

From Smart City to Sociable Smart City

Eleni Christopoulou

School of Science & Technology, Computer Science, Hellenic Open University

Department of Informatics, Ionian University, Greece

christopoulou.eleni@ac.eap.gr

hristope@ionio.gr

From Weiser's Vision to Urban Computing

Mark Weiser's vision (1991)

described an era when computers would have blend
into the everyday life becoming ubiquitous but at
the same time disappearing in the background of
environment

Weiser, M. The computer for the 21st century, Scientific American, vol. 265, no.3, pp.94-104. (1991)

Ubiquitous Computing

recording – tracking – monitoring
context-awareness
ambient/ubiquitous intelligence

connectedness, *early 2000's*
awareness, mid 2000's
smartness, 2010's – current

Mobile Computing

portability

connectivity

social engagement / interactivity

personalisation / individuality

Technology at the urban frontier

escaped indoor limits

introduction to urban environment

Paulos, E., Anderson, K., & Townsend, A. (2004). UbiComp in the Urban Frontier. In *UbiComp 2004 Urban Computing Workshop Proceedings*, Nottingham, UK.

Urban Computing

"integration of computing, sensing, and actuation technologies into everyday urban settings and lifestyles" (Kindberg, et. al)

"architecture, social interaction and design of computer systems for use in urban areas" (Hansen & Gronbaek)

heterogeneity of real cities (Williams & Dourish)

differentiated from mobile computing (Paulos et. al)

urban informatics (Foth)

Urban Computing

focuses on the use of technology in public
environments

studies the interaction between humans and such
environments

reshapes urban areas of modern cities

a multidisciplinary field that lies in the intersection
of social studies, urban planning and computing

today...

computers vanish into the background of people's
environments and become indispensable, yet
invisible, parts of their lives

Weiser, M. The computer for the 21st century, Scientific American, vol. 265, no.3, pp.94-104. (1991)

CLIO – ColLective clty memOry

Collective City Memory

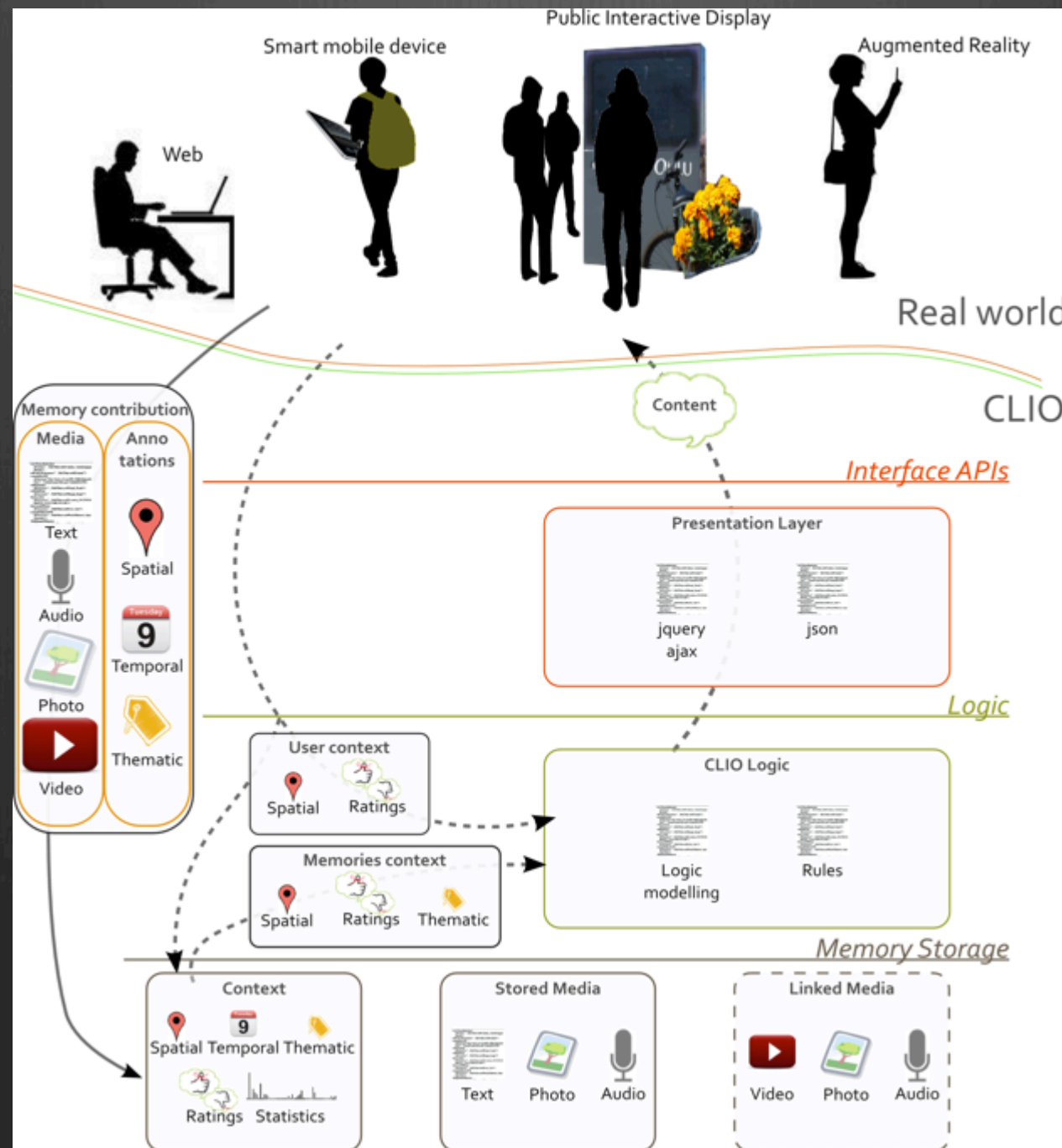
a kind of collective memory that constitutes of individuals' experiences and the relations among them in shared contexts within a city

