



Information Society
Technologies



Overview

VITALAS



Video & Image Indexing and Retrieval in the Large Scale

Nozha Boujemaa
Scientific Coordinator





Consortium

- Instrument: Integrated Project
- Start-End Date: 1 January 2007 - 31 December 2009
- Project co-ordinator: ERCIM
- Scientific coordinator: INRIA
- European Commission funding: 4 690 000 €
- Consortium: 12 partners from 7 countries
ERCIM (FR), EADS (FR), CWI (NL), Fraunhofer (GE), INRIA (FR), ROBOTIKER (ES), Univ. of Sunderland (UK), CERTH-ITI (GR), Codeworks (UK), **INA (FR), Belga (BE), IRT* (GE)**



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de l'audiovisuel



University of
Sunderland





Introduction

- VITALAS is a **use-case driven** project that aims at providing a **pre-industrial prototype** system dedicated to intelligent access services to multimedia professional archives that would provide the consumer with new technological functionalities.
- VITALAS will provide advanced solution for indexing, searching and accessing **large scale** of **non previously** (or **partly**) **annotated content**.
- Expected use-cases addressing professional consumers :
 - ❖ Political/societal news content;
 - ❖ Fashion and entertainment news.



Work packages list

- WP1: Use-cases specification, user requirements, test and validation
- WP2: Enabling technologies: Content description and scalability issues
- WP3: Cross-media indexing
- WP4: Cross-media retrieval
- WP5: Personalization, access rights & profiling
- WP6: System design
- WP7: User interface and visualisation
- WP8: *Dissemination*
- WP9: *Training*
- WP10: *Market investigation and Exploitation*
- WP11: *Management*



Major Innovative Challenges (1)

Cross-media indexing and retrieval methods (WP3&4):

- Cross-media vocabulary and semi-automatic content annotation methods using several media inputs.
 - Retrieval model and probability estimation, implemented as XQuery extensions
 - Advanced hybrid relevance feedback model will be investigated to provide better user target retrieval (early and late fusion).
- => This implies the development of **efficient** and advanced **informative** content (audio & video) description methods, robust machine learning approaches (WP2)



Major Innovative Challenges (2)

Pluri-modal Search scalability issue (WP2)

- Technologies enabling search in very large and heterogeneous databases will be one of the **main target challenges of VITALAS**.
- The system validation will be performed on **professional collections**, up to **10,000 hours of video** (television archives – INA/IRT) and **1.500.000 still images** (Belga).
- **SOA**: Feasibility of content search method is done on **limited size of multimedia collections**
=> $\sim o(100)$ hours of video hour, $\sim o(10.000/100.000)$ images



User-centric critical issues (1)

Interactivity and Context adapting (WP5&7):

- Adapting the search space to the user profile and providing interactive functionalities to control the results
- Interactive cartographies and video synthetic views based on graph merging, filtering and layout should enhance users feedback
- Off-line user profiles and on-line personalisation (WP4) will be used also to provide more user satisfaction by expressing his subjective preference



User-centric critical issues (2)

Specification and validation based on professional use-cases (WP1)

- The functionalities of VITALAS system will be specified and validated by professional multimedia content owners: INA, BELGA, IRT
- The evaluation issues will be carefully addressed by the **definition and selection of test corpora**, **success criteria** statement and **external user trials**.
- Internal **training** on VITALAS system is planned starting with **content owners archivist** as well as vocational (external testers).



Technical Roadmap

Vitalas System Releases:

- The version **V0** will be early produced internally : **generic framework** for developing VITALAS components, a **communication** and a **data access layer**.
 - The first version **V1** (M13) provide **non-simulated** VITALAS component mainly on the **existing know-how of partners**.
 - The second version **V2** (T25):
 - ❖ provide **beyond state-of-the-art** components
 - ❖ come with a **security** and **personalisation** layer, a **monitoring framework**, and **intelligent visualization** tools.
 - The last version **V3** (T32) will enhance V2 with a **distributed processing framework** (scalability of indexing and searching)
- ⇒ *V2 and V3 will be used for the user-trials (WP1), training (WP9) and dissemination (WP8)*



Epilogue

What we will not address...

- The **mobility issue** : content distribution, QoS...
- The **devices adaptive technological issues** including scalable coding, scalable interfaces....

Vitalas expected achievement:

The VITALAS functionalities will provide the **core system and technologies** facing the **semantic gap** and **search scalability** that represent **strong bottleneck nowadays** for intuitive content search engine services