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Knowledge Triangle, Innovation: Reinforcing of Education-Research E-Health & Medical Links
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Professor Mosad Zineldin, LNU
Dep. of Medicine and Optometry
Faculty of Health and Life Science
Linnaeus University
Sweden

Detailed summary

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Aims and objectives

The aim and Wider objectives of this proposal are:

1. To Promoto University -enterprise cooperatin by creating a comprehensive vertically integrated system of innovative development of knowledge triangle (study – research – e-health business utilization) while achieving synergetic effect by using the knowledge and experience of the EU partner universities and institutions as well as LEG partners.
To develop effective e-service for interactive collaboration between university- hospitals and healthcare and medical sittings in development and commercialization of e-health-innovative study and professional lifelong learning training programs.
To produce a new generation of healthcare instituions (enterprises), university, IT, engineerin and research staff capable of performing constructive development in e-health and satisfy patient needs and safety in LEG.

The specific objektivs are:

1) To establish the international Industrial Cooperation with University (ICU) Centers of e-health Innovations in EG and LB (LEG) for administrative and technical supporting of e-health research/ consulting / training activities.

2) To develop the Knowledge Triangle, innovation: Education-Research- e-health business web platform KTERE for collaboration in development and commercialization of e-Health innovative technologies and tools.

3) To develop a new integrated professional short term (6 months) and long term (one year) diploma program in Medical informatics and e-Health (6 basic modules) for partner universities in LEG.

4) To develop in-service lifelong learning training (LLT) program (4 modules) in the area of e-health innovative Medical/health/IT/engineering.

5) To develop on site and distance in-service training program (4 modules) in the area of innovative E-health for the further utilization of OER (open educational resources) and rich open learning environments.

Project activities and methodology

In addition to dissemination, sustainability, quality control and management activities, leading to the its specific objectives, RERE will conduct multiactivities to achive the outcome/output categories as a result of the following 5 Work packages (WPs):

WP1 Preparation (PREP): Main Coroner Stones (MCS)

WP1 will start by surveying the activities of the existing centers at partner universities and enterprises to identify their capacities, capabilities, challenges and opportunities in order to be able to establish new centers and or modify and improve the existing once as a critical step towards establishing of international university-enterprise network of Centers of e-Health Innovations (CeHI). After conducting surveys & controlled focus groups with target groups, analysing data and identifying gaps & needs, then summarizing results & preparing a report. Reports will be presented and discussed during open seminars with stakeholders from health sector & all partners in each PC and a joint report will be discussed during regional seminar with EU partners. Based on this report, an updated list of requirements of for CeHI is created. The CeHI developer team will be in place to finalize the requirement and tuning the objectives. Different filed visits, workshops and seminars will be conducted. All partners will work together on the definition of centers' policy, strategy, regulations & plans.

WP2. Preparing and establishing of the University-enterprise CeHI web platform based on of the Knowledge Triangle: Education-Research- E-health business (KTERE). The web platform KTERE is created to promote and encourage the interactive collaboration between academic & non-academic partners in preparation, development and commercialization of innovative e-Health practice.

All partners will work together on the definition of centers' policy, strategy, regulations & plans. A digital education platform will be purchased to support the digitized learning environment & deliver e-modules to be conducted on the portal.

Web platform KTERE services also

includes :

- •corporate e-mail, newsletters;
- •instant messaging service and forum;
- •calendar-planner;
- •online training sessions and presentations, distribution and storage;
- projects share and joint collaboration on projects;
- •creating of documents, presentations, spreadsheets under a common standard. CS1. Service on administrative support of e-Health projects: Separate CS1 services:
- market analysis for developed innovative e-health technologies (using web platform KTERE and partner networks and centres services (international network Centres of e-health innovations (CeHI) , LNU relevant centres, etc.);
- dissemination of technical and advertising information (using integrated network)
- negotiation with the potential service users/ healthcare sittings, partners (using partner networks/ centres services);
- CS2. Service on technical support of innovative e-health programs with medical based PC laboratories/equipment, IT specialists & external R&D companies.