Crinson, M. (ed.): Urban memory: History and amnesia in the modern city, London: Routledge. (2005)
Halbwachs, M.: On Collective Memory, University of Chicago Press. (1992)

Community • Place • Infrastructure

Collective city memOry
CLIO

Christopoulou E., Ringas D., Stefanidakis M. Experiences from the urban computing impact on urban culture. *In the Proceedings of the 16th Panhellenic Conference on Informatics (PCI 2012)*, Piraeus, Greece. pp. 56-61. IEEE. (2012)





Μοιραστείτε μια φωτογραφία

Τι είναι αυτό που θα θέλατε να καταθέσετε;



Τίτλος:

Ανεβάστε τις φωτογραφίες σας:

Έως 10 αρχεία και μέγιστος συνολικός όγκος 10MB. Για περισσότερα από ένα αρχεία, επιλέξτε τα κρατώντας πατημένο το πλήκτρο Ctrl.

Ονόματα αρχείων: (συνολο ο)

Μπορείτε να δώσετε μια περίγραφή της φωτογραφίας;

ή θα θέλατε να συνοδέψετε τη φωτογραφία με μια αφήγηση;

Όνομα αρχείου:

Σε ποιο τόπο, ποια περίοδο ή ποιο γεγονός αναφέρεται η ανάμνησή σας;



i-recall



CLIO Share your memory

Set a title:

Select a picture on your device:

Or locate it on the web:

CLIO Locate your memory

Select a point of interest on the map

...or create a new one!
Either by clicking on the map...



CLIO Describe your memory

Give a few comma separated tags...

Tell us something about you...

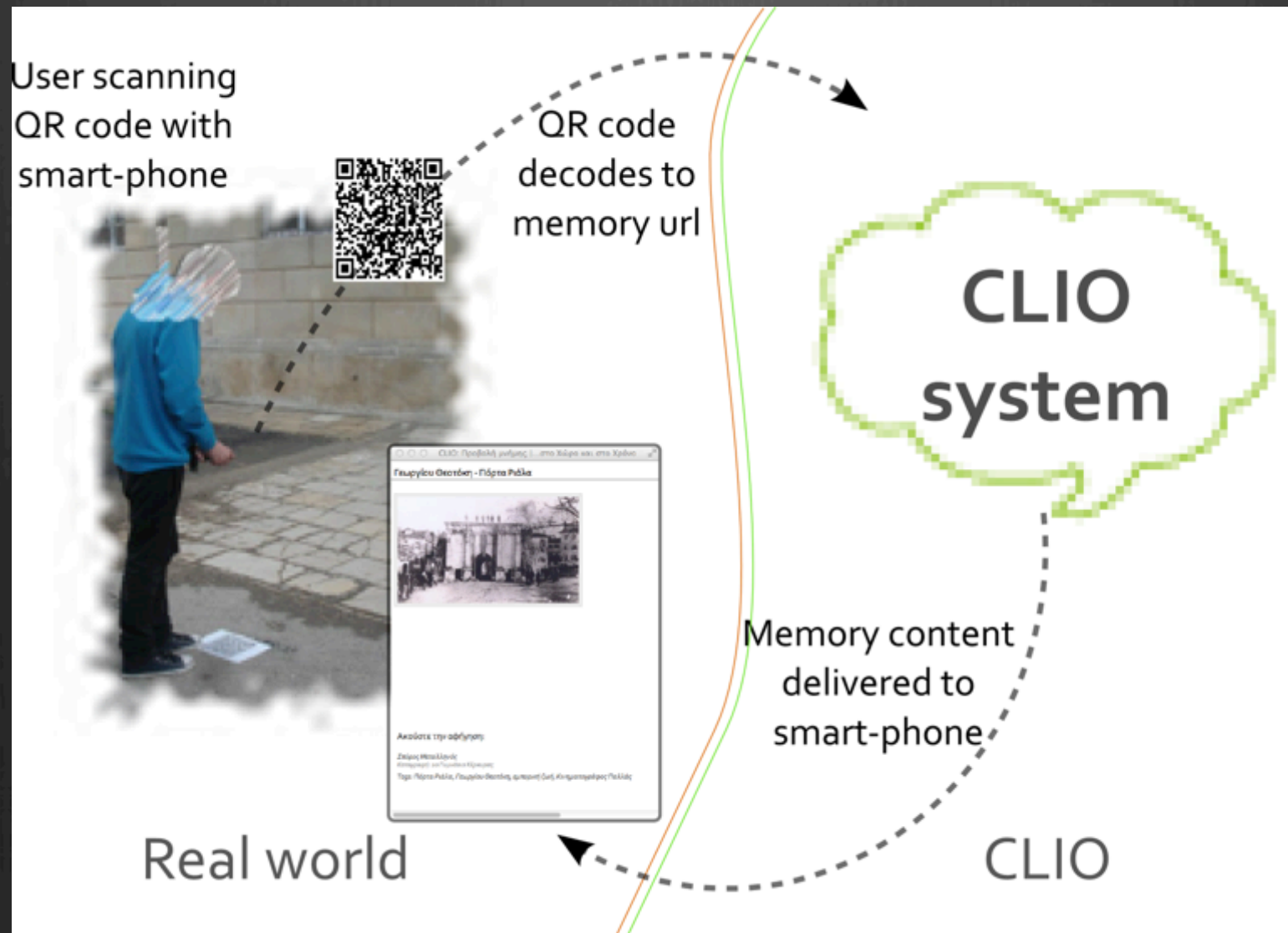
Name:

