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The methodology of user-sensitive service design within urban planning

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ABSTRACT

The increasingly complex living environment poses challenges in everyday life that the traditional urban planning cannot meet. We argue that the methodology, called the user-sensitive service design within urban planning, is viable for many stakeholders in a situation, where the infrastructure of everyday life is shattering and the uncertainty and ambiguity of the planning process and outcomes are prevailing (Forester 1993). Our aim is to present the methodology and its application in the planning and development of digitised services in a neighbourhood of Helsinki. The methodology turns out to be a hybridiser and a bridge builder that embeds urban planning in the local context. In addition, it is a vehicle for transfering the planning content to the phases of implementation and use, resulting in the emergence of glocal digital spaces.

Keywords: user-sensitive design; urban planning; infrastructure of everyday life; co-production of services; public-private- people-partnerships

CHALLENGES OF THE COMPLEX LIVING ENVIRONMENT

The globalisation of economic activities and the increasing demands for the competitiveness of cities, regions and nations have put additional pressure on the provision of welfare services, especially in the Nordic countries. Well-functioning services are an important part of the living environment and the supportiveness of everyday life (Horelli & Wallin 2006).

In most Nordic countries, the responsibility for the functioning of the service structure is shared by the departments of social and health care, education, construction and traffic, as well as by a wide range of different companies and non-governmental organizations (NGO's). This leads to a complex service structure that is difficult to comprehend and manage. Planners, politicians and other professionals cherish the idea that the complexity of the service structure can be met by generating more systematic and strategic planning. This rationality meets its end on the battle field of reality, where multiple and even contradictory strategies collide with the difficulties of implementation.

Citizens who can choose, move to neighbourhoods and cities that provide public transport, health services, schools, day-care centres, playgrounds, green areas and shops. However, these requirements are acknowledged, but not well enough implemented. At least three reasons exist, why the design of services should become integrated in urban planning.

First of all, people who live and work in local neighbourhoods are not able to understand, how to remove the obstacles of everyday life through the formal arenas of politics and planning. Sometimes local activism brings forth better results than representative democracy. For example, when the City of Helsinki decided to decrease the number of schools, only the schools of inactive neighbourhoods got abolished (Helsingin Sanomat 2007). Therefore, it is

not surprising that voting in local elections has decreased and the traditional NGO movements have turned into ad-hoc activism.

Secondly, services are seen in traditional urban planning as a part of urban structure that is only loosely attached to the master plan. A recent study on the structural transformation of the Finnish town Tampere (320.000 residents) from a modern to a late-modern city discloses that the planned infrastructure consisting of a hierarchical city and suburban centres with a variety of services had not been realised. On the contrary, the networks of public and commercial services had clearly diverged from one another causing a great deal of trouble for residents without a car (Ylä-Anttila & Alppi 2007). It is evident that the traditional urban planning has not been able to steer the complex service structure.

Thirdly, the pace of service development is increasingly dependent on advanced technologies and their appropriation. New technical applications are part of network capital that contributes to social capital, because it enhances the social value of networks and provides support and care (Rettie 2008). Digital services through the internet and mobile phones are available for an ever growing number of people. Banking and shopping on-line are already common, as well as the reception of information concerning public services. Many people expand their social environment through different kinds of digital networks ranging from discussion and hobby groups to Facebook and Second-life communities.

The opportunities brought forth by new technologies have been recognised in service design. However, they have not yet been adopted in urban planning, except for time planning[1] which also includes the design of services, for example in Bergamo, Italy (Boulin 2009).

[1] Urban *time policies* refer to those public policies and planning interventions which affect the time schedules and time/space organisations that regulate human relationships at the local, regional and even national or European level (Mareggi, 2002). In practice, time policy is implemented through *time planning* which deals with

Finnish researchers have suggested that the concept of urban planning should be expanded in terms of its process and content. Instead of being a high-level process between the City and building contractors, urban planning should be a democratic tool for community development. It should also be embedded in participatory local governance, assisted by public-private-people-partnerships (Staffans & Väyrynen 2009; Horelli & Wallin forthcoming). This approach embraces the idea that urban planning is regarded as a tool for and an enabler of spatially and socially distributed services that support the mastering of everyday life.

Our research problem deals with the construction of a viable design and planning approach from the perspective of a multitude of stakeholders, in a situation where the infrastructure of everyday life is shattering and the uncertainty and ambiguity of the planning process and outcomes are prevailing (Forester 1993; Urry 2003). A great need seems to exist for the integration of a flexible service-design in urban planning that can enhance the well-being and quality of life (Horelli 2006a).

We argue that the methodology called the user-sensitive service design within urban planning is suitable for many users, enablers, professionals and administrators, due to its recognition of the constraints and opportunities in the mastering of everyday life. The aim of the article is to present the methodology of the user-sensitive service design within urban planning with examples. Due to the on-going nature of the planning case, the focus of our description is on the development process, as well as on the context and implementation instead of on the use of the services. The article starts by setting the context which explains why a new approach is needed. Thereafter the methodological framework will be described and applied in a case-

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the coordination of several interventions that take place on different levels and varying sectors of administration. The measures consist of diverse activities, such as working, care of children, use of services, mobility management, and the shaping of the dwelling and the neighbourhood.

study on the planning and development of local digital services in a neighbourhood of Helsinki. The article closes with a discussion on the characteristics of the user-sensitive service design within urban planning and its status in terms of community development and local governance.

CONTEXT OF THE USER-SENSITIVE SERVICE DESIGN WITHIN URBAN PLANNING

The context within which the user-sensitive service design has been developed comprises the recognition and understanding of the transitions that have taken place in the mastering of everyday life, in the production and provision of services, and in the development of ubiquitous computing.

