GRID – NEW PERSPECTIVES OF e-HEALTH APPLICATIONS FOR GEORGIA

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WHAT IS GRID?

Grid is one of the currently and most actively developing concepts in the IT community

Grid can facilitate the coupling of geographically distributed resources and offer consistent and secure access irrespective of users' physical location or access point

Grid enables sharing, selection, and aggregation of a wide variety of distributed resources, such as storage systems, data sources, instruments, software systems, etc., and allows them to be used as a single, unified resource

APPLICATION FIELDS

- Tele-systems for Diagnostic, Prognostic, and Therapeutic Applications
- Health Data Storage & Retrieval
- Biomedical Modeling and Simulation
- Medical Imaging: Management, Analysis, Processing and Simulation
- Distributed Medical Database Management and Integration
- Integration of Health Information
- Data Mining and Visualization of Medical Data
- Text Mining of Medical Information Bases
- Social Healthcare
- Pharmaceutics and Clinical Trials
- Computerized Epidemiology
- Collaborative and Proprietary Health Grids
- Integrative Bioinformatics and Medical Informatics Systems

MEDGRID – NEW CONCEPT OF e-HEALTH IMPLEMENTATION IN GEORGIA

MEDGRID is the new initiative of Georgian Telemedicine Union (GTU). It will be based upon the existing experience and e-Health infrastructure in Georgia and will be realized in the conditions of close collaboration with Europe to

- Increase the efficiency of traditional and virtual medical service in the country;
- Increase the availability and accessibility of data resources and computing tools;
- Increase knowledge and proficiency in Georgian health care through e-Learning and training.

MEDGRID will be realized through the existing e-Health infrastructure, in particular in the frames of the project in Georgia will be used a few (at least 3) unites, which have experience with the usage of tele-medicine applications.

MEDGRID – NEW CONCEPT OF e-HEALTH IMPLEMENTATION IN GEORGIA

The mission of MEDGRID can be formulated as the following:

- Assist in development of national health care sector;
- Realize tele-medical consultations in the most effective and modern schema;
- Provide training and education of Georgian health care professionals in accordance with accepted international gold standards;
- Develop e-Health net in the country;
- Develop and introduce into everyday tele-medicine practice the new technologic solutions;
- Contribute in creation of global e-Health net;
- Bridge between Europe and NIS;
- Bridge between manufacturer and user organizations.

MEDGRID – NEW CONCEPT OF e-HEALTH IMPLEMENTATION IN GEORGIA

The above mentioned aims will be achieved through:
- Education and training;
- Software development;
- Upgrading of computer resources;
- Realization of help desks and technical support.

The core of MEDGRID will be consisted of Georgian tele-medicine units. They will serve as the data exchange, consultation and education points. Any organization and individual worldwide interested about tele-medicine and e-Learning can collaborate with MEDGRID.

MEDGRID – NEW CONCEPT OF e-HEALTH IMPLEMENTATION IN GEORGIA

The main concept of MEDGRID is the placing of individual in the center and joining of all parts of health care around. For this purpose creation of virtual organizations of different specialty will be suitable, as a result patient-centred e-Health system will be created. Through the implementation of grid technology in tele-medicine could be achieved the following:

- Timely and secure access of patient data;
- Interoperability of databases of heterogeneous content for medical and research purposes;
- Computing intensive applications and knowledge discovery.

In the frames of MEDGRID emphasize will be made upon the following:

- e-Pharmacology;
- e-Imaging – pathway simulations, virtual imaging – computing power;
- e-Clinic – virtual clinic, database implementation;
- e-Learning – 3D reconstructions, computer simulations, training and education.

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The actuality of the project is stipulated by the reality, that e-Health is facing a growing need for large computations: analysis of 2D, 3D, 4D images, simulation. Pre-operative planning, medical interventions simulation, build anatomical and physiological models of organs, surgery support in real-time – these are some medical applications with considerable memory and computational requirements which can be successfully implemented through the usage of Grid technology and to which are dedicated different tele-medicine solutions.

