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PUBLIC PRIVATE PARTNERSHIP

PROPOSAL

EUROPEAN INFORMATION TECHNOLOGY AGENCY (EITA) *"Turning information into Value"*

Introduction:

While European information processing technology research is of internationally established quality, the large consumer services are mostly Transatlantic especially in the search domain. Media will be plentiful all over the Future Internet (FI), often in distributed form. Making all media **searchable and accessible** is the major challenge for the FI. Search engines will be omnipresent, often embedded in different business services over diverse use-cases and application domains. However, they will not have significant differentiating impact on FI: either **unique** or **multiple Internets**: Internet of Things, Internet of Services, and Internet of Content. Search operates on **metadata** of **searchable entities**. **Standardization** efforts will be needed to elaborate metadata format cross the different Internets.

Important issues need to be tackled to "improve findability":

1. **Real time** issues, concerning content/media access, **knowledge discovery**, multimedia **mining**, indexing and retrieval, visibility, **aggregation**, **re-composition** of services. This involves **scalability** and service **reliability** based on continuous progress of technology effectiveness. **Cloud computing** facilities will be crucial to reach performance objectives.
2. **Human factors**, concerning "the user in the loop", feedback, personalization, trusted recommendations, **conversational** interfaces, emotional characteristics, etc: Integration of the derived knowledge from the **growing power of social networking** may represent an alternative to information retrieval through trusted recommendation mechanism.
3. **Federated search** strategy is crucial. **Interoperability** is a major concern as we have to face **heterogeneity** and diversity issues concerning **resources**, information sources, **infrastructure**, user **communities**, etc;
4. Evaluation issues and quality of experience enhancement.
5. Security and privacy issues;

Objectives:

PPP seems to be very appropriate mechanism to host an integrated program that gathers all needed expertise for building competitive and operational real life information access and knowledge discovery services. This integrated program could give birth to a **strategic initiative** such as creation of an "Institute" or a "Agency" for Information processing. The role of such entity is to provide a strategic operational work-plan including several technical expertise such:

multimedia content description (including multilingual aspects), distributed databases, middleware, large-scale network infrastructure... Several complementary technical know-how need to be orchestrated with a coherent, clear and unique objective. Input-output between such competences should be addressed beforehand to insure such complementarity and completeness of expertise which are necessary to achieve the workplan. We would make the parallel with ESA agency (European Space Agency) and note the success of "Ariane" because of such coordinated work program and multidisciplinary efforts.

1. Empower aggregation and orchestration of such expertise and efforts into an **operational end-to-end information processing organizational structure**. The so far European funded projects allow technical progress for a given selected topics with no follow-up after the project end neither competence aggregating procedure till now. Hence the **existing expertise represents separate pieces of a puzzle with no "Big Picture" to guide toward a significant achievement**.
2. Foster **user-centric design** (market-pull) **requirements against the technology-driven design** (techno-push). The market success is much dependant from user **acceptance** and the **usability** of whatever advanced/revolutionary technology presented to the end-user who is finally the consumer. It is crucial to integrate these constraints and requirements from the very early specification and design stages. Such early user/market requirements including real problems and needs will provide the guarantee of the utility of such effort.

Innovative services offer (see slides):

- Scalable image ad video mining services to improve "findability" of non-previously annotated content,
- Image and video copy detection services for digital rights management (monitoring of copyrighted content reuse or diffusion),
- Real time search results grouping allowing preview and suggestion for smart content consumption.

Annex: Search and mining services in the perspective of FI