Transitions in the mastering of everyday life

At the end of 1970s a group of Nordic women started to mobilise around the reconciliation of work and family life. Their efforts not only comprised a critique of the present conditions but also a vision of a harmonious, creative, and just society. It was inspired, in addition to the early utopians and American material feminists (Hayden 1982), also by the critical texts of Lefebvre (1971). The model of action that the Nordic women applied in their decade long project was the collaborative creation of *a supportive infrastructure of everyday life*[2]. The

[2] *Everyday life* refers to the self-evident subjective experience of everyday, in contrast to the structures or systems made of institutions, financial flows etc. Scientifically everyday life can be approached as a process in which people shape in their homes, at work or in the living environment the structural conditions into lived life (Beck-Joergensen 1987). The mastering of everyday life means then the coordination of those multi-dimensional processes and practices with which people shape the conditions.

latter means that the locality should offer opportunities to integrate dwelling, work and care in a viable way (Horelli & Vepsä 1994).

The central concept is the creation of an *intermediary level* between the private households and the public and commercial world of enterprises. The intermediary level is a new structure in the neighbourhoods comprising environmentally friendly housing, services, employment, and other activities which support the residents irrespective of age and gender (Horelli & Vepsä 1994).

In the academic world, the women´s movement contributed to the building of content theories on what good environments are. For example ´the supportive infrastructure of everyday life` has been a useful concept in the phases of contextual analysis and envisioning of planning. The most recent version of the supportive infrastructure of everyday life for the groups that are place-based, but not place-bound, is presented in Figure 1. The model consists of physical, functional and participatory structures which the actors in the neighbourhood or beyond can easily appropriate. The results of the appropriation may be seen in the emergence of networks of care and mediation which are also enhanced by the mobility tools (Larsen et al. 2006; see footnote 1). The network capital might bring forth a supportive cultural structure that implies both local and translocal social capital[3]. This makes everyday life increasingly glocal[4].

It is possible to plan and even to implement the physical, functional and participatory structures of the model. However, trust and the sense of community only emerge, if the actors are willing to appropriate the structures, and if their networking is resourced and connected to

[3] Social capital refers to the possibility to mobilise resources, embedded in social relations and networks, for the benefit of some purpose (Lin 2001).

[4] Glocal means here communication and participation both locally and globally through mobility tools and the hybrid infrastructure of digital artifacts (see Saad-Sulonen 2005; Horelli & Wallin 2009).

powerful stakeholders. Such a culture might enhance the mastering of everyday life, especially among locally dependent groups, such as families with children and older people.

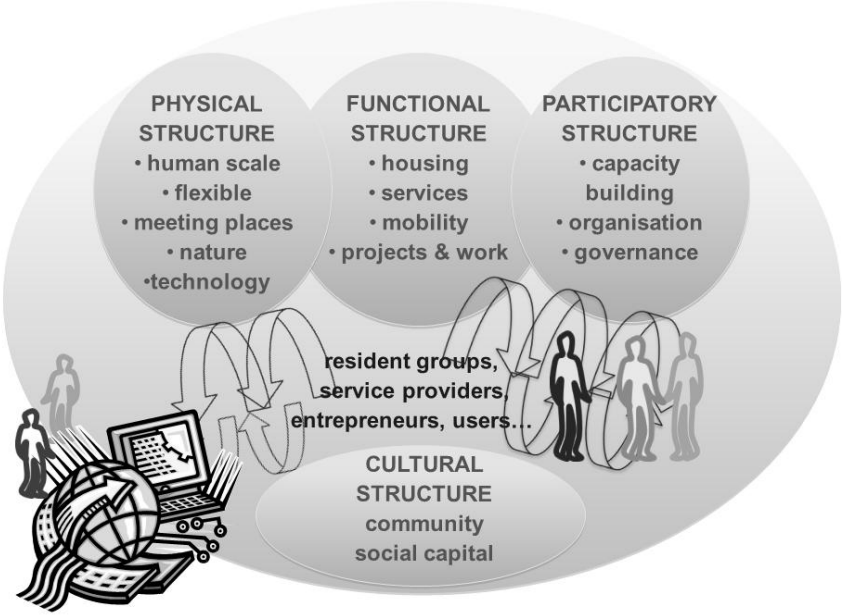

Figure 1. A heuristic model of the supportive infrastructure for glocal everyday life (Horelli 2006a).

Transitions in the service production

Services play an important role in the infrastructure of everyday life. Services also provide almost all employment growth in the OECD area. Currently, the service sector covers over 70% of the total employment and value added in these countries. Public services make over 30% of the GDP in Europe. However, neither the traditional way of organising services, nor the market-led approach seems to provide a viable solution, because people are not satisfied with the mass-produced or mass-customised services.

Charles Leadbeater (2004) calls for an other solution, namely the *personalisation of services* through participation and co-production by the users. The aim of personalised public services

is not the self-gratification of consumerism but a sense of self-actualisation, self-realisation and self-enhancement. This idea is kin to the participatory design approach, which endorses the direct involvement of users and other stakeholders in design (Carriol & Rosson 2007). In addition to the technical co-design, people are entitled to participate in and even to co-produce service artefacts and infrastructure that have a direct impact on their everyday life experience.

Leadbeater (2004) has compared the traditional public sector and the new public management approaches to the alternative way of organising services through participation and personalisation (Table 1). In the new participatory approach, the public interest will be negotiated through a dialogue between many different actors. The performance objectives will be multiple, including user experience and social value, in addition to the well-functioning of the system. The manager´s goals will comprise, besides performance targets, also user satisfaction and wider social benefits. The delivery model will comprise a mixed market of providers and the solutions will be assembled from a variety of sources around user needs.

The users will become co-producers and co-designers with professionals, who in turn become brokers and solution assemblers. Professionals will, in fact, have to serve people in a way that builds up distributed capacity for coping (Parker & Heapy 2006).

Table 1. Comparison between traditional public sector, new public management and personalised services (Leadbeater 2004, 64-65).