Info:

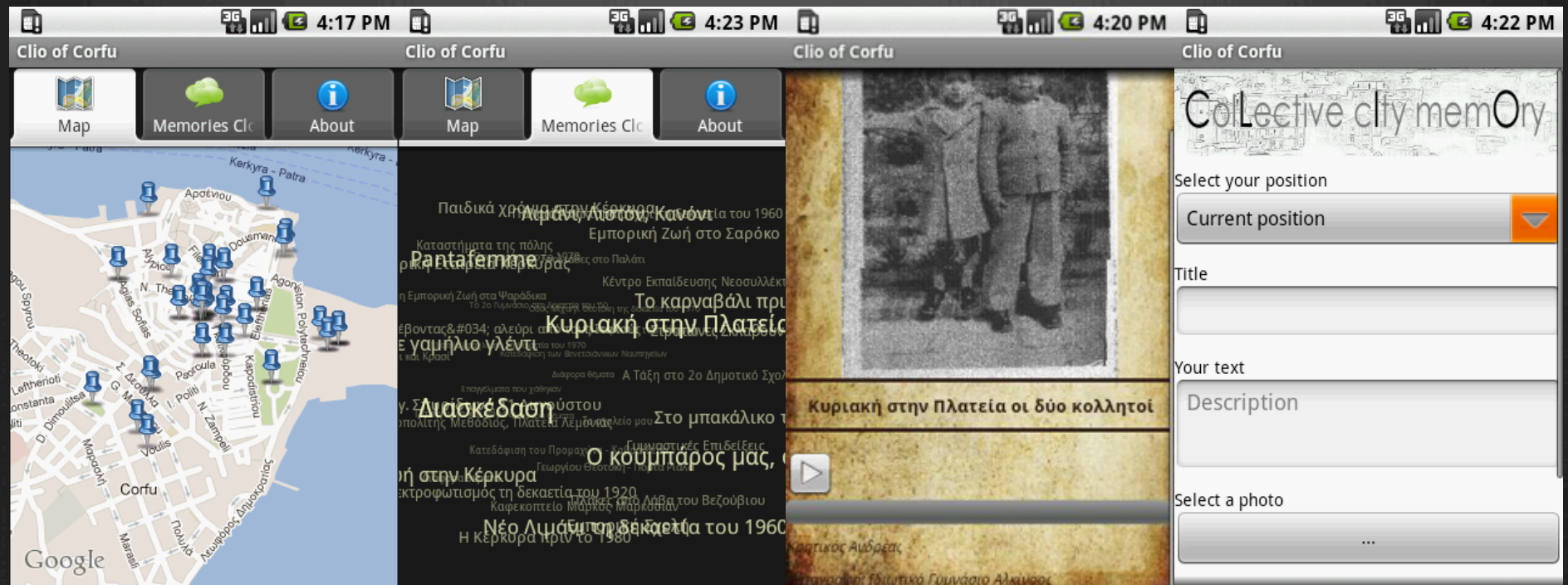
i-recall sharing application (mobile)



