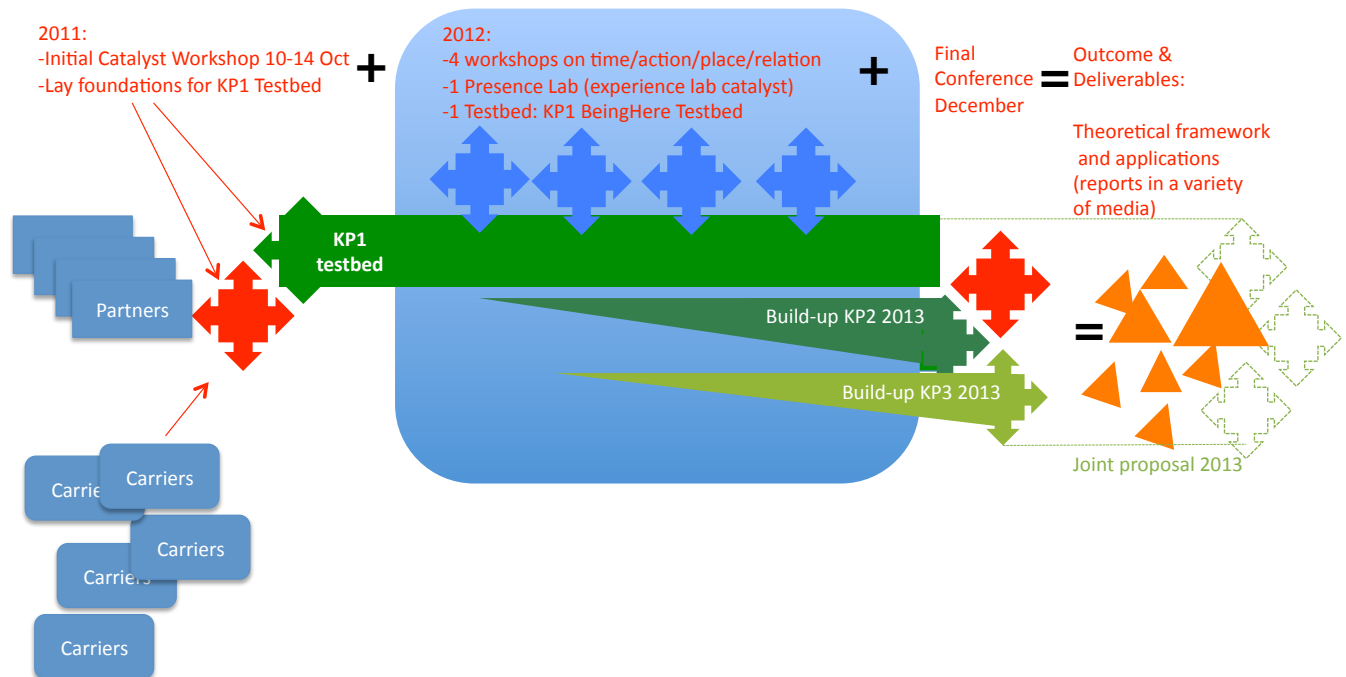


## Build-up 2011-2012



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### Our Workshops and build up 2011-2013

Between the sciences, innovative businesses and the arts, and the daily practices of millions of users, mediating presence of people and environments in large-scale distributed systems is changing shape. Shared mediated spaces connect to shared data spaces and affect human activities to the core. Mediated human activities contribute to the emerging performance of human presence in current social technical ecosystems. Seeking to connect geographical distant spaces to communicate and remotely act in other places, human beings perform their presence in multimodal ways. As a result, new social structures emerge. Our proposal centres around three Key Partnerships KP1-KP3, as illustrated above. The activity proposal uses workshops to establish a first testbed (KP1) and an experience lab (The Presence Lab) in 2012. Four workshops constitute a core thread and allow us to simultaneously develop technological innovation and theory, thus advancing presence design research as a field. By specifically focusing four dimensions (Time, Place, Action, Relation) each workshop is used to explore additional functional requirements for the design of systems and presence; serves to facilitate and drive interdisciplinary key partnerships, hereby involving researchers at the different partner institutes across the nodes. An initial workshop is scheduled for October 2011 (see separate Proposal for Initial Funding 2011). It particularly serves to define the initial requirements for the testbeds, by bringing together the participants to explore the initial requirements and what kind of functionality should be considered. The initial workshop in 2011 will also lay the foundations for KP1, by developing an existing prototypic web platform developed at TU Delft ([www.being-here.net](http://www.being-here.net)), and by contributing the necessary infrastructure to use it as a testbed for collaborative research and publishing for KP1-KP3 throughout 2012. Testbed KP2 (scheduled for 2013) will port Agentscape (open source middleware platform that supports interaction between large scaled systems) to a new mobile device (Ericsson/GroupMedia /SatinII/Turbula) of major interest to Thales, TUDelft, Luleå Uni and Ericsson, in order to provide the technological support for distributed data sharing and processing. The results of workshops provide input to the additional functionality ("libraries") that must be supported by mobile devices - to provide the technological support needed for e.g. synchronicity. The first steps in the implementation of new functionality will start at the end of the year and thus form the basis for continued collaboration thereafter. KP3 is equally scheduled with a build-up in 2013, and the first steps in integration of new requirements in the existing prototypes will be set at the end of the year 2013.