	Traditional public sector	*New public management*	*Personalisation and co-production*
Public interest	Defined by politicians and experts	Customer preferences/surveys	Dialogue between providers, funders and users at all levels
Performance objective	Input management, Good administration	Efficiency	Multiple, user experience, social value
Users	Deferential	Consumers, some self-service	Co-porducers, co-designers
Manager's goals	Satisfying political masters, professional self-regulation	Meeting contracted performance targets	User satisfaction, wider social benefits
Private role	Minor, kept separate	Major role in service delivery	Combination of public, private and people initiatives
Professional role	Descision making and resource allocation	Commissioning and monitoring	Advising, brokering, advocating, assembling solutions
Delivery model	Public institutions, professional self-regulation	Contracted services	Mixed market of providers. Solutions assembled from a variety of sources

The transition from the traditional way of organising services to personalisation means that, in Europe, the state or the municipality will, in addition to the provision of platforms for action, orchestrate and monitor the development processes and their results. For example, in Finland the municipalities have to define which services are locally delivered near services and which ones will be provided in alliance district-wise, regionally or nationally (Jäppinen & Kontio 2007). Ideally, the service ensemble will be offered by innovative near services that will be complemented by district-based services or even by larger entities that require a bigger population basis. In terms of urban planning, the classification of services is partly based on distance, partly on the required amount of population base. In practice, the near services and the service entity should be defined on the basis of the context, as the service and communication channels vary according to the age and type of residents.

An other way to classify services is to describe them on the basis of organisation as *private* or commercial, *public* and *communal (people*) services. This classification is the basis for the concept of private, public, people (PPP) services. The private or commercial services, which refer to the services provided by private companies, serve business purposes. The public services, which serve the common good, are provided, for example by cities and districts. The community services, which are created and provided by individual users, either by themselves or by the community of actors, serves the common good of certain groups of interests. These three organisational forms of services form one of the pillars of the supportive infrastructure of the locality, which is vital for the mastering of everyday life (Figure 1; Horelli & Vepsä 1994; Horelli & Wallin 2006).

Unfortunately, the current transformation of public services in Finland has meant that the near services are decreasing, getting one-sided and centering at the inner city areas. The most important remaining services in the neighbourhoods, besides a grocery store, pubs, pizza-restaurants and a bancomat, are the school, day-care centres, social and health services, spaces for hobbies, and public transport. Consequently, the creation of a well-functioning and flexible local *service system* is crucial, as it may integrate all the possible resources and simultaneously connect them to other resources.

Transitions in the service-centred information society and ubiquitous computing

The transformation to a networked and service-centred information society implies the promise of, on the one hand, supportive and enjoyable services for the user, on the other hand, lucrative business opportunities for a variety of technological and social producers. Services

will be available irrespective of time and place, due to the advances in mobile communications services and *ubiquitous computing*. The latter ideally means that appropriately implemented and applied information and communication technology (ICT) is present in a desired way serving people through embedded electronic devices, programmes and sensory networks.

The transformation of the industrial society at the end of the 20th century has been described by many names, such as the information society, the network society and the risk society. Characteristic of the development has been that the role of information has been significant and the telecommunication networks form the central infrastructure of production. This has also meant that even industrial production has developed into service production.

Information can be transformed in an objective form, such as documents, data bases and data banks through the telecommunication networks. However, the transfer of knowledge[5] is based on human interaction and direct experience that emerge in the individual action, social processes or in the collaboration within and between organisations. Digitised services and their business models are based on both information and knowledge. They have a spatio-temporal dimension, meaning that they are always dependent on their context (Mäkinen 2006). Thus, the u-services are always to some extent both contextual and generic.

Increased mobility is central in the information society, both concretely and virtually. The vast forms of mobile choices and tools do not define only our social, spatial and temporal relations but also our identities (Peters 2006). Travel agencies are the old coordinators of

[5] According to connectivism (Siemens 2006) ´knowledge` exists as different types, domains, states and processes. Knowledge has changed from categorisation and hierarchies to networks and ecologies with the consequence that the spaces and structures of our organisations have to be changed in order to acquire relevant knowledge. The process of creating networks for an appropriate knowledge and learning ecology is important also in urban planning.

journeys, but currently teleoperators and other new agencies have adopted the task of coordination and gatekeeping.

From the user´s point of view mobility means the ability to access information, services and people in new ways. It also means an expansion of current mobile phone and internet usage trends involving a new kind of seamless service access, enabled by ubiquitous computing. Both Rettie (2008) and Axhausen (2007) acknowledge the impact of ICTs on the geographies of social networks which imply changes in the routines of communication and travelling.

Some of the Asian countries, such as Japan and Korea, have ambitious programmes with lavish visions of new cities that are based on ubiquitous computing (Lee & Kim 2007). The vision of U-Finland is based on a vast and developed variety of electric services of high quality, which the users can access through different channels.

However, the u-society only emerges gradually. The services have to be relevant, easy to use, enjoyable and reliable (Kaasinen 2007). In addition, they must enable new forms of social and communal interaction, such as community informatics (CI)[6] - assisted communal production and co-creation. Nevertheless, there is a long way from these visions to real-life implementation. The fragmented service scenarios that apply a simple factor technology will produce innovations with limited transferability and sustainability. Therefore, the development of ubiquitous services, as well as that of the infrastructure of everyday life, requires a new methodology.

[6] Community informatics means the application of ICTs for the empowerment of local communities (Gurstein 2007).

FRAMEWORK OF THE METHODOLOGY

The user-sensitive[7] service design within urban planning comprises the following simultaneous processes: application of the Learning-based network approach to planning and development, personalisation of services through participation, and creation of value networks with PPP-partners in the living lab context.

