Newsletter 04

ENEX in brief

'ENEX – Expert in Nanotechnology Exploitation' is a project co-funded by the European Commission under the ERASMUS+ Programme.

The ENEX project wants to develop advanced training modules for professionals in industry, research and the service sector in the fields of nanotechnology and innovation management, as well as for graduate and postgraduate students. The final outcome will be an interdisciplinary e-learning course merging both technology and management content into one novel qualification concept.

The project consortium consists of six partners out of five European regions: Twente (NL), Tuscany (IT), Lodz (PL), Bucharest (RO) and North-Rhine Westphalia (DE). Among the partners are 3 universities, 1 national research centre, 1 regional development agency and 1 private-sector consulting firm. The project started on 01 September 2014 and has a duration of three years (www.enex-nano.eu).

ENEX 4th Transnational Project Meeting

The 4th ENEX project meeting was organized at the Faculty of Management, University of Lodz from 30-31 March 2016. The first day of the meeting concentrated on all four intellectual outputs of the ENEX project, but in particular on the ENEX competence profile (Output 1) and curricula development (Output 2). The second day had the focus on project management and implementation and was mainly used to discuss and clarify organizational issues.

The meeting was completed by a visit of the Faculty of Chemistry of the University of Lodz, where the participants got acquainted with the current state of research activities in the field of nanotechnology carried out at the university.

ENEX Competence Profile

The ENEX (Expert in Nanotechnology Exploitation) is the 'interface' between laboratories and researchers developing nanotechnologies and the industry and health sector using them. As such, he/she is either employed at strategic level (project manager, innovation manager, business development manager etc.) in companies specializing in or using nanotechnology, or is working as an innovation or technology transfer professional in the R&D sector or in intermediary organizations.

Due to the multidisciplinary nature of nanotechnology and its wide range of applications, the ENEX must have a sound knowledge and understanding of the underlying NT principles, material properties and processing techniques. Apart from this technical knowledge, the ENEX should be able to assess and manage research to market processes. He/she should know about critical phases and bottlenecks of innovation processes and how to deal with them and master them.

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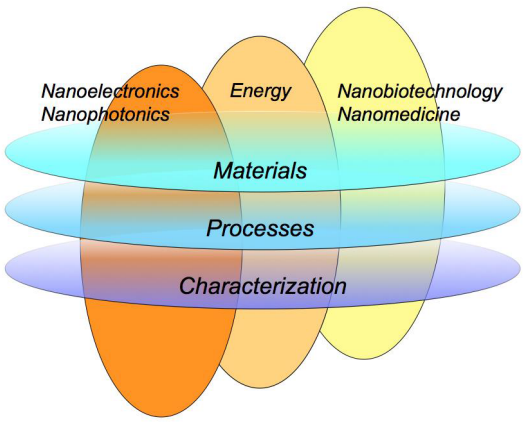
The key competence areas of the ENEX qualification were investigated by means of a comprehensive study carried out in all ENEX partner regions. The study included

(1) an *online company survey* collecting quantitative information on the level of engagement of the main ENEX target groups in nanotechnology and innovation management and on potential qualification needs in these areas (see evaluation report on www.enex-nano.eu);
(2) a qualitative analysis based on *in-depth interviews* with managers/experts responsible for managing innovation processes in their respective companies or organizations, to identify key activities of the ENEX and to define theoretical knowledge and practical skills the ENEX should have;
(3) the feedback from two face-to-face *pilot trainings* organized in Enschede/NL in January 2016 and in Lodz/PL in March 2016 on the subject areas selected for the ENEX curriculum as well as the contents of the individual learning modules;
(4) an accompanying *desk research* of currently available vocational profiles and education & training offers in the thematic fields addressed in the ENEX project.



As a result of the study, 15 competence areas relating to key subjects/activities in the process of nanotechnology-based innovation have been identified, of which seven relate to nanotechnology issues and eight to innovation management. The ENEX training course will be developed on the basis of these identified competence areas.

Learning modules of the ENEX course:

NT 1: Nanotechnological innovation (Introduction);
NT 2: Nanomaterials;
NT 3: Processes & Fabrication;
NT 4: Characterization;
NT 5: Nanobiotechnology & Medical applications;
NT 6: Energy;
NT 7: Nanoelectronics & Nano-optics;
NT 8: Case study/ Exercise.