The over-arching *KP1 BeingHere testbed* facilitates development and innovation in KP2 and KP3 that focus:

- simple mobile interfaces to complex networks of relations and shared dataspace, using Agentscape on mobile platform (*KP2 ComplexNetwork testbed*)
- the making of 3D visual traces in virtual augmented reality worlds and assistance in negotiation processes in shared mediated space. (*KP3 VisualVirtualTraces testbed*)

The Presence Lab is essential for the experimental developments at the proposed *workshops* and may be used by partners for demonstrators/user studies/prototypes. Further, by utilizing existing *living labs testbeds*, and *simulation tools* across the ICT Labs partner network, the activity informs existing activities e.g. Agentscape, The Pocket Negotiator, HumanAct, SatinII, GroupMedia. The technologies that are developed in the *testbeds* all allow for a specific kind of shared activity, yet share issues of concern because they integrate mediated human activity in a systems context. In order to build synergy from direct experiences, each of the *workshops* gathers participants in the Presence Lab to experiment on shared mediated spaces. The *workshops* focus on four themes which are issues of concern in the design of mediated presence: time, place, action and relation. In the *workshops* and *experience lab*, theory for the meta-level framework for interaction in mediated presence is developed and experiments are performed which feed into the *testbeds*.

### **KP1 BeingHere Testbed: Trust and interaction in shared mediated spaces and shared dataspace**

Over-arching activity as a *driver for innovation* and *research developer* of the key researcher partnerships KP1-KP3, ensuring that the technology push is effectuated. KP1 utilizes the prototypic web platform 'www.being-here.net' to develop a platform for collaborative research and publishing. KP1 hereby steers the development of designs & prototyping which are used for the interdisciplinary collaboration: both in real spaces in shared mediated spaces. Meetings, Workshops & Conferences: on Time, Place, Action and Relation are carried out over 2+2 days inside a real space where experiments allow contributors to innovate by design, apply and create demonstrators and reflect over research developments. Such a collaborative authoring of outcome is conducted on the basis of two recent contributions to Presence Research: combining issues of trust and witnessed presence (Nevejan 2007) with architecture and spatial design (Gullström 2010). Originally initiated as a means to disseminate her doctoral thesis by attributing metadata-keywords on paragraph level, Nevejan (2007) created an innovative prototypic platform (enabled by Anymeta software), which will be used to explicitly represent the added value from the different research perspectives on presence that the Activity Proposal develops. A variety of disciplines contribute: from the social sciences and law, from architecture and industrial design, from computer science and systems design, from psychology, robotics and more. This interdisciplinary research creates a dynamic knowledge base by sharing insights and results via a web-based platform to which both scientists, artists/designers and professionals/business people contribute throughout collaborating on mediating presence. KP1 will contribute to RIHA CASA in 2012 (Nevejan).

### **KP2 ComplexNetwork Testbed**

A testbed that deploys personalized apps based on network communication patterns. Analyzing communication patterns on mobile phones between people and use the resulting information to propagate personalized software (e.g. to the phone of a friend). A prototype implementation that can do this will be build on Android using the AgentScape agent platform. AgentScape allows agents to access to local phones logs. The logs are send to the cloud to be analyzed. Personalized apps can be propagated to the appropriate phone by (possibly migrating) agents. There are numerous technical issues that need to be solved for this. In addition, analyzing and solving related security and privacy issues is essential to make the application successful.

### **KP3 VisualVirtual Traces Testbed**

Being able to intelligently detect the motion (behaviour) of humans from camera footage provides new opportunities to computer supported human-to-human communication. Moreover the video streams that are already captured by the stereo camera on a head mounted device can be elicited to use the human motion information in real-time for the benefit of communication. Enabling the "computer" to see our environment and interpret the signals in our nearby environment creates opportunities to widen the communication between humans and humans to computers. A tight interaction between both the digital and physical world enables the possibility to leave digital traces in the real world, and there by opening up a whole new range for mediated presence designs, which will be explored to formulate design requirements in the Presence lab as well.

### **The Presence Lab**

Our *experience lab*, the Presence Lab KTHR1 is located in a disused reactor hall on KTH campus and offers a 24x12x12 m underground space used for various research activities relating to presence design since 2008 ([www.r1.kth.se](http://www.r1.kth.se)). It is a cultural heritage site, classified as a museum and receives funding from KTH and industrial partners. It is used for research activities in collaboration between KTH and various artistic colleges settled on KTH campus (opera, dance, music, drama). A Smart Spaces core research activity already utilizes KTHR1 Presence Lab as a testbed (Handberg: TSSP KIC Activity Identifier 10431, Task 07 R13DLocator) and the Presence Lab will contribute to the RIHA Multimodal Interaction Lab in 2012 (Gullström). A TDCT Digital Cities activity proposal "E-campus distributed Lab" further includes KTHR1 as a Presence lab testbed 2012. A Presence Lab that facilitates mediated spatial extensions between the nodes may be considered of benefit also to other activities within ICT Labs.