Wp3: Diploma & Master Study modules: Creation the base for educating and training of a new generation of medical and healthcare staff, IT, engineering and research staff for innovative e-health to satisfy the needs of LE and EG Healthcare sittings (business). Study visits to partner and EU institutions are conducted. The draft of the modules will be discussed and developed. ECTS grading.

The objective of development of the new integrated professional short term (6 months) and long term (one year) study/diploma program in Medical informatics and e-Health is to provide top-quality university multidisciplinary education and training program.

The new modules will be accredited and approved by the relevant faculty/university committees in LEG and some of these courses will be integrated into the regular education programs. Those enrolled to the program will attend 6 basic modules (BM1 – BM6) and gain certificates approved and recognized by the relevant faculty and university- equal to between 30- 120 ECTS. There will be a research project in cooperation between university staff and medical and healthcare professional. Application for the approval of the ministry of higher education. Participants can also attend single non-degree courses.

With the program participants will receive a thorough foundation in following three areas of Policy, Education &research and Clinical Applications (PEC):

1-   Medical informatics and e-Health to cover policy (e.g regional and global e-health policy;

Privacy, confidentiality, security and integrity;

2-   Educational and research (e.g. medical informatics and E-Health teaching network, EU, LE: experience with some general surgery, endocrine surgery, cardiology surgery, etc, e-health quality and patient safety; research: methods and outcomes, Medical simulations etc.;

3-   Clinical applications including avoiding adverse consequences of e-Health, Grid technology for archive solutions in health care organizations.

After the completion of the short term or long term diploma program the student/participants will have the pre-diploma internship (practice period) equal to 15 ECTS .

The study will be conducted in 3 semesters (fall, summer and spring) In the first semester of study, students will take professional development seminars that will expose them to a variety of research and relevant professional development topics.

WP4:In-service training:
Development of in-service lifelong learning training (LLT) program (4 modules: ISM1-ISM4) in the area of e-Health innovative Medical/health/IT/engineering. Equal to 20 ECTS.
Learning outcomes:

A. Thorough knowledge of the general principles of E-Health policies, ethics, equity & legal issues,
B. Understanding of the complex E-Health systems which are unique in their operations and possesses;
C. In-depth enterprise-university knowledge practical skills.

The in-service training program consists of 4 modules is delivered in both Lebanon and Egypt

ISM1. Information, Communication and Engineering Technologies (ICET) in Medical and Healthcare ISM2. Computerization of Medical Records and E-Health services
ISM3. Medical Errors, Malpractice and Risk Management
ISM4. Through integrated E-Health system and visions into the future of Healthcare.

WP5:Cabacity Building
Each Enterprise and HEI will participate in a pool of teaching experts through selecting suitable candidates, visits to EU partners & visits by EU professors to LEGt to join local training, up to 4 trainees will attend training programs to improve their web platform and digital skills, training them on innovative T&L methods & assessment methods, utilizing ICT in health education & gain the know-how knowledge necessary to set up the centers & use digital educational portal

WP6: Dissemination
Dissemination of project's activities & results will be through developing & updating a homepage & facebook page for the project & web platform. Public relations, Media coverage, Communication officer from each partner will hold meetings etc

WP7: Sustainability agreement with the new network, accreditation,

WP8: Quality control. Setting procedures, documentation, quesntionnaires, templates for internal quality control

WP9: Management. This WP will start from the kick-off meeting & continue to the last minute of the project

MANAGEMENT

The partnership has the necessary capacity to implement the project and produce the expected outcomes.

