



Evaluation in Quaero

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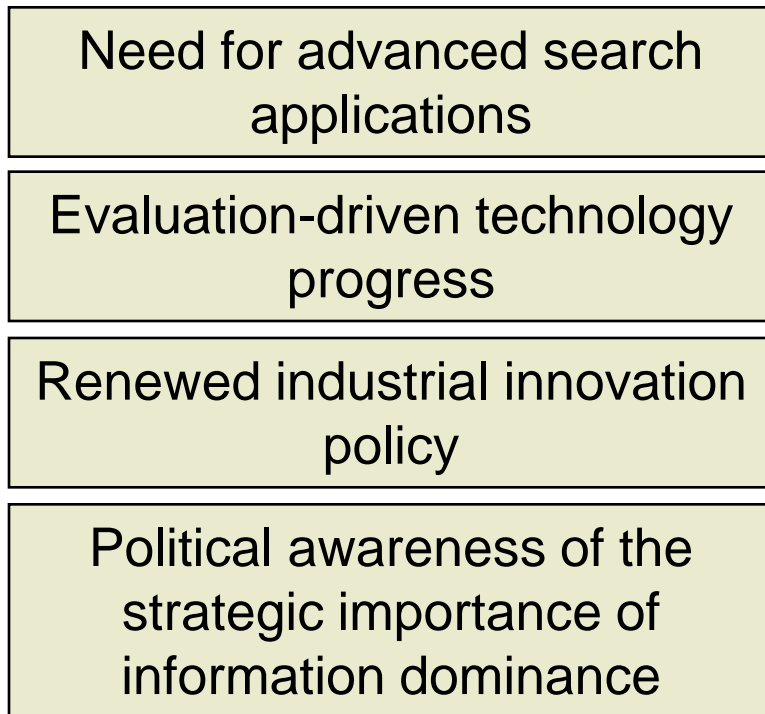
Quaero/imageCLEF workshop
Aarhus, Denmark
Sept 16th, 2008

Presentation outline



- The Quaero program
 - ▶ Context, scope and approach
 - ▶ Consortium, budget
 - ▶ History and timeline
- The Quaero evaluation infrastructure
 - ▶ Organization
 - ▶ Current activities
- Coordination with other campaigns
 - ▶ Types of coordination
 - ▶ The Quaero/imageCLEF cooperation
- Conclusions and perspectives

Context and overview



- Program on automatic multilingual and multimedia document processing
- Application-aware, corpus-based, evaluation-driven
- Large, addressing identified emerging markets
- Specific history and media coverage

Scope



- **A collaborative research and development program**
 - ▶ Focused on automatic extraction, analysis, classification and use of multimedia, multilingual content
 - ▶ To develop access to content

- **Five application projects**
 - ▶ Multimedia search on the internet
 - ▶ Enrichment of access services to audiovisual content on portals
 - ▶ Personalised video selection and broadcasting
 - ▶ Professional audiovisual asset management
 - ▶ Digitisation and content enrichment for libraries, audiovisual heritage and scientific publishing

- **A shared research structure**
 - ▶ A broad research scope
 - ▶ Systematic evaluation of scientific and technical progress
 - ▶ Extensive resources for annotating large collections of multimedia data

Five projects with application targets

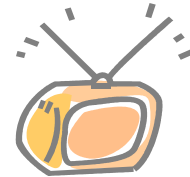
From content providers to consumers
Sharing resources and know-how