The Learning-based network approach to planning and community development (Lena)

Lena is a special version of participatory planning[8]. It is a method and a set of tools to analyse, plan, implement, monitor and evaluate planning and community development processes in an iterative way. It was originally developed within participatory projects with young people and women, and later on applied in the context of time policy and time planning (Horelli 2006b; Horelli & Wallin 2006).

Its methodology is based on communicative and post structural planning theories (Hillier 2008), as well as on the theory of complex coevolving systems (Mitleton-Kelly 2003). The latter implies the parallel existence of tensions, created by order and chaos, the emergence of phenomena and processes, the self-organisation of different stakeholders and their co-creation. Consequently, Lena means a transactional approach to planning and community development in which the phases of planning are loosely iterated. The projects usually start with an analysis and sense-making of the context with partners, as well as asset mapping (Kretzmann & McKnight 1993; Figure 2). The beginning of the project also includes the

[7] In the user-centric model the user is in the centre, but not as an active participant with the representatives of the business, public sector and the academia. In the user-driven model the user is in an active position with the other partners, as is also the case in the user-sensitive model.

[8] Participatory planning can be defined as a social, ethical, and political practice in which individuals or groups, assisted by a set of tools, take part in varying degrees at the overlapping phases of the planning and decision-making cycle that may bring forth outcomes congruent with the participants´ needs and interests (Horelli 2002).

preliminary visioning of the future, for example accessible u-services, as well as a few shared principles of implementation. The latter gradually crystallise into strategies of implementation. These activities lead to the co-creation of the enabling framework.

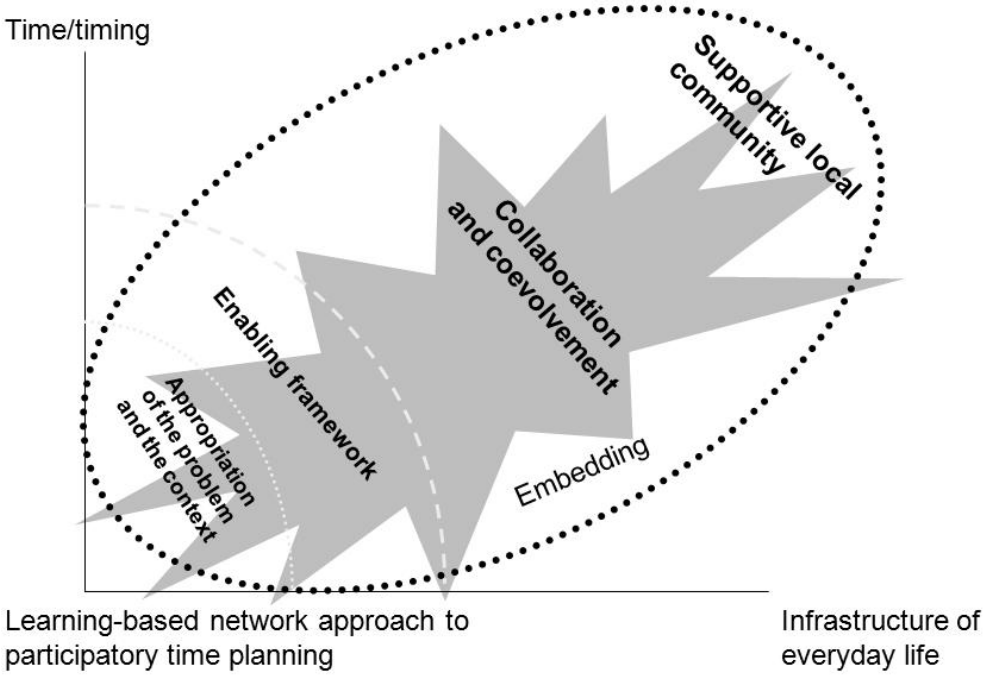

Figure 2. The learning-based network approach to gender-sensitive planning and community development (Lena).

Central in this approach is the application of a variety of traditional research and new enabling tools, community informatics included, which help to embed the process in the material and socio-cultural context in question. They also enhance the creation of the necessary networks of care and mediation.

According to the Finnish experiences (Horell 2006b; Horelli & Wallin 2006), gender and age-sensitive coordination is of utmost importance in Lena. It is not about enforcement, but about constant negotiating and interacting with different partners. This presupposes that special

attention is paid both to the variety of temporalities (Bryson 2007) and to the gendered necessities and contingencies of everyday life.

Personalisation through participation

Service design in its ideal form focuses on the purpose of service, i.e. the co-generation of deep forms of satisfaction and well-being (Parker & Heapy 2006). Lena assists in the co-creation of the vision and in the co-production of public, private, people-services.

The digital services are mostly based on technological innovations. However, the wider use of digital services is still waiting to take place. The obstacles are less technical and more organisational, concerning questions of capacity building, learning and appropriation. This brings forth the issue of user-sensitivity and the appropriate methods that can empower the users to participate in the development of their opportunities.

At least two approaches to the user-sensitive service design exist: the profilation through segmentation and personalisation through participation. The former has become mainstream. The latter has emerged recently, enhanced by the new technological opportunities and the discourse on citizen participation (Leadbeater 2004, Table 1).