Sharing via augmented postcards



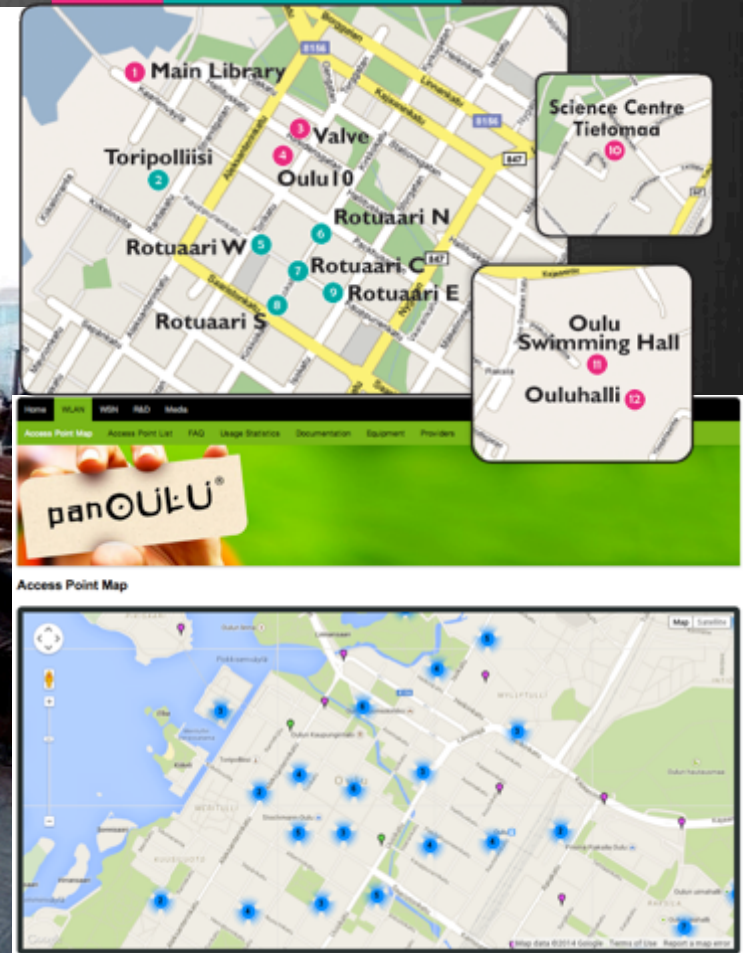
Tag-based exploration



CLIO mobile app

Indoor Displays

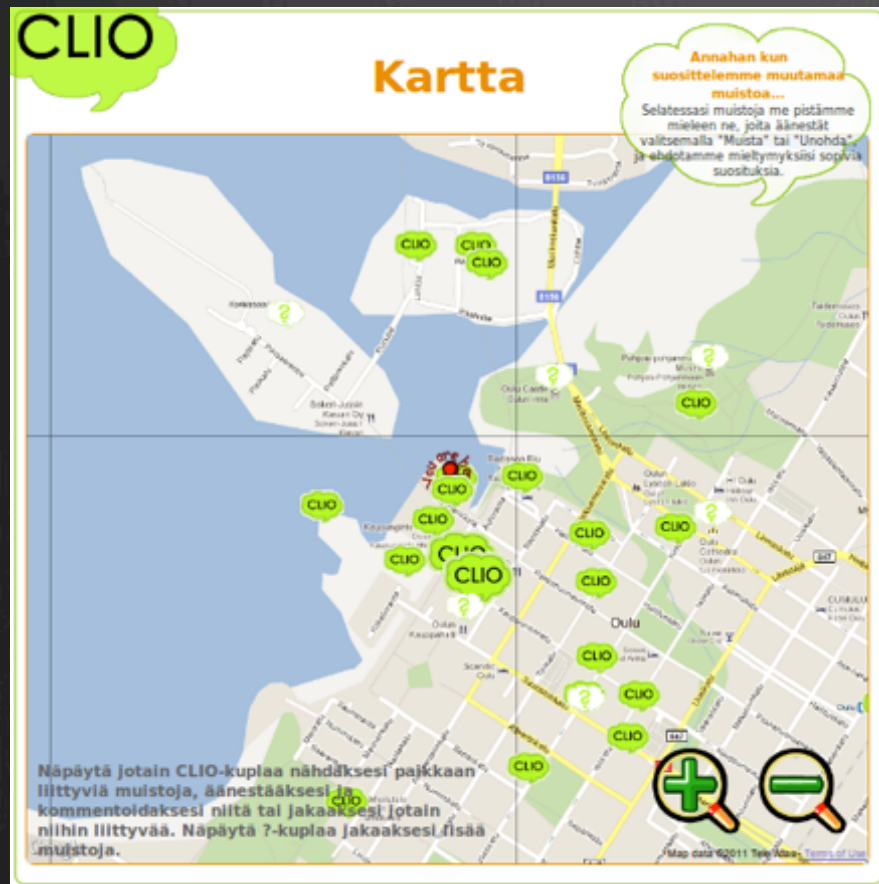
Outdoor Displays



UBI Challenge framework



CLIO on UBI-hotspots



CLIO on UBI-hotspots

Tuiran uimaranta

Memory by Mini, 15/07/2011, 09:53PM

Tuiran uimarannalla on hellepäivinä porukkaa kuin pipoa ja taatusti silmänruokaa joka makuun! On aina yhtä mukavaa pelata biitsiä tai potkia bäää rennolla meiningillä sekä pulahtaa välillä viilentävään Oulujokeen.



Comments: [1]

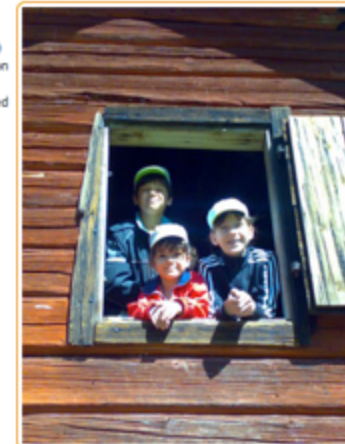
vi vittu223



The open air museum of turkansaari in Oulu after a Soiva Siili concert

Memory by Anna Sachinopoulou, 23/06/2011, 08:55AM

Near by the town of Oulu, there is a small island in the middle of the river that houses a part of the history of the region. Besides the old buildings, on Turkansaari, one can see every Juhannus (midsummer) how the tar used to be made. This the black gold of Oulu and its region during the 17th, 18th and 19th centuries. Our little ones had just attended a concert by the local folk band Soiva Siili when they climbed up the attic of a storage building standing next to the open air stage.