1- Digitization and content enrichment



2- Digital media asset management



3- Personalized video



4- Search engines



5- PC, Mobile portals

Who steers

Jouve

Thomson / INA

Thomson

Exalead

France
Télécom

Expected results

Software and services for editors, patent offices and libraries

Software for broadcasters, media companies, audiovisual archives

Software for telecom operators, retailers and enterprise video

Multimedia search engine

New generation of access services to audiovisual content



Shared research structure
Coordinated by CNRS and RWTH



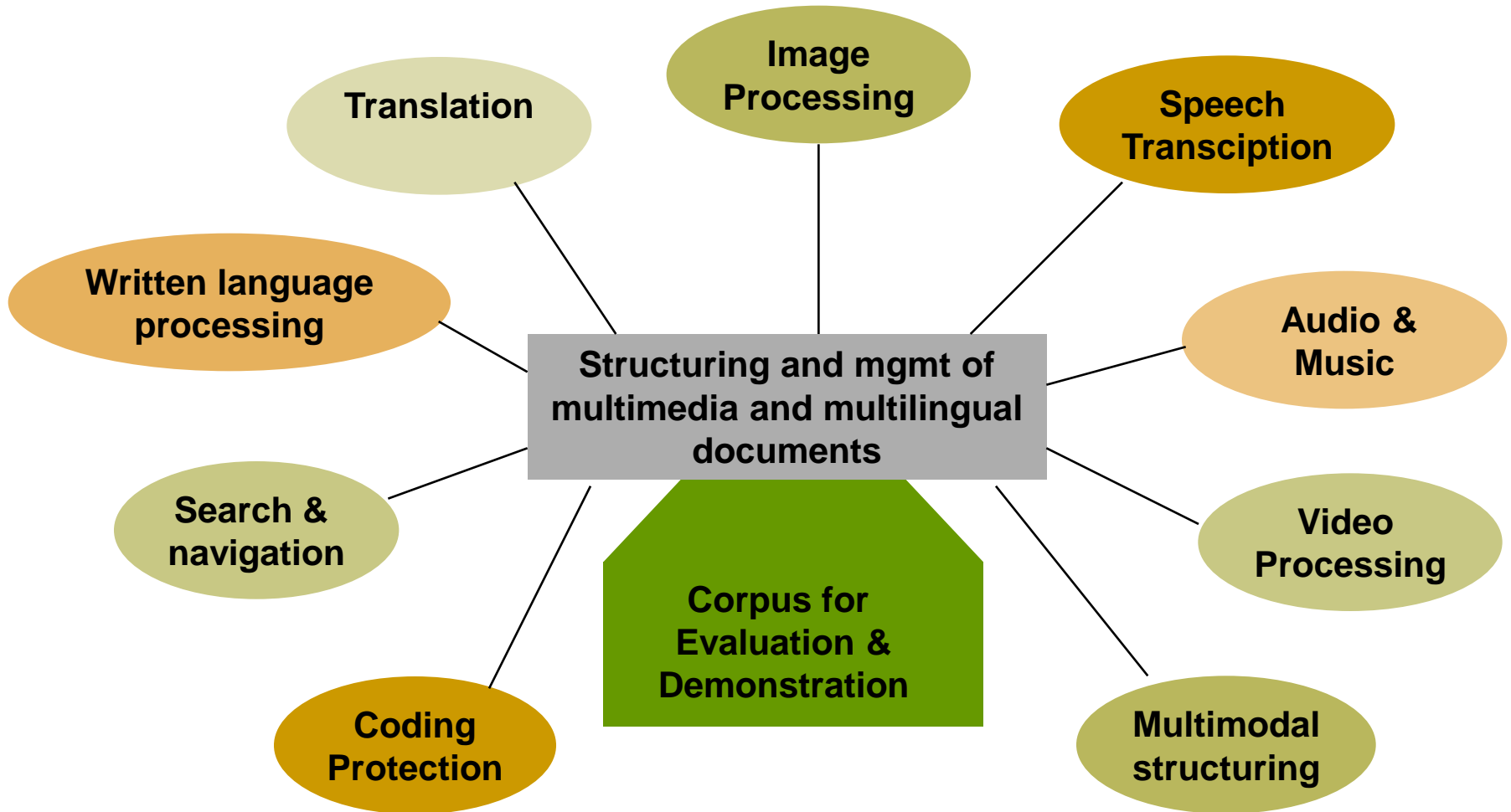
Technologies for analyzing audio, speech, music, image, video content.
Technologies for natural language analysis and translation
Content protection technologies

Two research projects



- **CTC project (coordinated by CNRS)**
 - Improve the state of the art in terms of structuring and indexing multimedia, multilingual documents
 - Develop generic models and technologies for program application projects
- **Corpus project (coordinated by RWTH Aachen)**
 - Collection and annotation of data required for developing and benchmarking (evaluating) technologies
 - “Ground truth” for statistical and machine learning based algorithms.