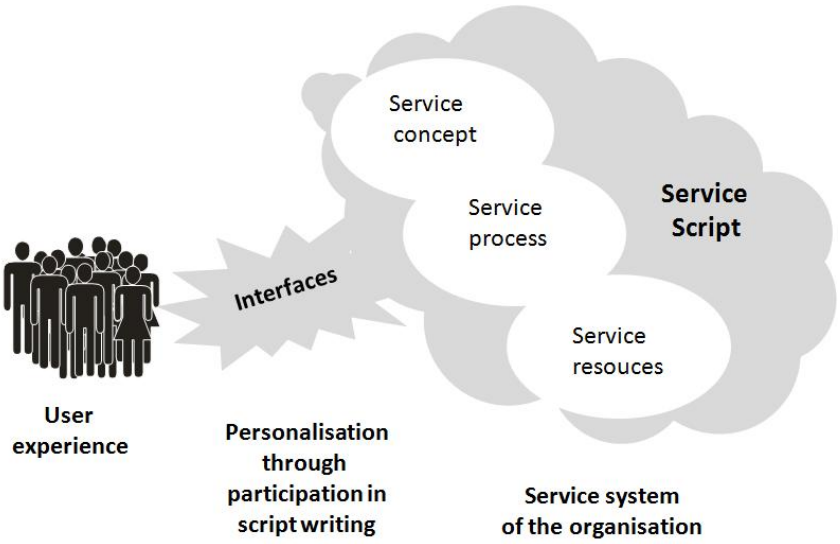

Figure 3. Service production can be seen as interaction between the user experience, personalisation through participation and the service system of the organisation in context.

The user-sensitive service design creates a deeper understanding of how services relate in practice to people´s everyday lives. All services should be delivered according to a script which directs the parts played by the actors involved (Leadbeater, 2004). Personalisation through participation makes the connection between the individual and the collective by allowing users a more direct, informed and creative say in rewriting the script by which the service is designed, planned, delivered and evaluated. The scripts need rewriting in which the users take part. The script emerges and guides the service system of the organisation. The latter consists of the service concept, service process and the required resources (Figure 3). Service production itself can be seen as interaction between the user experience, personalisation through participation and the service system of the organisation in context.

The creation of value networks with PPP-partners in the living lab context.

Information and communication technology has so far been used to minimise the costs of digital services instead of seeking to increase the income. In general, the currently used E-business system methodology and Information Strategic Planning (ISP) are both too linear and they focus excessively on the maximising of the output. The linear model recognises only the one-way value chain, instead of enhancing value networks through different kinds of partnerships and mediations. However, both factors should be covered in the u-service business. According to Lee & Kim (2007), the methods and business models in use do not match the ubiquitous environment. On the other hand, the learning-based network approach to service design and planning (Lena) might assist in this issue too.

As Lena comprises asset mapping and the organisation of PPP-partners, it builds the basis for the development of services and also for the emergence of eventual value networks. The participatory approach creates public value by recasting the relationship between the individual and the collective, the public and the private. The public good will emerge from the combination of public, individual and communal initiatives.

Also the role of the living lab testing is crucial in the development of successful services and competitive business models. Living Lab is a citizen-business-public partnership operating in real life environments which provide human-centric, user-driven innovation services (Mitchell et al. 2003). The iterative process of living lab testing enables constant interaction between users and developers (Figure 4). The script writing and the information gathering for better profilation are assured all the way from the state-of-the-art analyses, service vision and the different prototypes to the specification of the service concepts.

The idea of living lab testing gives a new perspective to the service development which traditionally used to begin with specifications. The service development deals with a design that requires the creation of rapid feed-back loops. It also requires a shorter path between policy making and the day to day activities. This means a double devolution. Power is transferred from the town hall to the neighbourhoods, and from the centre of organisations to the front-desk. Due to the iterative and participatory nature of service design, the living lab testing is a hands-on approach to personalisation in practice.

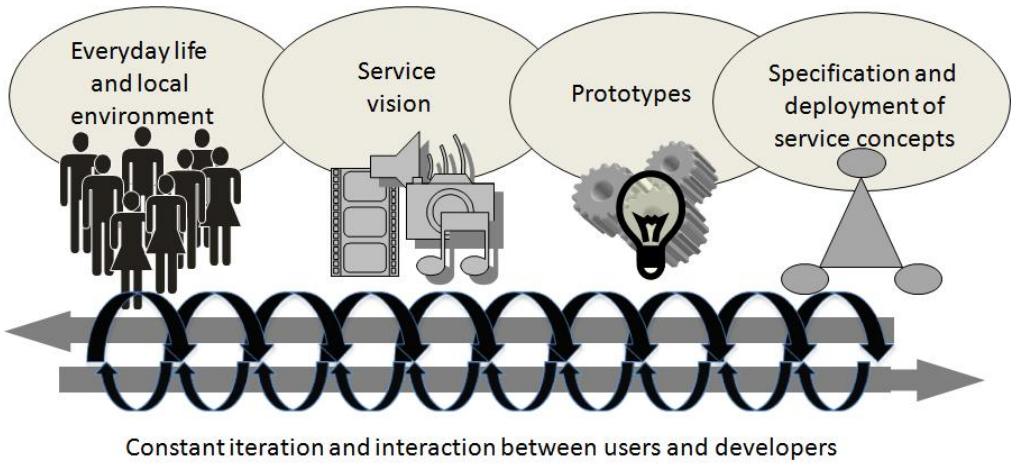

Figure 4. User-sensitive service design in the living lab environment.

FROM THE MOBILISATION OF NETWORKS TO THE LIVING LAB TESTING

The methodology of the user-sensitive design within urban planning was applied in two successive action research projects, in 2004 - 2009. The first one was called ARJA, the

management of everyday life, and the second one Ubiquitous Helsinki[9]. Both projects partly shared the same purpose, namely the enhancement of the mastering of everyday life through the mobilisation of local assets, the networking and capacity building of PPP-partners, and the personalisation of services through participation.

Mobilisation and capacity building

The objective of the ARJA-project was to construct and test models of time planning that suit the Finnish context (see footnote 2). The main research question dealt with the way in which the socio-spatial and temporal coordination of housing, work, services and mobility might improve the conditions to reconcile work and family life, from the perspectives of 20 pilot families and their employers. Pertinent was also the question concerning the improvements of the services and mobility in two neighbourhoods of Helsinki (550.000 inhabitants) and Turku (200.000 inhabitants), as well as the changes in the governance practices of these towns. Only the Helsinki neighbourhood, Herttoniemi with 18.000 inhabitants, will be reported here.