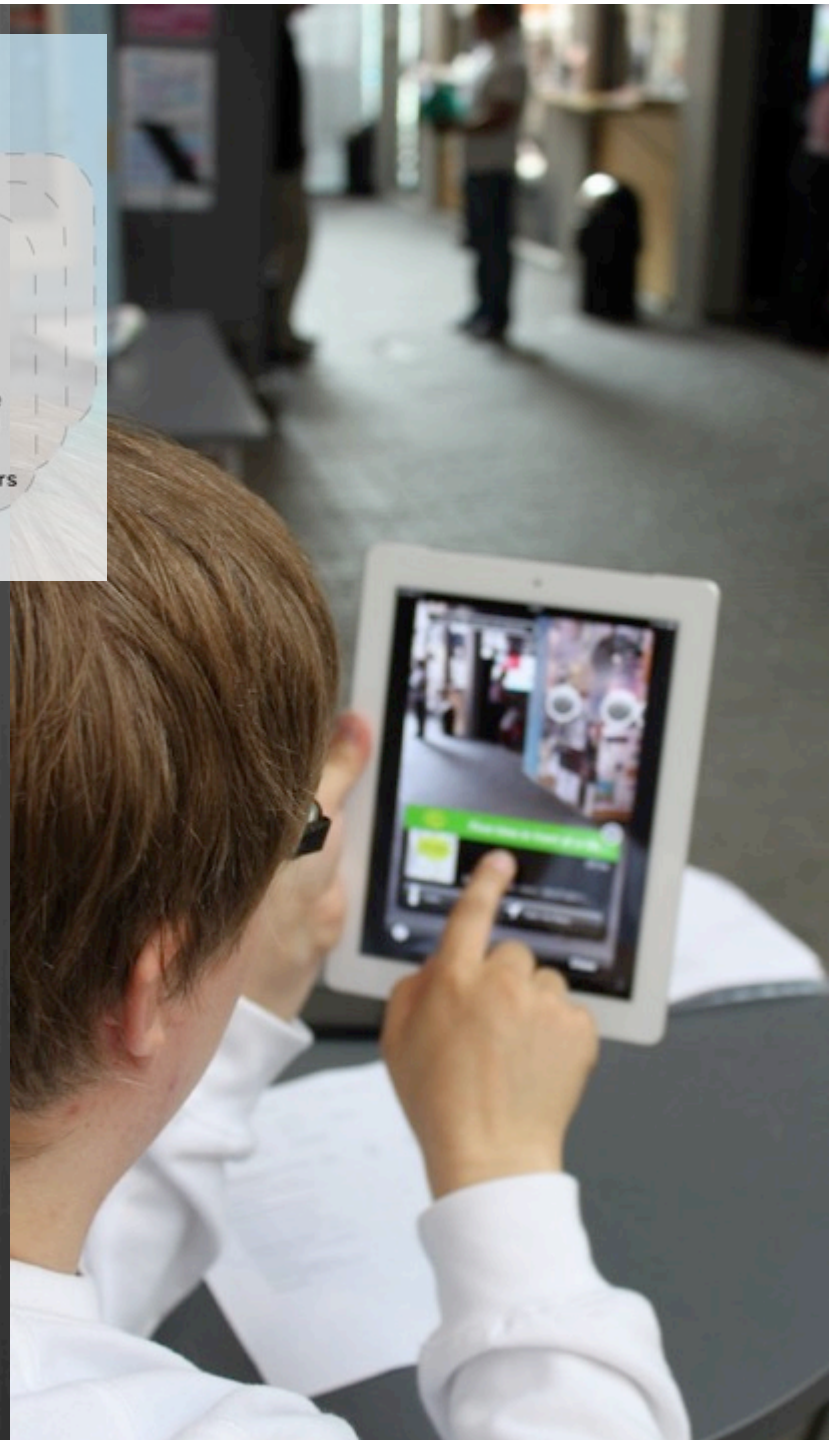
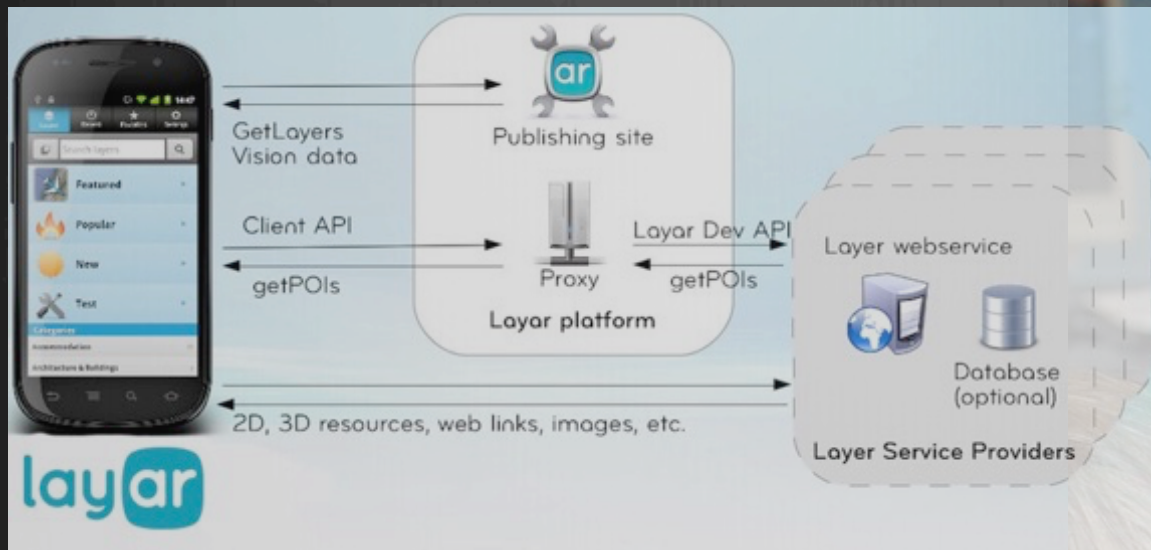


1/16

Pause Previous Next



CLIO on UBI-hotspots



CLIO via augmented reality

<i>Gateway</i>	<i>Interaction</i>	<i>Advantages (+) / Constraints (-)</i>
Web	Browse Interact Contribute	(+) Familiarity (+) Rich interaction (+) Access to media/recording devices for memory contributions (+) Early deployment and feedback (-) Limited is-situ interaction
Tag based exploration	Explore city (with the assistance of a smart mobile device)	(+) Simple interaction (+) Technology aptitude required close to that of typical smart-phone user (+) In-situ access to content (-) Interaction kept to exploration
Smart mobile devices (with installed app)	Browse Explore city Interact Contribute	(+) Most common pervasive device (+) In-situ access to content (+) Access (with few limitations) to media/recording devices for memory contributions (+) [On high-end devices] rich interfaces, responsiveness (-) Requirement for software configuration
Public interactive displays	Browse Interact <i>Contribute (via other gateway)</i>	(+) Public pervasive infrastructure (+) Permanent anchoring in the city landscape (+) Rich interfaces and communications (+) Can be communication facilitators in a public setting

Real world layer

(Very short) experience outline

social interactions catalyst - engagement

sense of belonging - participation

intergenerational dialogue

From Smart City to Sociable Smart City

What is a city?