The activities and methodologies focus on the need analyses, national, regional and institutional priorities. We agreed to have a deeper understanding of each activity to ultize the most appropriate methodology. Our approach is to assure that each activity and methodology can create the greatest positive result and impact — and how each can derail our organization's likelihood of success. Each of the 8 WPs includes essential activites to achieve the expected outomes wich are creating

1. WP1 Centres
2. WP2 Web platform
3. WP3 Course modules
4. WP4 In-service training
5. WP5 Capacity building
6. WP6 Dissemination is one core set of activities
7. WP 7 is to assure the sustainability of the project
8. WP8. Quality control activities
9. (WP8) are accompanying the above mentioned WPs

We will assure that key staff involved in the project have experience and expertise in areas related to the activities. The project will involves non-academic partners (enterprises) which will participate in the project and the roles and responsibilities of the participants are clear and well linked to the work phases and work packages and the development of outcomes to achieve the desired results. The work packages are led and co-led by partners according to their relevant expertise. This type of methodology allows partners to better engage and take ownership of the projec

LNU will be responsible for WP9 (management) and will provide overall coordination, management (including financial), monitoring and control of the project outputs and outcomes.

All other partners will also partiicpate and cooperate with LNU to coordinate the overall project management and provide academic coordination and guidance on financial sides of the project. Although there will be a lead partner for each work package tasks, all other partners will also be involved in several all work packages as follow:

WP	WP Leader	Co-Leader(s)	Main tasks
1	8	3 +20	Centers development
2	5	15	Development of the web plateform
3	2	11	Development of the study and trainng material
4	4	14+19	Responsible fot the in-service training activities
5	7	3+17	Responsible for Capacity building tasks
6	13	10+16	Disseminaiton plans &implementation following up
7	11	9+20	Assure the stustainability strategies and actions
8	12	6+1	Assure the quality of the processessa and outcomes
9	1	7 +18	Managent, coordaiton, financala issues etc

Partners overall roles

P1: LNU:
MANAGEMENT OF THE PROJCT INCLUDING ITS ALL ENTIRE ACTIVITIES TO ENSUER ACHIEVING THE EXPECTE REUSLTS AND OUTCOME

P2: GU

Key functions: Leader of WP 3

- Medicine Simulation Center that provides training to physicians, students, and healthcare professionals with focus on global E-healthcare
- Task trainers, computerized simulation.
- Definition of Program objectives and learning outcomes
- benchmarking and research on best practice and best outputs, training of Partner Country universities on E.health and medical informatics
- students and teachers motilities , establishment of international networking, training of professionals of E-Health in Lebanon and Egypt
- Participating in meetigns and seminars as wll as to host seminars and slect the mobility staff.

P3: CESIE European centre of studies and initiatives / CESIE

Co-leader of WP1 and WP5 and responsible for:
- professional training and coordinating the following:
- Cooperate in fund raising as a managing body of project sustainability and future finances
- The coordinator is the administrative body of the short and long term professional trainng programas project implementation based on the application
- Fostering the knowledge triangle "innovation in higher education, research and business)
- The coordinator participates at scheduled joint meetings to be held in the partner countries of this project.Participation in establishment of the web platform
- Participation at the final dissemination event
- Participation in Quality Control Group and developer of Project contingency plan, contributor to

- **P4: nstitute for the Danube Region and Central Europe (IDM**
Leadr of WP4

- IDM will contribute to the network building and dissemination strategies to the project. Also:
- Contributor to design of CeHI centers
- Contributor to design of web platform KTERE
- Verifying to In service traiing moducles
- Fundrasing consultation
- Quality assurance surveys, reporting and recommendations and consultations
- Participation in
- meetings and seminars

P5: Tallinn University of Technology/TUT

Leaderer of WP2.
- Participation in establishment of the web platform
- co-module leader of for (Informatics) BM5-BM6, contributor to BM1-BM2 modules.
- Definition of Program objectives and learning outcomes
- Definition of the courses learning outcomes
- Participation at the final dissemination event
- Participation in Quality Control Group (1 person), developer of Project contingency plan, contributor to external QC procedures, contributing to the arrangement of interproject coaching.

