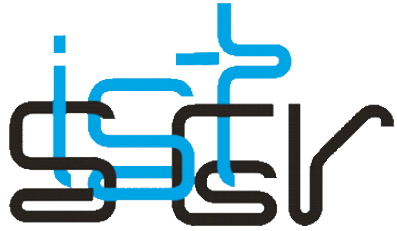


Strengthening the IST Research Capacity of Sofia University

Some Methodological Aspects of the Development of an ICT RTDI Strategy for a Faculty of Mathematics and Informatics

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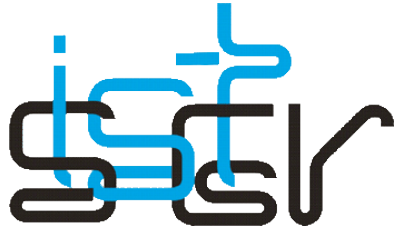
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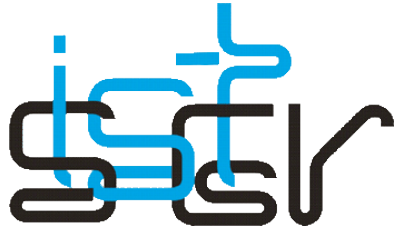
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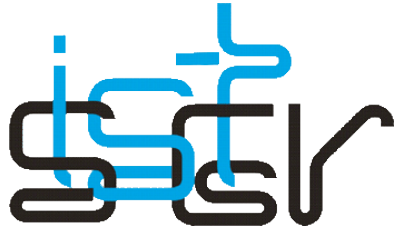
<http://www.fmi.uni-sofia.bg>



- **Project SISTER (Strengthening the IST Research Capacity of Sofia University)**
EU Seventh Framework Programme,
Specific programme ‘Capacity’ - Research potential
(Activity 4.1. Unlocking and developing the research potential in the EU’s convergence regions and outermost regions)



- The **main goal** of SISTER project is to develop FMI as a Leading Centre in South-East Europe (SEE) in research, innovation and training in the area of ICT. An **overall goal** of the project is to foster the integration of FMI in the ICT European Research Area (ERA) and to contribute to competitiveness and growth of the SEE region and Europe as a whole.



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- Definition of an **ICT Research, Technology, Development and Innovation (RTDI) strategy of FMI**: one of the main goals within the project **SISTER**

- The RTDI Strategy would be used as the bases of research, training and dissemination activities of the whole project.
- The most considerable feature of this strategy is its scope – there exist a lot of successful ICT RTDI strategies for whole universities but the FMI team did not find any RTDI strategy for a particular faculty.

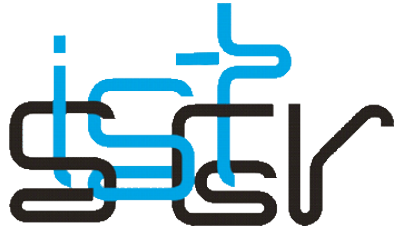
Three phases of the work:

- identification of research competencies of FMI, technology trends and ICT research needs;
- preparation and validation of ICT RTDI strategy for FMI;
- development of scenarios and elaboration of a detailed action plan for ICT research and training within SISTER.

- *First phase*: focuses on analysis of the state-of-the-art in ICT, the needs and available resources.

Methodology:

- ✓ **Environmental scanning**: Analysis of European and national reports, web sites, scientific literature, media publications, etc.



- ✓ **SWOT analysis:** A special attention is paid to the research competences of FMI, the FMI positioning in the area of ICT in Bulgaria and the region, and the opportunities and threats for its further development and integration into ERA and European Higher education area.

- ✓ **Issue survey:** A web-based survey has been conducted in a significant number of enterprises, policy makers and local authorities in Bulgaria, among FMI researchers and ICT end-users in order to determine the large societal and economic needs for research and training in ICT.

First outcomes of the survey:

- FMI has a leading position among Bulgarian research organizations working in the field of ICT. The ICT research staff of FMI has a strong potential, great experience and a lot of high-quality publications in a wide spectrum of areas including a considerable part of the strategic areas for ICT research and education in EU.

- A good number of talented young researchers have been involved during the last 2-3 years.
- FMI has well-established contacts with leading research organizations in Europe and a significant experience in international project activities.

- Despite the above successes, FMI has experienced some serious problems closely related to the general socio-economic and research environment in Bulgaria:
 - ✓ Emigration and migration to industry of highly skilled professionals
 - ✓ Insufficient research funding
 - ✓ Lack of sufficiently stimulating research environment

- ✓ Lack of stable and multiple bridges between research, development, education and training
- ✓ Lack of traditions in university-industry-government cooperation
- ✓ Fragmented nature of research activities and the dispersal and not effective use of limited resources

Main specific challenges for FMI related to research in Computer Science and ICT:

- FMI has to overcome the lack of experience and aspiration to interdisciplinary research and education.

