CETIC, THE PARTNER OF YOUR INNOVATIVE ICT PROJECTS

CETIC is a Belgian ICT applied research center dedicated to supporting industry by providing expertise in software engineering, innovative service-oriented technologies and embedded systems. This expertise has been gained through CETIC's active involvement in Walloon and European projects for research and technological development.

Investing in leading sectors, such as eHealth, cloud computing, open source, security, transport/logistics, wireless and semantics, CETIC develops partnerships with technological leaders and European industries, and accelerates this technological transfer to local Belgian businesses.

In addition to partnerships in collective research projects, CETIC supports industries in their quest to create innovative products, providing technological advice, prototype development and feasibility studies. To strengthen the Walloon Region's competitiveness and leadership, CETIC stimulates research, offering IT support to businesses to enable them to adopt advanced technologies, innovate faster, save time and money, and respond to new demands.

EXPERTISE AND SERVICES

CETIC research teams are continually reinforcing and developing their expertise in the key ICT domains that match industry needs. CETIC develops its company-oriented activities around three complementary and interdependent research directions.

The **Software and System Engineering** team focuses on methodological research, with a view to enhancing the quality and security of new ICT systems, which are becoming increasingly complex. By providing methodological support, they help businesses design products and services, and improve their quality, reliability and security, while enforcing internal standards.

The **Software and Services Technologies** team helps businesses exploit to the utmost the newest distributed, dynamic and service-oriented architectures, with the aim of speeding up the process of transformation from knowledge to semantic technologies, as well as taking advantage of the valuable opportunities offered by open source software and providing them with advanced technological expertise. These technologies strongly impact the way software and data are built, deployed and managed.

The **Embedded and Communication Systems** team develops exceptional prototyping skills in the electronic component and wireless technologies to help industry build new and innovative products.

These various knowledge areas are available as advanced services for business. We can help companies in the following: collaborative R&D, assistance to IT project owners, technical advice, design & prototyping, IT project quality improvement, certification process.

INTELLIGENT CONTENT AND SEMANTICS, A TEAM DEVOTED TO KNOWLEDGE EXTRACTION AND REPRESENTATION

Companies today must maintain control of the increasing amount of data they handle. CETIC's **Intelligent Content and Semantics (ICS)** team develops methods and tools for information management in business, targeting unstructured information on the Internet, private networks or specific domains, like media and health.

Some intrinsic features of information make it difficult to manage. CETIC designs and builds solutions, and provides advice helping SMEs to cope with the advent of the Internet and integrated enterprise information systems, as well as constantly changing digital content, which is becoming overwhelmingly abundant, but remains poorly structured.

Beyond indexing and classification, CETIC's expertise in semantic technologies enables the team to offer much more powerful solutions to these issues. Following the Semantic Web standards (RDF, OWL, SKOS, SPARQL), the team contributes to powerful and interoperable content management solutions aimed both at users and at further software processing. In alignment with this approach, CETIC recognizes the impor-

tance of the Linked Data paradigm as an example of the capabilities of these technologies, and actively supports its increased use in the field of health care.

FOCUS ON EHEALTH

The generalised use of ICT among health care professionals in hospitals and the introduction of ICT in clinical research processes result in more and more electronic content being produced and stored. These data are available in various, mainly unstructured formats, which makes it very challenging to exploit them intelligently. With its expertise in semantic technologies, as well as in intelligent content indexing and data processing, CETIC is able to help companies and public organizations take advantage of the power of these technologies to improve the integration and intelligent processing of medical data. CETIC also provides services for the integration of information from heterogeneous data sources towards Linked Data.

Those semantic interoperability layers are used by CETIC to build intelligent custom search engines to query data sources in a unified way.

PONTE , THE EUROPEAN PROJECT FOR PATIENT IDENTIFICATION IN CLINICAL TRIALS

Owing to the global economic crisis, which is impacting pharmaceutical research, new research funding is being reduced and existing medications are being re-positioned for new uses and applied to new illnesses and disorders.

However, the expected benefits may be limited by the occurrence of side-effects, and new efficacies may be missed in the trials. Translation into clinical therapies must also overcome barriers at the pre-clinical and clinical levels. Bridging the gap between basic science and clinical practice will require a new relationship to be created between the scientific challenges, so that successful clinical applications can be developed at a low cost.

PONTE aims to provide a platform based on a Service Oriented Architecture (SOA) and a semantic approach that will offer semi-automatic, intelligent identification of patients eligible to participate in well-specified clinical trials for drug re-positioning, with particular focus on mitigating patient risk, reducing clinical trial costs and improving clinical trial efficacy. Such work involves decision support mechanisms fed with information retrieved using a semantic search engine operating on top of a data representation, and linking data in drug and illness knowledge databases, as well as in clinical care and clinical research information systems.

WHEN MEDICAL TERMINOLOGIES BECOME SEMANTIC, A SUCCESS STORY

CETIC has intervened at various levels in the eHealth sector using Semantic Web concepts and tools. Because current medical terminologies are unlinked and poorly structured, CETIC developed an ontology-based system demonstrating the benefits of linking several health-related data sources. CETIC modeled LOCAS2, ICPC2 and ICD10 as ontologies, and then published them on a Web platform, permitting consultation using semantic links both from the user's browser and from software queries. This has paved the way for future innovative uses. CETIC prepared and conducted a set of presentations and seminars for the project on the concepts and technologies of ontologies, the semantic Web and Linked Data. These presentations ensured that the proposed tools and objectives met the needs of the customer, and that the underlying elements were understood by all the stakeholders.

REFERENCES

CETIC - www.cetic.be
The PONTE project - www.ponte-project.eu
W3C Semantic Web Activity - www.w3.org/2001/sw
Linked Data - http://linkeddata.org

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