P6: Notre Dame University (NDU)

Co-Leader of WP 8 in addition to:

- NDU contribution should be found valuable in curricula and training programs development and modernization, development of outcome assessment tools, test established curricula, and contribute to the modernization of effective teaching and training programs and learning methodologies.
- FNHS will remarkably contribute in the following areas:
- Definition of Program objectives and learning outcomes
- Definition of the courses learning outcomes
- Designing program learning outcomes assessment tool
- Training future health professionals -Capacity building
- Conducting quality and significant research

Some of the expected impact

What are the expected tangible results from the project in your HEI?	• Increase the cooperation with Partner country instituions (PCI) & enhance students' employability • Improve the quality of reaining, teaching and research & boost innovation capacities at our university
How will the impact of these results be measured in your HEI?	• The number of consultations & joint projects run with the PI • The reduction of time before getting a job for the medical and heathcare students. • Also, increase students' satisfaction from the course & increase students' application to enroll in the our faculty of nursing and health sciences. • Number of enorlled diploma/professional master students • Number of in-serive training activities • In addition, the number of publications in high quality journals & patents registered will reflect the impact.
What financial means and human and other resources will be provided to sustain these results after the project ends?	• The center will be part of the NDU structure • The centers and the education courses jond diploma will receive full recognision from the university council and other relvant authorieis • The centers, platforms and study programs will have the autonomy that ensures its sustainability • Tthe resources from both the university and fees from the services provided to PI & gradates.

P 7: Lebanese University (LU)

Leaer of WP 7: and
- Definition of Program objectives and learning outcomes
- Definition of the courses learning outcomes
- Approval recognition process of the study and training programme; networking; establishment of association "CeHI"
- Hosting institution for study visit; Internal dissemination actions & networking, development of web platform modules
- Training of LU existing staff and training of new staff as per new curriculum.
- Technical supporting of the process
- Participation at the final dissemination event
- Consultation of All Core Fundrising

P 8: Beirut Arab University (BAU)

Leaer of WP 1 and :
- will participate significantly in WP1 (preparation): Needs' Analysis to define the needs and gaps in the current T&L approaches in health disciplines in Lebanon.
- will also participate in formulating questionnaires, collecting data, and analysing the surveys.
- will send its academic staff to get training from EU partners (WP2) and then prepare training materials to be delivered in Lebanon.
- will also participate in designing the pilot courses (WP4) and in web portal 's set up (WP3).
- will also participate in the management work package starting from the kick-off meeting and will attend steering committees (WP8) and review the mid and final reports.
- will fill the quality reports, monitor the operation of the project, review reports and internal documents.
- will also play a key role in disseminating project and centre activities.

WP9: Modern University for Business and Science (MUBS)

Will take part in all project WPs as consortium member and have following roles:

- MUBS will have a key and strategic role in the project. Following MUBS´s leadership position in EC projects participation in Lebanon, MUBS will lead the Lebanese partnership.
- MUBS will particpate in have management issues and responsibilities through its participation in the Project Management Team.
- In additional to the technical contribution, MUBS will have a key role in the outreach and dissemination efforts in Lebanon and will also active role in the quality control workpackage of the project.

P10: Alexandria University (AU)

Co-Leader of WP 8 and Will take part in all project WPs as consortium member and have following tasks:
- •precipitate in E.health modules development;
- •participate in in.service training launching and implementation
- •network and contact with different health care actors to establish a university-industry partnership based on the knowledge triangle apporact
- •professional training implementation;
- •project results internal quality control;
- •results exploitation and dissemination
- •Internal day-to-day project management in cooperation with Grand Coordinator.

The British University of Egypt (BUE)

BUE Leader of WP 7 and
- will support the poject by providing sufficient human resources while managing relationships with contributors and stakeholders. LIU will develop a project plan accordin to the specific tasek distributed to it, manage deliverables according to the plan, manage the task team, determine the methodology used on the project, establish a project schedule and determine each phase; Namlelly:
- •Participating in design and development of courses/modules BM1-BM2 following the European guidelines and expertise.
- •Develop concepts, information and techniques relevant to the in service training.
- •Training of BUE existing staff and training of new staff as per new curriculum.
- •Participation in establishment of the web platform
- •Participation at the final dissemination event

P 12: Oktober 6 University (O6U)

Leade of WP 8 and in addition to full responsibility of the wp 8 for quality plan and implementation of internal and external quality assurance activities, O6U will :

