



**PROJECT RESULTS**

# Distribution and integration

## Multimedia content processing services

***KLIMT addresses the increasing demand for added-value in intelligence for the processing of multimedia content over distributed networks and architectures. The project designed, developed and prototyped a multimedia content processing platform in support of new applications that fully exploit the potential for rich multimedia content. This platform consists of a Service Oriented Architecture (SOA) middleware – for easy integration of heterogeneous content processing applications over a distributed network, and a comprehensive set of content processing services – for analysing, characterising, indexing and retrieving structured data, image, video, audio and text.***

***The efficiency and versatility of the KLIMT approach was demonstrated by the prototyping of four demonstrator applications on the common integrated platform: web catalogue browsing, multimedia indexing, video-surveillance and distributed data morphing.***



### **Sustaining the growth of Europe's Internet and UMTS industry**

The rapidly developing digital economy is characterised by the ability to connect to remote services via the Internet, GPRS/UMTS telco networks, and cable/ADSL TV distribution. New intermediation services (trusted third parties, search engines, translation and cataloguing services, and certification agencies) are located in a network to help users connect,

facilitate their transactions, and assist them in searches. Communication and cooperation are supported by general services that intermediate between the various actors and components, using high-level semantic protocols.

The uptake of these new platforms depends on their added-value in intelligence. This means that more content processing tools and better integration of multimedia data processing tools are required. Suppliers need to be able to tailor their offers and communication to customer profiles. Individuals increasingly need automated summaries of documents from a variety of sources, both internal and external.

KLIMT addressed the needs of service and technology suppliers that support the gathering of such information on behalf of clients in a unified and structured way, rather than collecting it by laboriously navigating through numerous documents on the web.

### **The market for value added intelligence**

The potential market – including that for KLIMT clients and KLIMT portals (such as large companies and specialised document brokers) – is expected to grow at 10 per cent per year. Multimedia indexing and content mining services delivered through multimedia KLIMT clients and portals should be available to approx. 1.2 Billion internet and TV users by the end of 2007. Such tools and services are particularly useful for students, teachers, researchers and journalists.

The design of new-generation tools implementing specific methodologies developed from KLIMT can also be expected. Building toolkits for service

## **KLIMT (ITEA 00008)**

### **Partners**

- B-kin
- Certimate
- ESI
- I&IMS
- IRIT
- Isoft
- Sinequa
- THALES Communications
- TRT
- Université Paris 6

### **Countries involved**

- France
- Spain

### **Start of the project**

July 2001

### **End of the project**

July 2004



## PROJECT RESULTS

companies that add value to heterogeneous knowledge sources will be a priority in the years ahead. These tools will need to integrate the various technologies addressed by KLIMT into a unified framework to provide answers to customers' requests for knowledge structures and multi-channel media through an intermediation platform.

Current market analysis confirms the trend toward an increased demand for distributing software applications across servers on communication infrastructures and networks. The web services market was \$ 1.1 Billion in 2003. But web services are only part of the picture. The Service Oriented Architecture (SOA) approach to which KLIMT belongs is only reaching the market now and IBC forecasts that it will take over the Web services in the upcoming years and reach a total of \$ 11 Billion in revenue by 2008.

### Supporting distributed content processing

KLIMT provides an architectural framework for the networked information technology model giving up the traditional client-server model and introducing a Service Oriented Architecture: content owners, service providers and end-users belong to a common Virtual Community and are connected through a KLIMT Intermediation domain and benefit of its standard services.

To support the shift from standalone application development towards distributed service provisioning, the three following areas were considered:

- **Architectural:** a distributed middleware supports the integration of complex content processing applications. All components in the framework are services: they can be interconnected and co-ordinated in the same way. The middleware supports message exchanges and manages the components.
- **Engineering:** non-functional services are implemented in the platform and support service development and deployment. The middleware includes, in

particular, service registration and coordination, message delivery and security.

- **Content processing:** services for adding intelligence in the data processing are available on the platform; for video: segmentation and motion detection; for audio: speech detection, language identification, French and English speech recognition, topic tracking; for images: human presence detection, dominant colour extraction, background detection; for text: linguistic analysis and title extraction; for data: medical signals handling, audio/video separation and data mining.

The project partners validated the approach in integrating all the above content processing services into the KLIMT platform. They will further use the approach and components for the development of their upcoming network-aware applications.

### The main applications

The KLIMT platform is used for the following applications:

- Intelligent search tools for navigating in complex document based systems by benefiting from combined image and text search
- Access to Video data bases, with the help of combined voice and image indexing
- Virtual Community management, through professional web portals targeted to professionals supporting advanced content management and community awareness
- Video surveillance, proposing appropriate management tools to this growing market
- Medical imaging is enhanced with tools supporting new ways of working, integrating remote access to images and patient data.

### Major project outcomes

#### Dissemination

- 17 publications and presentations
- 3 trainings and courses

#### Exploitation

- 5 new software products
- 3 new software licensed packages

#### Standardisation

- 1 contribution to the IETF

#### Patents

- 1 submitted

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