IM 1: Innovation management (Introduction);
IM 2: Technology commercialization;
IM 3: Economic value assessment in the NT context;
IM 4: Innovation marketing;
IM 5: Intellectual property;
IM 6: Project management in the NT context;
IM 7: Financing of NT innovation;
IM 8: Corporate and academic entrepreneurship.

Following the EQF (European Qualifications Framework) and ECVET (European Credit System for Vocational Education and Training) descriptive frame, learning outcomes are defined for each module on the basis of knowledge, skills and competences, which a trainee should have on completion of the course. These competences are described in the final report on the ENEX competence profile, which is now available on www.enex-nano.eu.

ENEX Dissemination Activities

In Italy, the ENEX project was introduced on the *AIRI/ Nanotec IT* website. AIRI/ Nanotec IT was created in 2003 as a technological division of the Italian Association for Industrial Research (AIRI) with the aim to promote nanotechnologies and, since 2014, the key enabling technologies and their industrial applications.

Italian partner IFAC-CNR further presented the ENEX project at the *School of Nanomedicine,* which was organized by the Institute of Crystallography of the National Research Council in the frame of the FIRB *Riname* project and took place in Bari from 2-4 December 2015. The Riname project involves 11 research units distributed throughout Italy and has the main objective to create a network among most of the Italian research groups active in the field of nanomedicine.

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INTAMT and MESA+ will present the ENEX project at the *7th NRW Nano-Conference* in Muenster, Germany from 7-8 December 2016. The NRW Nano-Conference is organized by the Ministry of Innovation, Science and Research of the State of North Rhine-Westphalia (NRW), the Cluster NanoMicroMaterialsPhotonics.NRW and the Economic Development Agency of the City of Muenster. The conference is the most important event of the nanotechnology industry and research community in Germany. It offers two days of technical presentations about recent trends in nanotechnology and provides an interdisciplinary dialogue about the opportunities as well as the risks of nanotechnology. 700 international participants are expected by the organizers. The conference is accompanied by an exhibition where companies and R&D institutions will present their latest technology developments and products (www.nmwp.nrw.de/en/nanokonferenz).

ENEX Partner Profile

The University of Lodz (ULO) was founded in 1945 and today is one of the biggest Polish universities with 12 faculties and enrolment of over 40,000 students. ULO offers 33 degree graduate programmes and 134 specializations. A wide selection of PhD programmes is also available along with 90 postgraduate studies, including MBA studies.

The University has a long experience in the implementation of international research projects (FP6, FP7) and educational projects (Lifelong Learning Programme; Leonardo da Vinci, Erasmus, Grundtvig, Comenius and Transversal Programme) both as a partner and coordinator. International projects play an important role at the University as they allow the institution to evolve and answer better the needs of changing environments (hence students and employers).

The Faculty of Management is a fairly young business school and one of the youngest faculties of the university. The faculty provides world-class education to nearly 5000 students, and the academic staff of the faculty, numbering almost 200 academics, carry out research in management-related sciences in cooperation with international partners according to best regional and international practice. In addition, the Faculty of Management is the leading scientific and didactic centre in the region of Lodz with focus on management-related sciences.

Since its inception in 1994, student numbers have doubled, and although the majority of students are of Polish origin, there has been a considerable growth in the number of international students - one of the strategic objectives of the faculty is to become a genuine melting pot of business students from throughout the globe (www.uni.lodz.pl).

Coming next

The ENEX consortium is now preparing the learning modules for the e-learning course. A draft version of the course is expected for September 2016. Pilot trainings are foreseen for the last quarter of 2016.

The 5th ENEX project meeting is taking place in Bucharest, Romania from 19-20 September 2016.

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ENEX Partners

INTAMT Internationale Agentur fuer Marketing und Technologietransfer GmbH
www.intamt.de

Universiteit Twente / MESA+
www.utwente.nl

ASEV Agenzia per lo Sviluppo Empolese Valdelsa Spa
www.asev.it

Uniwersytet Lodzki
Faculty of Management
www.uni.lodz.pl, zarzadzanie.uni.lodz.pl/en

CNR-IFAC Consilio Nazionale delle Ricerche / Nello Carrara Institute of Applied Physics
www.cnr.it

UPB Universitatea Politehnica din Bucuresti / CAMIS Centre
www.pub.ro, www.camis.pub.ro

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