The design of the action research followed the pattern of the Learning-based network approach to planning and community development (Lena; Figure 2). It consisted of an analysis of the context and scenario building of future work and its consequences for the residents and employers. It also included the construction of a vision around the supportive infrastructure of glocal everyday life (Figure 1) and the choice of implementation strategies with the stakeholders.

[9] ARJA was the first Nordic experiment with time planning. It was funded by the European Social Funds during 2004-2006. The action research was coordinated by researchers from the Centre for Urban and Regional Studies of the Helsinki University of Technology (HUT). UBI-Helsinki was funded by TEKES, the Finnish Funding Agency for Technology and Innovation, the Innovation funds of Helsinki City and several enterprises. It was coordinated by VTT, Technical Research Centre of Finland in collaboration with HUT.

The methodological package used for the mobilisation of networks comprised, on the one hand, classical social research methods. These included surveys (questionnaires to 1600 families distributed through the day care centres and elementary schools), actor analysis of the neighbourhood, thematic interviews with 20 families (chosen from the surveys) and their employers, time use diaries, and the analysis of documents and field notes. Also the dwellings of the families were assessed. The families, who were mainly upper- and lower-level employees, had children from the ages of 5 months to 17 years. The ages of the parents ranged from 31-54 years. The adults were all fully employed; four of them were single providers. The employers represented one to two person micro enterprises up till medium sized companies from both the private and public sector. The biggest employer was the City of Helsinki with 30 000 employees.

On the other hand, the methods consisted of a set of enabling tools (Horelli, 2002): diagnostic (mobilising mapping exercises and visits with actors), expressive (community art, future workshops and brainstorming with ICT techniques), conceptual (model building), organisational (networking, consensus building, forums and work groups) and political (goal setting and prioritising, panels, lobbying).

The analyses of the surveys, mapping and interviews disclosed that the residents of the area were quite satisfied with their living environment, especially with the closeness to nature and the good public transport. Only some of the services for families with children were not adequate enough. The mastering of everyday life in the families was structured by the balancing of work and child care. The families were satisfied with the day care services, but complained about the lack of afternoon care for school children (the school ends around one or two pm). Also the transport for children´s hobbies was a problem for many families. The time use diaries showed that the distribution of time among women was much more varied

and fragmented than that of men (Bryson 2007). In addition, the run-down metro station was a safety problem.

The mobilisation of local actors allowed to share the results of the survey with the residents, local administrators and associations and to choose the necessary interventions. The community worker assisted in creating new organs for local governance (the neighbourhood forum and its work group). They began to coordinate the many activities and projects that went on in the neighbourhood.

The main result of the project was that the development process around the supportive infrastructure of everyday life got started and became embedded in the new organisation and modes of working within local governance. Although the City of Helsinki has many local civil servants, they belong to various centrally administered sectors. Therefore, local governance means in this case a voluntary organising and cooperation of all possible actors who have a stake in the neighbourhood: female and male residents, users, civil servants, associations, entrepreneurs etc. The neighbourhood forum, which met four times a year, assembled a development plan with 11 projects. One of them was the rehabilitation of the metro-station. It resulted in a top down architectural competition which did not observe the users´ ideas.

A new service format, called the *help desk*, was developed and piloted within the neighbourhood forum. The help desk means that either a face to face desk, a contact number or a web-site exists from which a diversity of quality assured public, private and people (third sector) services can be acquired. The desk can be tailored for the employers or it can be organised locally in the neighbourhood. In the case of Herttoniemi, the local desks were planned to be opened at the metro-station (after its rehabilitation), the library and the play-

park. The contact number already exists, run by the Work Efficiency Institute. The latter has conducted client surveys concerning the need and type of daily services. The Institute has also trained one hundred entrepreneurs in Eastern Helsinki to provide quality-assured services.

The web-site for the help desk was put up as a prototype and piloted. It allowed to create service packages for the project families. For example, Family X wanted to have baby sitting services, as well as an option to the City Car Club that lends cars at an inexpensive price.

In fact, a *model of time planning and policy for the Finnish context* was built in which the help desk with a service portal acts as an interface for the mastering of individual times and the local service system. The latter comprises the coordination and co-production of both public, private, people-services in a specific neighbourhood or district. The help desk, as part of the local service system, should ideally be embedded in participatory local governance, as well as linked to the welfare and economic policies of the City. The help desk proved to be an important step towards the 'ubiquitous' Helsinki.

Living Lab testing and the emergence of glocal digital space

One of the main challenges that the City of Helsinki is currently facing, is the production of competitive urban space, e.g. appealing living environments with good services. As the outcomes of the ARJA-project were encouraging, the City was willing to continue with the digitalising of services and joined the Ubiquitous Helsinki-project (2007-2009; see footnote 10). Ubi-Hki was in fact an umbrella for different kinds of projects sharing the same vision. The vision was to bring the concept of ubiquitous services closer to the citizens by developing new service concepts. It was believed that the ubiquitous approach with a multi-channel

delivery of services (Web, digital and mobile TV, mobile phone, RFID) would enhance the availability and flexibility of services.

The role of the action research project was to keep the umbrella together, to provide support to the other projects and to create conditions for the understanding and implementation of a value-network, based on the partnership of both enablers, enterprises, administrators, resident associations and end users in the real life context. *The aim* of the research was the production and evaluation of innovations dealing with applications of ubiquitous technology in the context of user-sensitive private, public, people-services. The research questions dealt with the meaning and added value of ubi-technology for the accessibility and quality of services, as well as with the role of ubi-technology in urban planning and community development.

The project was implemented in the living lab context, meaning that a constant iteration between the developers and users took place in the co-production of services (see Figure 4). The communal and participatory production of services implied that the neighbourhood participates in the production of services it needs (communal production) or an individual actively participates in the production of services (s)he needs (participatory production). Examples cover a wide range of services, such as afternoon care, hobbies for children and young people, “walking busses”, as well as numerous digital services delivered through the social media.