Covered technologies



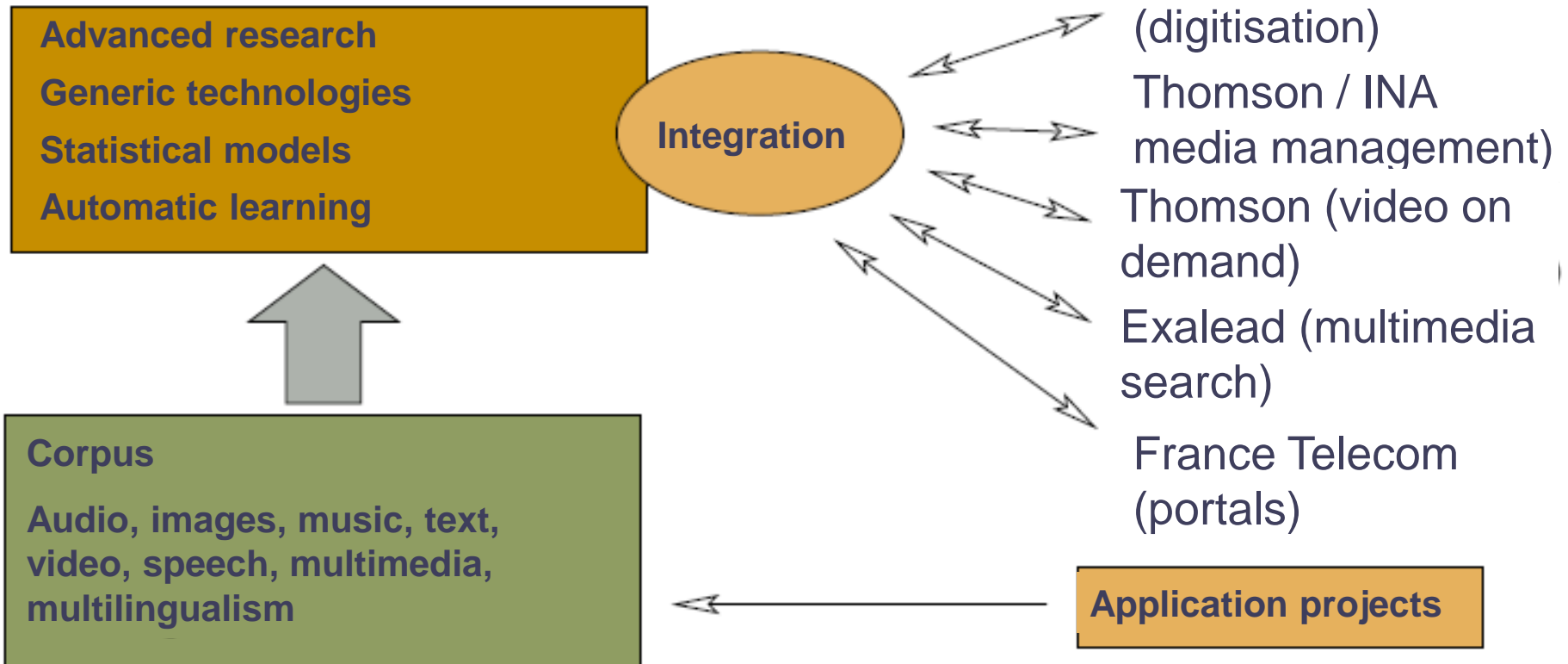
Examples of targeted innovations



- Extensions of information search to a wide range of media
 - ▶ e.g. radio broadcasting, podcasts, images, video and music
- Search for multimedia documents in all kinds of terminals
 - ▶ e.g. television sets, cell phones
- Automatic text generation from audiovisual documents
 - ▶ e.g. transcription of the sound track of a film
- Automatic selection of relevant video extracts
 - ▶ e.g. selection of goals scored during a soccer match
- Cross lingual search of information
 - ▶ e.g. search a sound track in Polish using French key words



An integrated program



Development approach



- **Derive technical and scientific objectives directly from the application requirements**
 - ▶ Application-driven technology roadmap
 - ▶ Yearly alignment of the technological objectives between partners
- **Foster coopetition on strategic technological subjects**
 - ▶ Multiple partners may develop concurrently on the same subjects using their own approaches with regular workshops to openly exchange findings and evaluation results
- **Conduct periodical performance evaluation to assess progress**
 - ▶ Build on most advanced evaluation procedures developed by national and international bodies and programs
- **Use evaluation to facilitate technology transfer**
 - ▶ Discussion on tangible objectives and results between technology developers and integrators