- •Definition of Program objectives and learning outcomes
- •Definition of the courses learning outcomes
- Share wp 1 and 2 for Improvement of curricula, staff, teaching facilities and laboratory equipment.
- Will take part in all other project WPs as consortium member and have also following tasks:
- Curricula and teaching materials development
- As leading Quality Control Group (2person2) and a developer of Project contingency plan, contributor to external QC procedures maintenance development

P 13: Badr University in Cairo (BUC)

Leader of WP 6 and:

- •Will contribute to workpackage 1 (preparation): baseline study to define the needs and gaps in the current cooperation models & missed competancies and will participate in formulating questionnaires, collecting data, and analyzing the surveys.
- •Will also participate in defining ToT materials & content WP5 (DEV) in Capacity Building for PC academic staff on innovative cooperation approaches.
- •Will help in designing the 4 e-modules and revising 6 current modules to enhance their digital content and include competancies in their curricula (WP4).
- •Wll participate in other workpackages especially in the exploitation of project and centers activities and dissimination of project activities and submitt reports about the WP6´s activites to project management
- •Will also participate in the management workpackage starting from the kick-off meeting and will attend the
- steering committees (WP9) and review the mid and final reports and attend the closure meeting.

EXAMPEL of :

Strengthening of relations between HEIs and the wider economic and social environment
Managing and integration of relations and interaction with different non-academic instructions and associate partners in Egypt. The activities of the theses collaborators will have eclectic types of activities going on – integrating its dynamics. This Project will have a defined parameter or scope to measure this relationship and outcomes of it. and it will be broken down and managed through a work breakdown structure. This is to ensure planning, definition, verification, and control. Working with the health care sitting in our community is the pillar of Egyptian e-health profession impacting on the health of the society through excellence in nursing and pharmacy education, research, practice and community service. In cooperation with the environment we will provide educational strategies that help students acquire problem solving, evidence-based practice, knowledge and aptitudes needed to provide culturally sensitive health care. University-industry cooperation is the core of quality care following the principles of individual and long-life learning To meet the changes and challenges of labor market as well as opportunities that are influencing health care development.

Expected results and impact	
What are the expected tangible results from the project in your HEI?	1. Capacity building programs 2. Iimplementation of electronic medical records and new pateient –university hospital e-health communicaitons 3. Professional and e learning courses & diploma program 4. E.health platform and E.health cetner
How will the impact of these results be measured in your HEI?	1. 300 trained health care workers. 2. over 50 of workshops and providing attendance certificates.
	3. using of the at least 30 % of the electronic records to the paper records -using of the Electronic Database 4. -existence of the Hub senter and plateform 5. -Utlization of telemedicine
What financial means and human and other resources will be provided to sustain these results after the project ends?	1. -Traning and consulattion fees form the clintes 2. - Diploma study tution fees 3. - The trained staff well be the main resource for sustainability 4. -University will maintain the purchased instruments and machine 5. -University will host the database on its service 6. -Apply for new grant

P 14: AL-Azhar University (AZU)

Co-leader WP 4 and :

- The training program of staff members on recent teaching and learning methods of e-healh and medical informatics,
- Participation in the formulation of ECTS dependent training program
- Sharing their successful experience in training process of interns
- Exchange programs of E-health and medical informatics for both staff & interns among universities in partnership
- Participation in development of dissemination and quality control plan of the project
- Implementation of the diploma and short term professional trainings

P 15: University of Sinai (US)

Co-leader of WP2: and :

- •US will participate in almost all the work packages of the project.
- •In particular, SU will take a leading step in the establishment of the innovative research centres and the development of the teaching and training materials.
- •US will also participate in the content development and installation of the Web platform.
- •US has three leading TOT individuals. They will actively participate in the training activities of the project.
- Since US is the only HEI offering ICT and Health Eduction (Pharmasy and Dentistry) education in Sinai, it will be the hub of knowledge and innovation in this area of Egypt.