As the ARJA-project had already laid the ground for the living lab conditions, it was rather easy to gather interested citizens and local civil servants to reflect over new service ideas or to combine already existing services. Several technology companies were also willing to bring some of their applications in ubi-technology to the living lab testing.

In the autumn 2007, a survey on digital services was conducted in two neighbourhoods (the other one was the same as in the ARJA-project). Over 80 % of the respondents (N 500) were using the internet and over 95 % the mobile phone. The majority was willing to receive services through them. The mobile phone and SMS-messaging were important tools, especially for older people. The most appealing services were the local news and cultural events, local traffic information, and event information in general. The results of the survey directed the course of the project.

The Ubi-Helsinki Research group drew a road map with the stakeholders describing the structure and measures of the living lab testing. The various members of the PPP-partnership joined their forces in a service pilot, which was implemented by the Helsinki Neighbourhoods Association, Helka ry. Helka was interested in enhancing the collective capacity and social capital of its 53 neighbourhoods through the development of local web-sites.

Two new services, the Calendar Service and the Service Help Desk were introduced and integrated in the Local Service and Partnership Platform (SPP). SPP consists of a material (software and web tools), organizational (partnerships), socio-cultural (appropriation and embedding) and context specific information structure (services). It provides all public services as well as services from private entrepreneurs and NGOs. Services from all Helsinki neighbourhoods, such as local shops and retailers, kinder gardens, hospitals, schools, recycling centers, local hobby groups etc. will be more accessible than before. It is applied in a variety of Internet sites using the web tools created by the application of semantic web technology.

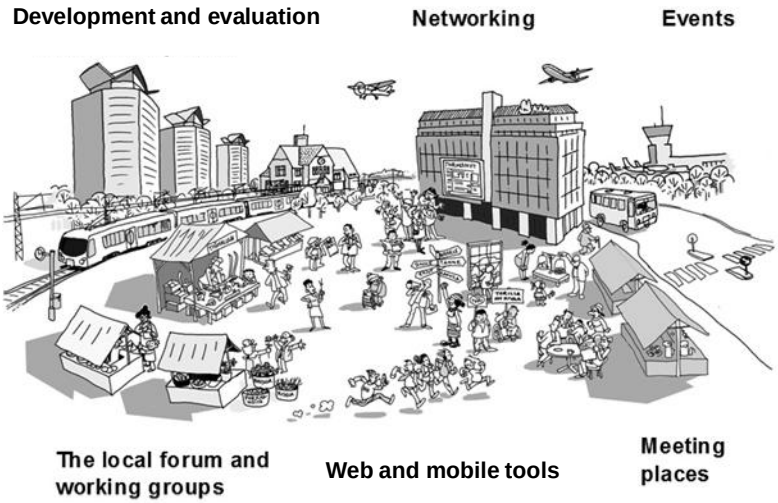

Figure 5. The emerging digital glocal space in the vision of Helka.

In the course of the development, the Helka vision of active and supportive neighbourhoods began to turn into the creation of a digital glocal space (Figure 5; Foth 2009). Presently, the technology described above is ready to use, but the service contents are still not completed. Also the personalisation and profilation of the services are still under development with the City of Helsinki, thus waiting to be applied in other neighbourhoods as well.

One of the main obstacles in the planning and implementation process concerned the poor management of the project which constrained the formation of value networks that were supposed to lead to new business models. The other difficulty was the informal status of participatory governance in local neighbourhoods, meaning that citizen participation did not have a formal mandate in the City administration[10].

[10] Helsinki is centrally governed through sectorised departments instead of having an organization based on local territories.

In sum, the role of ubiquitous technology in service design within urban planning signified in this project the creation of new mash-ups and software applications that are suitable for multi-channel service delivery through PC and mobile environments, and urban screens. When co-ordinated, they make a hybrid infrastructure for the real-time city (Saad-Sulonen, 2005; Aurigi & de Cindio, 2008). Ubiquitous technology, like ICT in general, is not deterministic, but seems to have a catalytic role that inspires and engages the stakeholders to take action for the community also within urban planning (see also Rettie, 2008).

DISCUSSION

We have described the challenges posed by the complex living environment for everyday life and questioned the possibilities of traditional urban planning to meet the demands. Transitions that have taken place in the mastering of everyday life, in the production and provision of services, and in the development of ubiquitous computing indicate that a great need exists for the integration of a flexible service-design in urban planning. We also argued that the methodology, called the user-sensitive service design within urban planning, is viable for many stakeholders in a situation, where the infrastructure of everyday life is shattering and the uncertainty and ambiguity of the planning process and outcomes are prevailing (Forester 1993). So, what are the characteristics and status of our methodology in terms of urban planning, community development and local governance?

User-sensitive service design as a bridge builder of urban planning

The framework of the user-sensitive service design within urban planning consists of the application of the Learning-based network approach to planning and community development (Lena), the personalisation of services through participation, and the creation of value networks with PPP-partners in the living lab context. It has been applied in two successive projects, in Helsinki, during the period 2004-2009. On the basis of the framework and its application, the methodology means an expansion of the traditional urban planning both in terms of process and content. As a process, urban planning is seen to be embedded both in community development and in local governance. The user-sensitive service design cuts through the three of them, since its tools imply both participatory and networking methods, as well as the application of community informatics (see Figure 6). The latter compels urban planning to apply ICTs which turns urban planning into e-planning (Horelli & Wallin forthcoming). Participatory local governance can be either formal, like in Stockholm, Oslo and Copenhagen, or informal, like in Helsinki. Informal local governance takes place through local projects, task groups and forums.