- Coverage of the whole value chain
 - ▶ Technologies benchmarked in international assessments (Technolanguge, Techno-Vision, NIST/TREC, CLEF...)
 - ▶ Experience in technology transfer
 - ▶ Access to large markets

- Balanced composition
 - ▶ Large companies and SMEs
 - ▶ Public research laboratories
 - ▶ Public institutions

Consortium members



■ Private companies

- ▶ Bertin, Exalead, France Télécom, Jouve, LTU Technologies, Synapse Développement, Thomson, Vecsys



■ Public research laboratories

- ▶ CNRS-LIMSI, CNRS-IMMI, CNRS-INIST, INRIA, IRCAM, IRIT, Institut Telecom, LIPN, MIG-INRA, Université Joseph Fourier, University of Karlsruhe, RWTH university, Aachen



■ Public institutions


- ▶ BnF, DGA, Ina, LNE



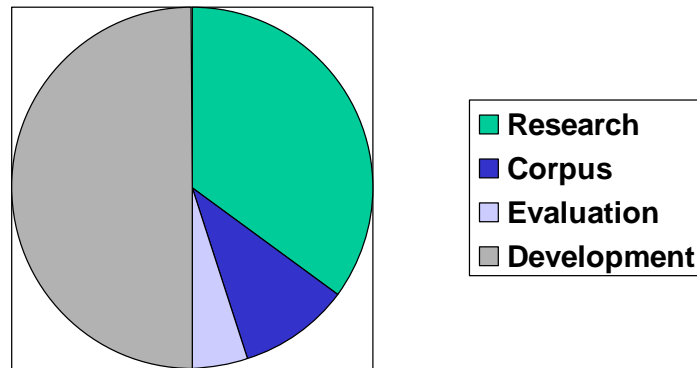
Coordinated by Thomson

Budget



- 99 M€ funding from 
- 200 M€ total budget
- over 5 years

Budget by type of activity



History



First announcements

Establishment of the Agence de l'innovation industrielle (AII)

