

A quality-of-urban-life ontology for human-centric, environmental information services

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C21: Towntology, WG1: Ontologies and Information Systems
Brussels, 12-13 Dec. 2005

Urban life and digital cities

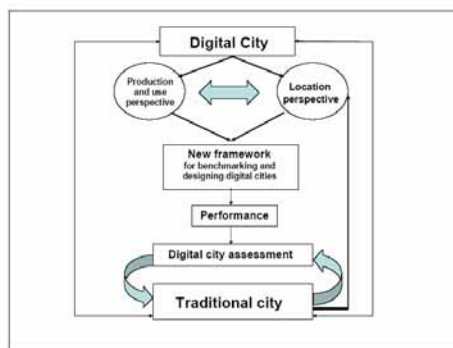


Fig. 1- Digital and traditional city interrelationship model

- From ancient times urban structures provided access to services and goods. Citizens' well being was judged according to the access to these goods.
- Contemporary cities have not yet become "digital", i.e. supporting dynamic information flow to and from the citizens concerning the environment they live in, on the basis of their interests and profile.

From Edgar Einemann and Maria Paradiso, "DIGITAL CITIES AND URBAN LIFE"
A framework for international benchmarking.

Quality-of-urban-life ontology

- ❑ Aspects of quality of life related to urban spaces-structures and organisations
 - Environmental pressures
 - Air quality
 - Noise pollution
 - Waste management
 - Transportation
 - Road networks
 - Accessibility
 - Road morphology
 - Street space
 - Road & building relationships
 - Greenspaces
 - Open/public spaces
 - Cycling
 - Administrative and governmental services
 - Spatial spread
 - E-accessibility
 - ...
 -

What do we mean by “human centric services”

Services created to help people in their everyday life that

- ❑ Do not require special skills to be used
- ❑ Allow access to old and disabled people
- ❑ Are engineered so as to promote a society for citizens and not for solitudarians

Bringing things together: EI

Citizen participation in urban env. management and decision making in the key towards the improvement of the quality of life.

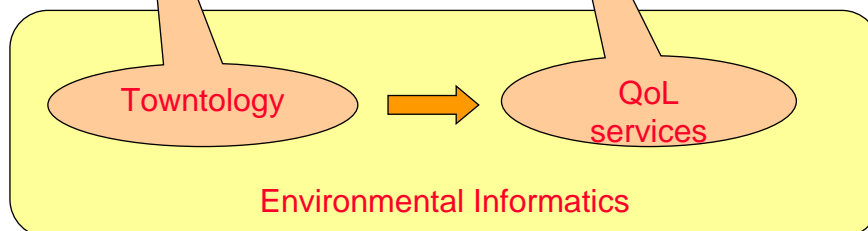
The former participation may be advanced only if citizens feel that they can actively take part, and not just be passive receivers of information or decisions.

Moreover, information received is not currently filtered on the basis of personalized needs (profiling), that may multiply the interest of the public to environmental issues.

The way to go: **Environmental Informatics**

Bringing things together: EI

- Building H.C. services results in the creation of the **virtual city** and **intelligent regions**: replacing material flow with QoL services, that are personalised and widely available.



A definition of EI (1/2)

- ❑ Information and telecommunication technologies were introduced to support solving Environmental Engineering/Management problems....
- ❑ So, is **EI** the combination of software engineering and environmental engineering methods ???



A definition of EI (2/2)

- ❑ *EI should be considered as the combination of software and environmental engineering methods and tools for the creation of a new "knowledge-paradigm" towards supporting environmental well-being at an international, national, regional, community or personal level.*
- ❑ Citizen centred, environmental information services that will support societal sustainability while promoting personal well being.

The concept of electronic human-centric **urban environment** services

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The concept of electronic human-centric **urban environment** services

Thus:






Information should be provided in an intuitive way, being easily understood, avoiding complex graphics and meaningless numbers.

Information should be “prescribed” on the basis of quality of life ontologies and their interrelation with attributes of urban life (personalization, dynamic content, content creation on the fly) etc., meaning.....

If I have an urban ontology created on the basis of quality of life needs, then I can personalize, categorize, classify and prioritize QoL actions that the person can take towards achieving personal goals (i.e. minimizing time consumption in public transportation, maximizing energy efficiency at home, etc)

Service example: minimize environmental burden!



- Low 
- Medium 
- Medium-high 
- High 
- Very high 

A mobile phone screen saver/logo updated every 20 min, showing discomfort index info for Thessaloniki, Greece



Future directions on top of current technologies

- For achieving urban semantics
 - Discoverability (Web Services/SOA)
 - Service sustainability via Open Standards (OASIS – Open Document)
- Citizen-driven extensibility of the services
- A “humble goal”: Learn as you go-learn as you use, while supporting the evolution-extension of a QoL Urban Ontology (proposal/contribution to the [Towntology project](#))

Some conclusions towards the future

- ❑ Quality of life may be used as the basis of advanced, human – centered information services
- ❑ City authorities should be prepared to migrate from static to real-time interactive urban environment administration systems.
- ❑ **A new service-oriented relationship between city authorities and the public based on applied use of ICT innovations is emerging**

Thank you!