The focus of the content of traditional urban planning is land use and that of service design services that support and arouse satisfaction. However, the foci of expanded or embedded urban planning are also the conditions for socio-technical networks, assisted by urban and community informatics (Foth 2009; Gurstein 2007). The implementation of planning takes place, besides building, also through the communication and co-ordination of activities. Consequently, the role of the user-sensitive service design within urban planning is that of a hybridiser and a bridge builder that embeds the planning in the local context. In addition, it is a vehicle which transfers the planning content to the phases of implementation and use.

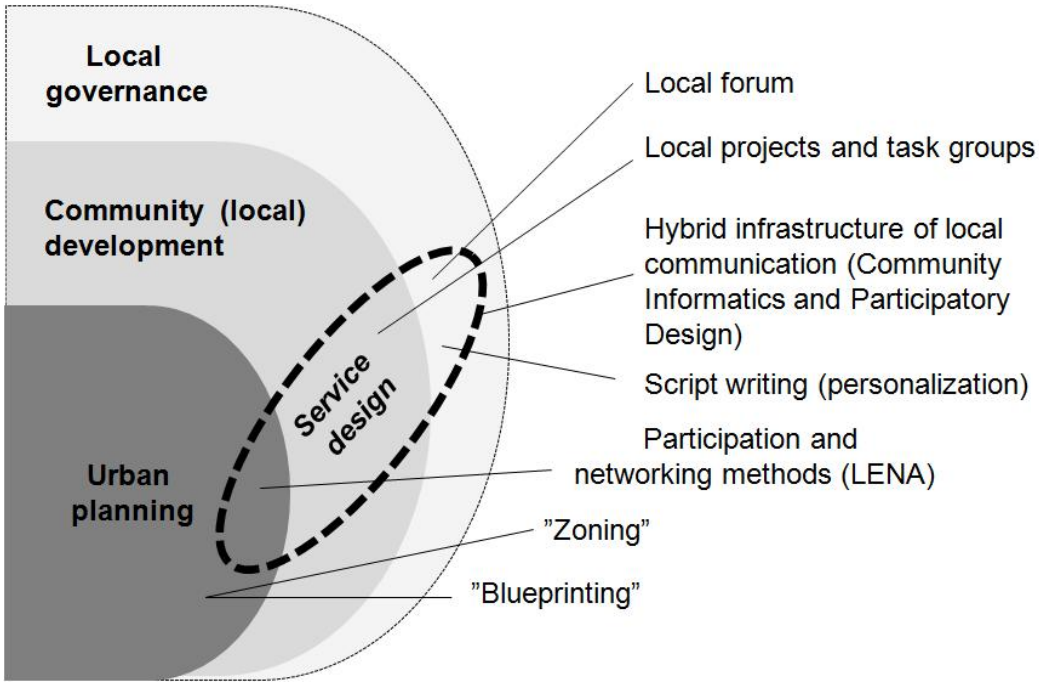

Figure 6. User-sensitive service design as a bridge builder that embeds urban planning in community development and local governance through a variety of methods and tools.

A viable methodology for enhancing the emergence of glocal digital space

The user-sensitive service design within urban planning succeeded in mobilising a vast group of people. The methodology worked well not only in the phase of mobilising networks but also in the building of a basis for the Living lab testing. The personalisation of services through participation in the co-production of services is still under construction, but the first results of the application are promising. With the help of the participatory governance instruments (the local forum and work groups), the communal and participatory services got a role of their own in the top-down oriented administration of Helsinki. However, the deeper integration of the public, private and people-services in the local service system is progressing very slowly. The centralised organisation of the City is a major constraint.

One of the main pillars of the infrastructure of everyday life is the services and their digitisation (Figure 1). The case-study indicates that the role of ICTs is seminal not only for the creation of services but also as a tool for urban planning and the development of social capital. The service and partnership platform (SPP) and its´ new tools were introduced to the existing web sites. It is possible to follow the use and contents of these pages, and see how the sites support the local identities and produce a space for interaction. Merely the amount of web requests in these pages have tripled from 2004 to 2008 (Kajaste 2009). In the near future, the plaza of local events, services and social interaction will be as close as one's mobile phone, lap top or the information screen at the bus stop. The real and mirror worlds (Metaverse 2007), enabled by the digital and mobility tools, become blurred, and the glocal digital space might begin to emerge (Aurigi & de Cindio 2008; Foth 2009; Horelli & Wallin 2009).

The implementation of the digital infrastructure is a vital component of community life. According to Harvey (2007), planners must seize the opportunity to play a role in the interconnection of digital communication and community life. It does not take place by designing the web-sites but by providing the necessary infrastructure and resources through programming, policy or enhancement of community portals that will drive foot traffic to local businesses, neighbourhood organisations and community events.

Future challenges

Gabriel Dupuy (1991) claims a rehabilitation of the network approach to urbanism according to which the city can be seen as a combination of different multi-scalar networks. He proposes a three-level approach to networks: the level of infrastructure (the nodes and links of traffic etc.), the level of location network (production, consumption and domestic networks), and the

individual network (individual time-space and network paths). The user-sensitive service design within urban planning deals partly with the second and third levels of networks. However, as it applies digital and even ubiquitous technology, which neither Dupuy, nor his followers take into account, it is difficult to position this user-sensitive methodology according to the network levels described above.

As modern ICTs have socially, institutionally, economically and culturally penetrated human life at home, in work, hobbies and in communities, it will transform the ways to participate in and organise urban planning, service design included. Additional pressure also comes from the forecast that the rise of civil society sector may be as significant in the 21st century as the rise of the nation-state was in the late nineteenth and early twentieth centuries (Salamon et al. 2003).

Thus, the methodology of the user-sensitive service design within urban planning seems to be an example of the type that Jean Hillier (2008) describes as “planning as a contingent connection of space and time in a conceptual groping towards potential-to-be”. However, the challenges concerning the future research on and development of the methodology are, to say the least, demanding.

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