P16: Assiut University (ASU)

Co-leader WP6 and:

- -ASU will actively participate in all project activities in the field of interest through the common degrees as well as student exchange in the graduate level as well as undergraduate level.
- The university is welling to establish a real cooperation with known and famous European universities, to exchange knowledge and information.
- The university will establish team works in many disciplines to raise their experience in the field of advanced technologies as well as bio medical and E-health.
- The university will make a schedule for faculty members an*d student exchange.*

P 17: LEAD Healthcare Consultancey (LEAD)

Coleader of WPs 1 and 7.

- •The coordinator participates at scheduled joint meetings to be held in the partner countries of this project.
- •Participation in establishment of the web platform
- •participate in developing the study and training modules BM1-BM6 and BS1-B4.
- •Contribute to the dissemination events
- Consultation of All Core Fundrising & Analytics and Analytics Team
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Overview of short term impact indicators (during the project EU funding period)

Short term impact	Target groups/potential beneficiaries	Quantitative indicators (in numbers please)
Establishment of the international network Centers of E-Health innovation (CeHI) in Lebanon and Egypt (LEG)	University staff, medical and health science staff IT and Engineering staff.	3 CeHI in Lebanon and 3 CeHI in Egypt for training and consultation Number of trained professional medical and health sector staff Number of consultations and recommendations to improve the existing E- Health system
Development of the web platform KTERE	University staff, medical and health science staff, patients and their families, ministry of health, IT and Engineering staff.	150 Users of KTERE Questionnaires (survey) of the users of KTERE web platform services Personal Interviews with patients and their physicians used the E-health pilot run. Interviews with representatives from PC Ministries of health and Education and external experts.
Development of new integrated educational courses, professional diploma and training programs	University teachers and healthcare professional staff, students and patient representatives	6 basic modules are designed, modernised or developed for 7 partner universities in LEG in addition to 2 nonacademic institutions
Development inservice training program in the area of innovative Ehealth system and technological devices engineering.	University teachers and healthcare professional staff, students and patient representatives, IT and Engineering staff	4 in service basic modules are designed, modernised and developed. Course modules of different levels: • Elementary, • Intermediaate • Advanced 200 university and nonuniversity staff have been trained

Dissemination and exploitation strategy

Target Grou p	Means of Communication to Reach These Target Groups	When	Indicators to measure the effectiveness of the means of communication
TG1	Guidelines for dissemination	Project start M1- M3/Y1	An effective internal dissemination makes the members of the consortium always adequately informed about the progress of the project, criticisms, and actions. This can ensure a high project profile.
TG1	Projedt gaphic chart and document templates	Project start M4-6/Y1	Distinguishable visual identity that will last during the projct life and afterward
TG2, TG3; TG4;TG5	Social media presence	Project start& through projct	Discussiona and exhanges with onine communities.
TG1; TG2; TG3; TG4; TG5	Electronc Means Webportal And E-Bulletin	M4/Y1 and monthly updates	General public information and awarance. Stronger neworks with target grups
TG2, TG3; TG4;TG5	Regular networking with stakeholders	When announcing project events and outputs	Communication of the porjct calls, achievements and results.
TG2, TG3; TG4;TG5	Press and Media articles	To announce project events and outputs	Reaching a specific targeted groups
TG1; TG2; TG3;TG4:T G5	KTERE platform	M1/Y2 continues	Raise awarance about RERE project, its plans, benfits comparative advantages & addes values
TG1,TG2, TG4	Dropbox and sharepoints for Documentation of project activities, prosesses and outcomes on also Dissemination via the webportal and KTERE platform.	Throughout the project as soon as project output became available	Awarance and sharing by all stakeholders Availability, accesability, and reusability of the projct outputs by internal (drop box) and external developers and other relevant stackholders.
TG2, TG3, TG4	Number of free calssess, inteactive workshops, lectures and traning on general e.health topics for the public	Through the project as soon as procjt outputs becames availaibe	Generate a wider public interest for particpantioin to the RERE project Increased promotion of the projct scientific approach and results

The expected number of each target groups

150 persons per year: Regional and national healthcare sittings, individual physicians applying for

100 150 student per year

150 Supporting of e-health innovative practices and program expertise.

40 Administrators to be trained per year.

300 University staff, IT and Engineering companies,

500 patients and patient associations