A city can be regarded as a permanent installation, large enough and structured in order to facilitate the collective and social life



four characteristics from a demographic perspective:
*permanence, large population size, high population density
and social heterogeneity*

What is then a *smart* city?

A smart city invests in human and social capital, in transport and ICT communication infrastructure in order to fuel sustainable economic development and a high quality of life, as well as to achieve wise management of natural resources, through participatory action and engagement

Caragliu, A., Del Bo, C., Nijkamp, P.: Smart cities in Europe. Series Research Memoranda 0048 (VU University Amsterdam, Faculty of Economics, Business Administration and Econometrics). (2009)

A smart city may touch upon all views of city life: economy and the ability to transform, transport and ICT infrastructure, resource management and environmental protection, human capital and participation in public life, quality of life and sociocultural progress, participation in public decision making.

Fertner, Chr., Kramar, H., Kalasek, R., Pichler-Milanović, N., Meijers, E.: Final Report on Smart cities – Ranking of European medium-sized cities. Centre of Regional Science, Vienna UT. (2007)

An intelligent city combines three degrees of intelligence; the individuals' intelligence and creativity, the collective intelligence of the city population as well as the artificial intelligence embedded into the city.

Komninos, N.: Intelligent Cities and Globalization of Innovation Networks. Routledge, London and New York. (2008)

City + ubiquitous computing + mobile devices

“smarter cities”, “sentient city”, “digital cities”,
“hybrid cities”, “intelligent cities”

cities of the future

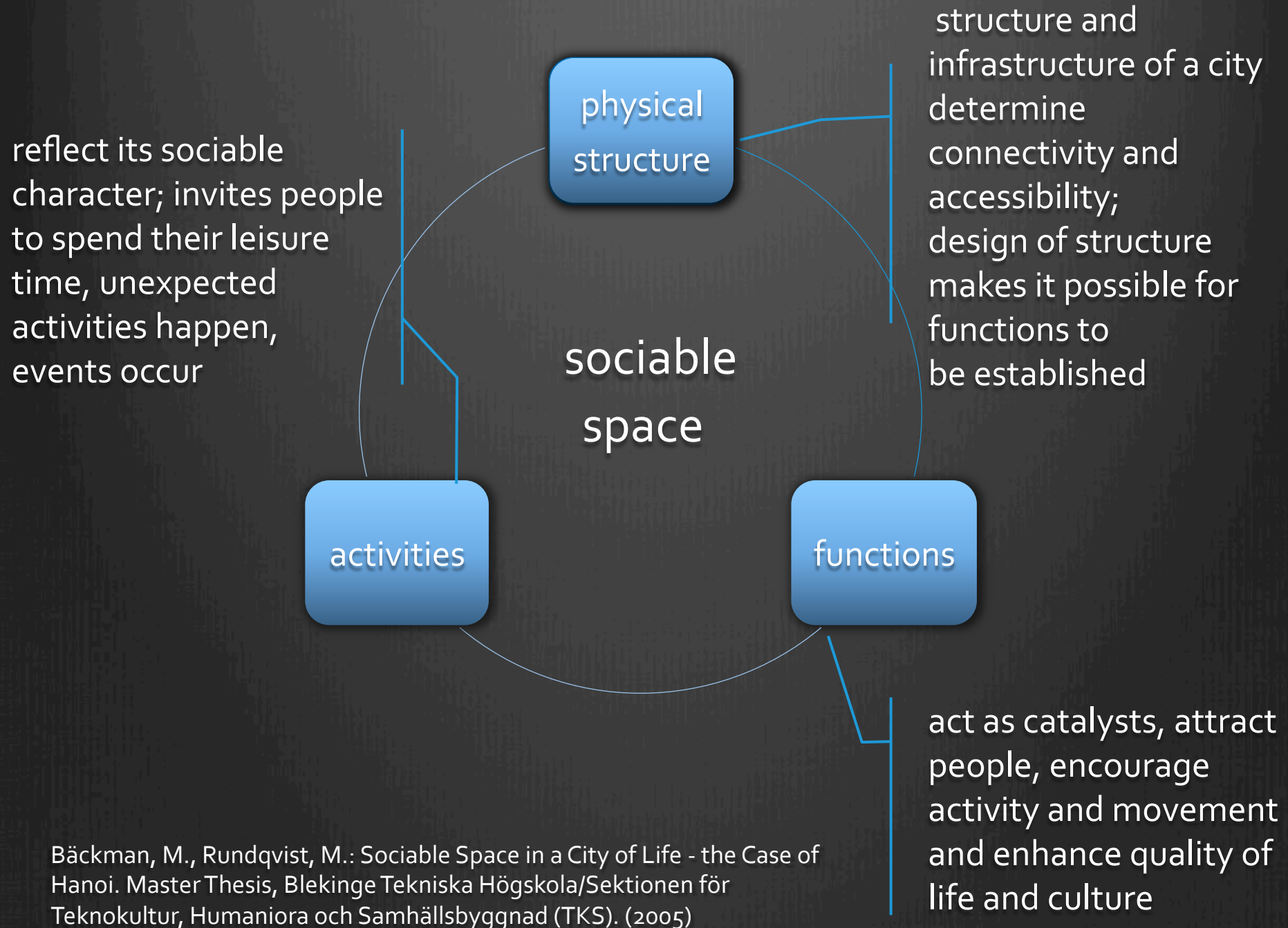
future of our cities



Sociable: willing to talk and engage in activities with other people; friendly
(Oxford dictionary)