GTU and other Georgian health care organizations which are already acting in e-Health will serve as the background of this project implementation.

MEDGRID – NEW CONCEPT OF e-HEALTH IMPLEMENTATION IN GEORGIA

The main objectives of MEDGRID are:

1) Distribution of computational resources (i.e. over a large community of medical users);

2) Ensuring of image processing algorithm's accessibility;

3) Combination of image data with other medical data, facilitating data access;

4) Facilitation of tele-medicine development in Georgia;

5) Bringing of affordable solutions to actual problems that are intractable by commonly available resources in country.

MEDGRID – NEW CONCEPT OF e-HEALTH IMPLEMENTATION IN GEORGIA

Main goal of MEDGRID is to create a unified, resilient and transparent infrastructure, available on demand in order to solve complex problems in health care.

Evidence-based medicine requires radical decision-making to be founded on sound of knowledge of the patient combined with peer-reviewed scientific evidence.

Two classes of Grids will be combined: Data/ Information/Knowledge Grids and Collaborative Grids, realizing the virtual environment and decision-making in diagnostic and prognosis, based on distributed computer simulations.

PROPOSED DEVELOPMENT OF MEDGRID

The Sixth EU Framework Programme for Research and Technological Development (FP6). It has to serve two main strategic objectives:

1. Strengthening the scientific and technological bases of industry and

2. encourage its international competitiveness while promoting research activities in support of other EU policies.

The activity areas of FP6 are the following:

1. Life sciences, genomics and biotechnology for health
2. Information society technologies
3. Nanotechnologies and nano-sciences, knowledge-based multifunctional materials and new production processes and devices
4. Aeronautics and space
5. Food quality and safety
6. Sustainable development, global change and ecosystems
7. Citizens and governance in a knowledge-based society

FP6 FRAMEWORK

FP6 will be implemented by the means of six main instruments, each of which have their own set of aims and objectives conditions for participation.

Integrated projects - Multipartner projects to support objective-driven research, where the primary deliverable is knowledge for new products, processes, services etc.

Networks of excellence - Multipartner projects aimed at strengthening excellence on a research topic by networking the critical mass of resources and expertise.

Article 169 - This instrument requires co-operation at the level of national governments.

Specific targeted research projects - Multipartner research, demonstration or innovation projects. Their purpose is to support research, technological development and demonstration or innovation activities of a more limited scope and ambition, particularly for smaller research actors and participants from candidate countries.

Coordination actions - To promote and support the networking and coordination of research and innovation activities. They will cover the definition, organisation and management of joint or common initiatives as well organisation of conferences, meetings, the performance of studies, exchanges of personnel, the exchange and dissemination of good practices, setting up common information systems and expert groups.

Specific support actions - Single or multipartner activities.

Specific projects for SMEs - Divided into Co-operative research projects (CRAFT) and Collective research projects. CRAFT are undertaken for the benefit of a number of SMEs from different countries on common specific problems. Collective research projects are carried out on behalf of industrial associations or industry groupings in sectors where SMEs are prominent.

Specific actions to promote research infrastructures - To support the integrated provision of infrastructure related services to the research community at European level, inducing a long-term integrating effect on the way research infrastructures operate, evolve and interact with each other and with their users, thus contributing to develop the European Research Area.

FIND A CALL

- Identification of new methods of promoting and encouraging Transnational Technology Transfer - FP6-2005-INNOV-7

- Future and Emerging Technologies, Open domain - FP6-2002-IST-C

- Specific Support Actions (SSA) for Multilateral co-ordination of national RTD policies and activities - FP6-2002-INCO-COMultilatRTD/SSA-5

- Identification of new methods of promoting and encouraging Transnational Technology Transfer - FP6-2005-INNOV-7

THANK YOU, VERY MUCH FOR ATTENTION!

Any question?

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