AII is integrated in OSEO

04/05 08/05 02/06 04/06 10/06 2007 01/08 03/08

Conception phase
proposal elaboration

Evaluation phase
by independent experts

Preparation phase
program setup and organization

Operational phase
R&D activities

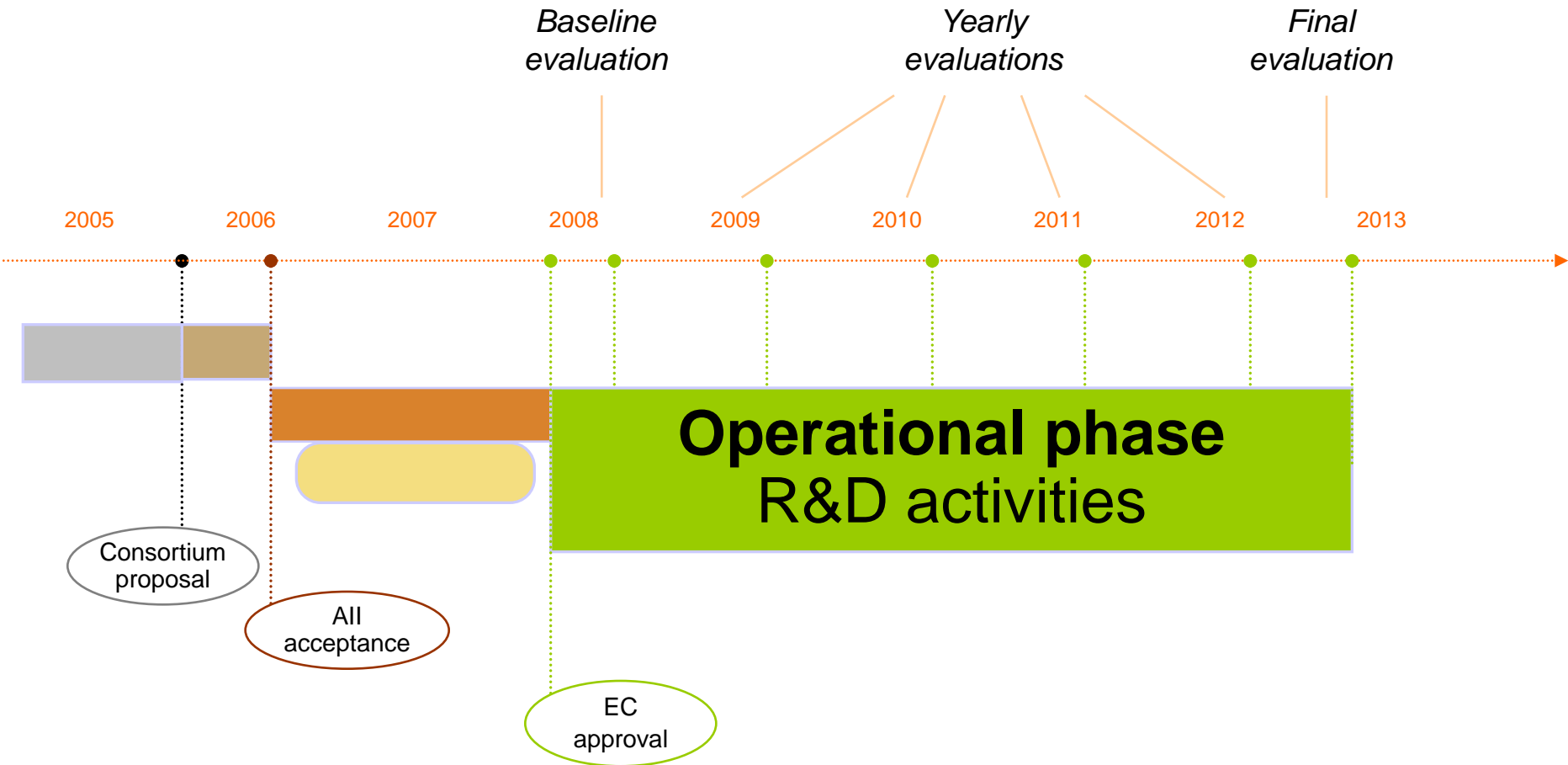
Quaero consortium proposal

Acceptance by AII

Interaction with EU Commission Directorate General for Competition

EC approval for Quaero aid

Timeline



Evaluation infrastructure



- 6 partners: DGA, LNE, IRIT, UJF/LIG, INRIA/LEAR, LIPN
- ~20 persons involved (8 FTE) for the program duration
- Over 35 tasks (or tracks), each of them including one or more sub-tasks
- Acting together with corpus creators, technology developers and integrators in per-technology committees
- Organizing yearly evaluation campaigns

Example of active tasks



- Q&A (Fr, En)
 - ▶ Using a fixed web corpus
 - ▶ Questions correspond to real user requests
- Speech to text (Fr, En, Ge)
 - ▶ On broadcast and podcast
- Translation
 - ▶ On web pages
- Beat detection in music
 - ▶ Evaluated at MIREX
- Face detection
 - ▶ Cf. www.exalead.com
- ...

- **Baseline technology assessment**
 - ▶ Testing the existing technologies at program start
 - On Quaero specific data when already available
 - On existing similar data otherwise

- **Preparation of upcoming evaluation campaigns**
 - ▶ Corpus production is ramping up
 - ▶ Evaluation plans are expected early 2009

Coordination with other evaluation campaigns



- Need for coordination
 - ▶ If tasks is identical or similar, results can be compared only if common evaluation
- Types of interaction
 - ▶ R&D conducted in Quaero can be evaluated through existing campaigns
 - ▶ Evaluation campaigns organized by Quaero can be opened to external participants bringing in their know-how
 - ▶ Quaero and another program can organize common evaluation campaigns

The Quaero/imageCLEF cooperation



- Quaero members already involved in imageCLEF
 - ▶ RWTH in the “Visual Concept Detection” track
 - ▶ UJF/LIG in the “Photo Retrieval” track
- Quaero program sponsors the imageCLEF workshop
 - ▶ Fostering the CLEF evaluation efforts
 - ▶ Investigating possibilities of common campaigns

Conclusions



- Quaero is a collaborative program on multilingual and multimedia processing
- Evaluation is a strategic approach for Quaero
 - ▶ Use evaluation to select core technologies, foster innovation and measure progress
 - ▶ Built-in evaluation infrastructure
 - ▶ Cooperate with other evaluation campaigns

Perspectives



- 5-year work program just starting
- Quaero members participating in various evaluation campaigns
- Various Quaero-organized evaluation campaigns welcoming new participants
- Joint evaluation campaigns



Thank you for your attention!

More information on

<http://www.quaero.eu>

(<http://www.quaero.org>)