question of expansion of social networks has been widely studied and many cases have been reported, of rapid expansion of online communities (Tapscott and Williams, 2006, Leadbeater, 2008). The *wildfire* expansion of such communities has also inspired local social innovation initiatives, with the idea that this expansion could also support a new generation of public services (Cottam and Leadbeater, 2004a). This was also the initial idea that inspired the Life 2.0 and My Neighbourhood projects. However what happened during the development of the two project reveals that the model of expansion for localised social networks like the ones reported in this paper challenges the most common scale-up logic for online social networking services. Life 2.0 and My Neighbourhood are strongly linked to local geographical conditions. This condition of geographical contiguity emphasise the relevance of factors, such as trust, relevance and closure that must be addressed by creating appropriate systemic architectures. The concept of scalability should refer to the reproduction of this architecture, rather than to the multiplication of users. The task for the designer in this process is therefore to identify the stakeholders and the competences that will constitute the pillars of this architecture and to support their active participation and interaction in their respective roles.

ACKNOWLEDGMENTS

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