Sociable *space*

friendly and attracts people to spend time on it
encourages communication among people
where people can be extrovert and engage in
outgoing activities
open and welcome, approachable for all



Bäckman, M., Rundqvist, M.: Sociable Space in a City of Life - the Case of Hanoi. Master Thesis, Blekinge Tekniska Högskola/Sektionen för Teknokultur, Humaniora och Samhällsbyggnad (TKS). (2005)

Sociable & *Smart*

offer a wealth of novel infrastructure
and services;
focus on people, not on technology

empower people to participate
engage them to act collectively
develop a shared sense of belonging, ownership and responsibility
connect people and their experiences
enable game, learning and cultural events

*A **Sociable Smart City** is one rich in infrastructure, which combines and exploits both people and artificial intelligence, empowering and engaging people in activities where urban social interactions thrive aiming to advance the quality of life and culture.*

Christopoulou E., Ringas D., "Towards the Sociable Smart City", 9th International Conference on Intelligent Environments (Workshops), pp 673-677, Athens, Greece, 17th July 2013.

Reflections on the Vision of the Sociable Smart City

people's and artificial intelligence have to be
combined

need of adopting semantic web technologies for representing and reasoning on large
amount of data

city infrastructure has a vital role in empowering
and engaging people

modern cities should invest in infrastructure

rich social interactions strengthen the community

innovative applications in social life may promote citizen participation, develop a
shared sense of belonging, assist decision-making and organise people into collective
goals

Christopoulou E., Ringas D., Garofalakis J., "Introduction to the Proceedings of the Sociable Smart City
2013 Workshop", 9th International Conference on Intelligent Environments (Workshops), 2013.

Transforming a City into a Sociable Smart City



Transforming a City into a Sociable Smart City

Outdoor exploration of the city of Corfu

2nd Int. Workshop on Urban Computing & Modern Cities @ 6th Int. Conf. on Information, Intelligence, Systems & Applications (IISA 2015) - 6th July 2015, Corfu, Greece

locate areas of particular interest that can be augmented with urban computing technology in order to function more efficiently or to transform their character

city exploration methodology

Observe

a public space

Identify

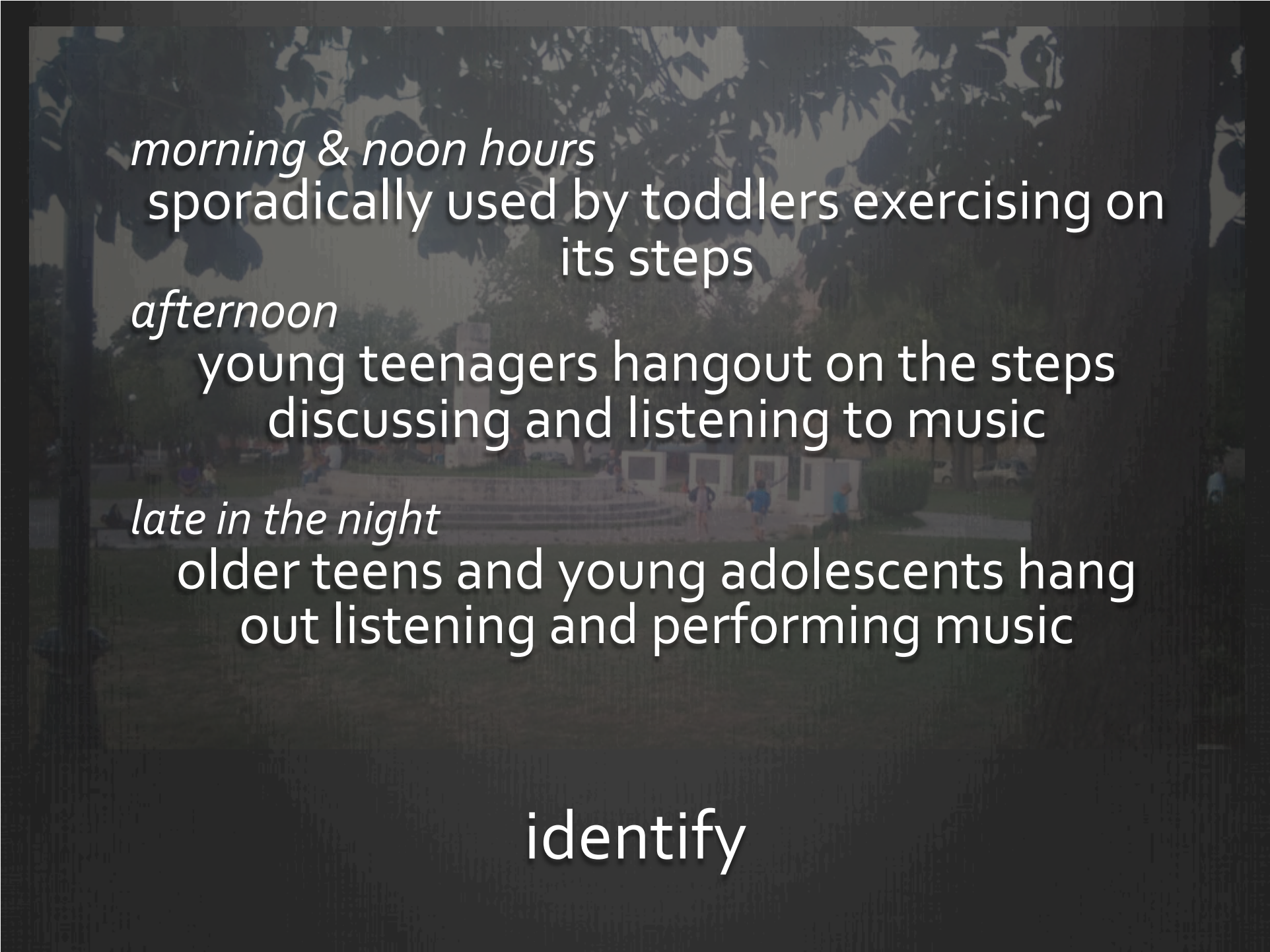
primary actors that
traverse or use it

Propose

appropriate
technology-based
interventions



observe

The background of the slide is a dark, semi-transparent image of a park. It shows silhouettes of trees in the foreground and a building with a central tower in the background. Some people are visible in the distance, but they are not the focus.