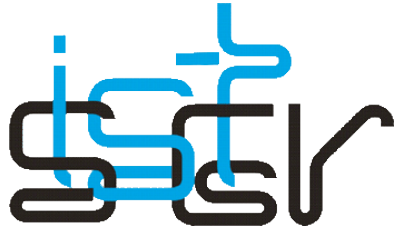
- FMI should initiate a debate aimed at considerable improvement of the existing heavy administrative procedures and financial rules at Sofia University.
- The organization of the educational process at FMI should be rearranged and optimized.

- *Second phase*: preparation of ICT RTDI strategy for FMI.

External expertise used: an expert panel was composed of experienced EU researchers in ICT, representatives of EU partners, industry and public authorities, and FMI researchers. Two meeting sessions of this Expert panel are planned in order to support SISTER consortium for preparing the RTDI Strategy.

- The first Expert panel meeting: helped to identify the strategic priorities and the related actions for RTDI in ICT at FMI.
- The second Expert panel meeting: will help to validate the RTDI Strategy and will support the Action plan definition with **building scenarios** for ICT development at FMI.

- Third phase: will ensure a **framework for implementation** of SISTER activities and networking. The strategy and the action plan will provide guidelines for capacity strengthening in research and innovation. They will also streamline the education activities of FMI team in ICT in accordance with the industry, economic and societal needs and the best practices.



Strengthening the IST Research Capacity of Sofia University

The way ahead – challenges, goals and objectives for FMI

FMI staff takes into account contemporary global educational trends and the main challenges ahead universities in the knowledge economy.

- First, universities should be aware of the labor market trends, and the skills and competences required by employers.

- Second, they need to provide up-to-date curricula and courses. Both call for a strong and multilevel collaboration with industry, and building in most cases an effective industry-academia partnership.

Formal strategic planning is a relatively new phenomenon at Sofia University. At present, no approved university and Faculty strategic plans exist. Therefore, the FMI team follows the best practice and benchmarking of the university leaders. In particular, the strategy plan is defined following Kaplan and Norton Strategy Maps methodology.

- ***FMI Vision:*** Create a Faculty community that becomes locally and internationally recognized in research, teaching and service, and recognized nationally for student excellence. This will establish a reputation of being more valuable to all stakeholders.

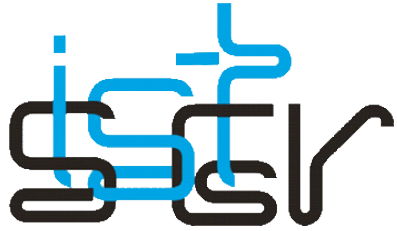
- ***FMI Mission:*** To provide a flexible, multi-disciplinary environment for high quality informatics research and education using the innovation, latest technologies and world expertise. To achieve excellence in research and teaching within the university, country and international IT/IS communities.

- ***FMI Strategic Objectives:*** The Faculty mission and vision reflect on taking more stakeholders oriented conscious decisions. FMI strategic plan focuses on specific goal and objectives to advance the mission and to attain the vision.

The strategy suggests to adopt the following ***goals***:

- ✓ Undertake continuous efforts to progress the quality of Faculty's education, training, information and research services to gain program competitiveness, high levels of achievement and a knowledgeable community.

- ✓ Ensure that education and research services are relevant to the needs of Bulgarian people, workforce, business, industry and local and state government.
- ✓ Release individuals of all ages and abilities with access to education, training and information services to develop their competences in order to be globally competitive workers, responsible citizens, and lifelong learners.



- ✓ Ensure greatest benefit from education and research resources through efficient operation and management of the education and research system and investments in student learning centered ICT.

- FMI Measure (Key Performance Indicators, KPIs): within the identified strategy, KPIs help the managers to define and measure progress toward the university goals.

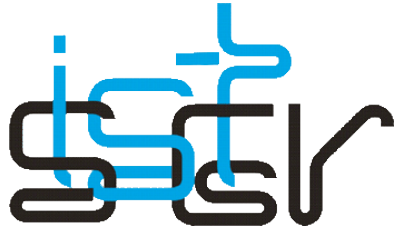
- In the FMI draft strategy are defined some practical, meaningful measures which will assess the effectiveness of Faculty management and its support of mission accomplishment. These measures are focused on financial issues, stakeholders, internal processes and learning and growth of FMI.

Conclusions

- Despite that FMI has strong linkages with the IT cluster and several IT companies in Bulgaria, e.g. IBM, Microsoft, CISCO, etc. the links with industry need a lot of changes in order to meet the needs of the knowledge economy.

- There should be established more structured contacts for joint projects, exchange of staff, internships and joint supervision of PhD students, knowledge brokerage events, etc.
- Higher transparency of FMI education and research results might be a first step towards better collaboration with industry.

- What skills are needed for FMI researchers in order to enhance the dialogue and collaboration with industry and to turn their ideas into innovative products and processes should be also considered.



- A regular communication with industry and business organizations will further support the establishment of strong intersectoral collaboration and linkages.

- A successful innovation platform, exploring various faces and approaches for knowledge transfer will allow better exploitation of knowledge resources within organization and in the environment, motivating and fostering new value-adding activities.

- Finally, FMI should widely explore the opportunities for integration into the European Higher education area and the European Research Area and undertake actions for strengthening research collaboration, building attractive universities, and creating a favourable environment for study, work and life.