

# MUMMY: Mobile Knowledge Management

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The vision of the EU-funded project MUMMY is to enable mobile, personalised knowledge management based on the usage of rich multimedia to improve the efficiency of mobile business processes. MUMMY will provide (1) new multimedia and hypermedia technology for a seamless integration of pocket-sized computers into the knowledge management control loop, addressing the topics of knowledge acquisition, description, preservation, annotation, access and exchange; (2) substantiation of the expedience of the developed components through rudimentary portal establishment and trials in the application area of facility management and the construction industry. MUMMY will make use of new mobile connection possibilities, such as, »always on-line« and bandwidth, offered by wireless networks and bluetooth, as well as that of new Hardware possibilities offered by camera-equipped mobile phones or PDAs. We believe that the results from MUMMY will lead to time savings and cost reductions of about 5%, thereby improving overall quality of work performed.

## Motivation

Mobility in our society is still increasing along with the growing market penetration of mobile phones and personal digital assistants. These pocket-sized computers serve as permanent companions, mainly in an off-line mode. In the future, circumvention of PC usage and *anywhere, anytime*, up-to-date and on-line knowledge access will have a great impact on our everyday life. In knowledge management systems, personal notes, project documents, and other knowledge objects within a knowledge base, are linked using hypermedia technology. Today, the efficient provision of rich multimedia and hypermedia, as well as on-line knowledge management facilities, for pocket-sized devices is not yet solved.

Mobile access to the »right« information by construction managers or facility managers is not yet available. Project managers in the construction domain are faced with an error-prone decision-making process, because of missing physical files and folders or unseen plan material. Ad hoc notes or images for business-rele-

## German Abstract

Die Vision des EU-Projektes MUMMY ist es, durch personalisiertes, mobiles Wissensmanagement die Effizienz von mobilen Arbeitsabläufen zu erhöhen. MUMMY wird neue Multimedia und Hypermedia-Technologien zur nahtlosen Integration von »Westentaschencomputern« in dem Wissensmanagement-Regelkreis entwickeln und u.a. neue, mobile Kommunikationstechnologien und Endgeräte einsetzen. Die erarbeiteten Ansätze und Lösungen werden prototypisch in den Anwendungsfeldern Facility Management und im Baubereich ausgetestet.

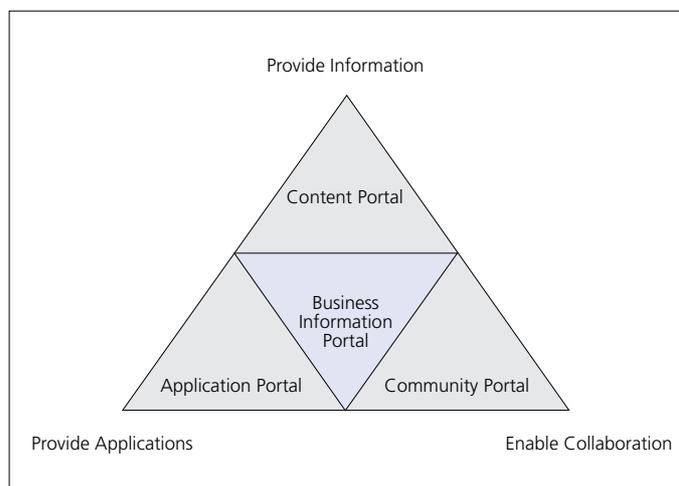


Figure 1: Components of knowledge portal



**Figure 2: Image or video annotation of a construction site for use on pocket-sized computers**

- *Video hyperlinks* on mobile devices
- *Metadata* based on RDF and/or MPEG-7
- *Personalisation* for access to situation-specific knowledge
- *Ontologies* for the annotation of knowledge objects

MUMMY's new mobile multimedia communication mechanisms will become important technology groundwork on which future efficient mobile knowledge portals for quite different application domains can be established.



**Figure 3: Site plan annotation and collaboration on mobile devices**

#### **Consortium**

- Zentrum für Graphische Datenverarbeitung e.V., Germany
- INTRACOM SA, Greece
- University of Applied Sciences Wädenswil, Switzerland
- Czech Technical University, Czech Republic
- COSMOTE, Greece
- ELLINIKI TECHNODOMIKI A.E., Greece
- ARCADIS, Germany & The Netherlands

vant decisions and planning and possibilities for context-sensitive retrieval are not given. For facility managers, on-line access to companies' databases and updating is not available, for example, when new installations are completed or maintenance work is done. Conventional workflow acquires the data onsite in a paper form; digital update is done afterwards in the office. Incorrect input is harder to recognise offsite, making it difficult to correct errors as needed and in a timely way.

#### **Expected Results**

Efficient communication of and collaboration with knowledge objects is a main objective of MUMMY. MUMMY will ascertain through research and trial how rich multimedia content and collaboration can be best applied within *mobile* knowledge portals (Figure 1), showing the potential business opportunities of mobile knowledge management.

In order to evaluate the developed technology, the MUMMY consortium will set up a portal prototype for the application scenarios of *facility management* and use on the *construction site*.

It will enable for instance, a construction or facility manager to have situation-aware mobile access to current project data, such as a construction plan, and will provide multimodal annotation and delivery of deficiency lists, as well as collaboration on acquired material and plans with remote experts. The problems to be addressed within the application scenarios will be identified through a strong user focus and the analysis of relevant business processes from the beginning of the project.

The scientific work will focus on the following subjects, primarily addressing the content and community portal:

- *Mobile annotation and collaboration* mechanisms



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