morning & noon hours

sporadically used by toddlers exercising on
its steps

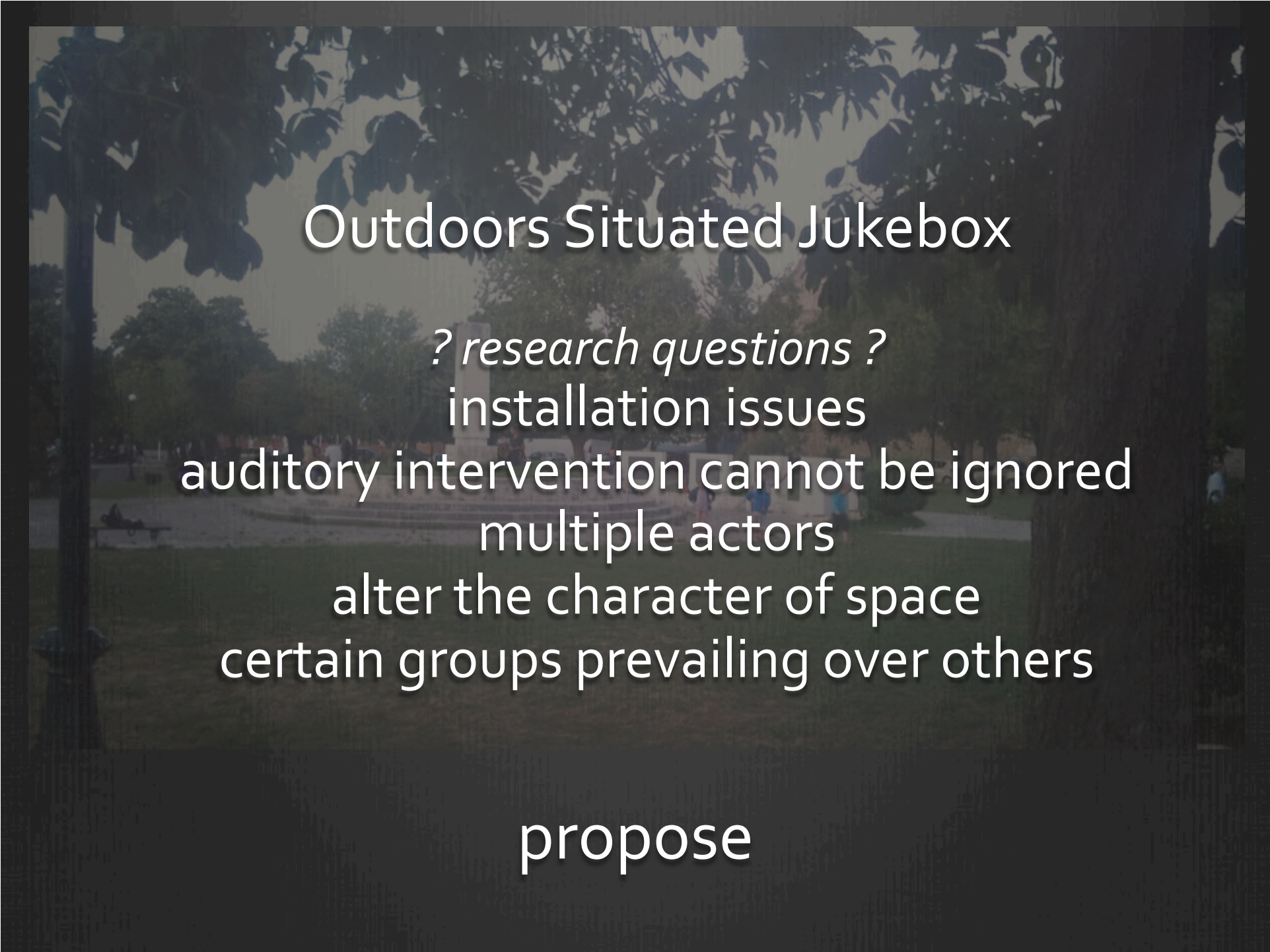
afternoon

young teenagers hangout on the steps
discussing and listening to music

late in the night

older teens and young adolescents hang
out listening and performing music

identify



Outdoors Situated Jukebox

? research questions ?

installation issues

auditory intervention cannot be ignored

multiple actors

alter the character of space

certain groups prevailing over others

propose

schedule – Thursday 19th of April 2018

Observe	Identify	Propose
a public space transportation market leisure culture public administration touristic	primary actors that traverse or use it frequent users workers tourists	appropriate technology-based interventions combination of infrastructure applications software/hardware tools

propose an intervention

offer a wealth of novel infrastructure
and services;

focus on people, not on technology

empower people to participate

engage them to act collectively

develop a shared sense of belonging, ownership and responsibility

connect people and their experiences

enable game, learning and cultural events

schedule – Friday 20th of April 2018

14:00 - prepare your illustrations/presentations

photo slideshow, sketch, ppt, poster, pecha kucha

15:00 - presentations – discussion

16:00 - *The Vision of the Sociable Smart City*

Ευχαριστώ

Efharisto