Department of Information Systems
Poznań University of Economics, SmartBRAIN Center
Big Data Innovation Poland
Category Winner

For over a dozen years, Department of Information Systems (DIS) successfully carries out research and development projects together with Polish and foreign participants, funded by the European Commission, the National Centre for Research and Development, as well as in cooperation with large international commercial partners. Past and ongoing projects utilize technologies related to the Big Data paradigm. The significance of this research has led to creation, in collaboration with SAP Poland, of a specialized center SmartBRAIN - Smart and Big Data Science Research and Innovation Center.

Transforming Web provides inspiration for DIS research and requires constant search for innovative methods and techniques to manage sources of information and acquisition of new facts. Thus, to satisfy the information needs of individuals and businesses. Moreover, with an increasing number of potentially interesting sources, a phenomenon of an information overload emerges. The main challenge in this context is to propose an innovative approach towards organization, retrieval and use of contents - applicable to new business models created by Big Data.

DIS mission is to create tools supporting the acquisition and management of various resources, in particular data streams, as well as continuously updated sources. To this end, methods for filtering, retrieval and integration of data and information are developed to acquire artefacts according to requester's needs, complying with the Big Data approach. In both cases, the objective is to consider a variety of technological, functional and economic factors influencing relevance of acquired entities and to ensure enough semantics for their automated or semi-automated usage. DIS conducts also research on utilization of commercial software, for instance SAP HANA for Big Data analysis (corporate data enriched with data retrieved from the Internet).

Apart from national and international funded projects, Department of Information Systems offers education in widely understood field of business information processing, giving students an excellent background that they will need to succeed in their professional lives. Each year, DIS employees achieve significant successes both in research and didactics, including awards for books, best conference papers and from students' organizations.

List of selected projects from the period of last 3 years:
- SIMMO: System for Intelligent Maritime MOnitoring (funded by the European Defence Agency, carried out in cooperation with LuxSpace Sarl). The goal of the project is to develop a prototype of a system aiming at monitoring and analysis of current situation at sea based on satellite AIS data.
- Future Energy Management System (funded by the Innovative Economy Programm). The aim of the project was to develop a tool enabling for management of an energy microgrid.
- Semantic Monitoring of Cyberspace (financed by National Centre for Research and Development, carried out in cooperation with Sygnity S.A. for Polish Police Headquarter). The project was about extraction of information from Internet sources and detection of content-related cyber threats.
- Insemtives – Incentives for Semantics (EU FP 7, conducted in a consortia coordinated by STI Innsbruck in Austria). The project aims at producing methodologies, methods and tools that

enable the massive creation and feasible management of semantic content in order to facilitate the worldwide up-take of semantic technologies.

- The group of projects carried out in cooperation with Hasso Plattner Institute Future Service Oriented Computing Lab (HPI Future SOC Lab) – utilization of SAP HANA and Tableau Software:
    - Sentiment Analysis for the needs of benchmarking the Energy Sector.
    - Smart Data Analysis for the Support of Rational Decision Making in the Energy Sector.
    - Prototype of an In-Memory Business Intelligence Solution for the Support of Forecasting of Energy Load Demand.
    - Forecasting of Energy Load Demand and Energy Production from Renewable Sources using In-Memory Computing.
    - Quasi Real-Time Individual Customer Based Forecasting of Energy Load Demand Using In Memory Computing.
- Ego – Virtual Identity (financed by National Centre for Research and Development). The aim of EGO project was to enable people to semi-automatically create their representations (virtual identities) to manifest their information needs in various Web sources.
- Advanced data extraction methods for the needs of expert search (co-founded by EU from the European Regional Development Fund). The goal of this project was to create a solution that analyze internal documents of the organization and external Web sources in order to find an expert from the specific domain or who has specific competencies.

DIS carries out commercial projects in various domains and with different partners within a frame of Big Data methods and technologies. These projects were conducted together with and for, i.e.: SAP, Siemens, Orange, Telefonica, Software AG, Indra, Portugal Space, Daimler Chrysler, CitiGroup, IBM.

Department of Information Systems organizes a prestigious International Conference on Business Information Systems (class A). Its 18th edition will take place this year in Poznań. The conference addresses a wide scientific community and experts involved in the development of business computing applications. This year's conference theme is Making Big Data Smarter.

In the laudation it was emphasized that SmartBRAIN is a research center conducting international and national projects in the field of energy, telecommunication, defense, social network analysis with the use of Big Data technology and in-memory computing, being an effective innovator that transfers the results to Polish economy.

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