



TEMPUS Project
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“Boosting the Knowledge Triangle by
Establishing Innovation Offices in
Ukrainian Higher Education Institutions”
UNI4INNO



NATIONAL METALLURGICAL ACADEMY OF UKRAINE

CENTRE OF INNOVATIONS

STRATEGY

Dnipropetrovsk, 2010

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1. Current State, Challenges and Needs

1.1. Various problems, challenging development of Ukraine, are rooted in the lack of partnership between stakeholders from different sectors of human activity. Lack of institutional support to ensure partnership in the sphere of knowledge transfer drastically hinders innovative development. Coinciding functions of education and research, universities could be the most relevant actor to mediate partnerships for transfer of knowledge across different stakeholders thus stressing the role of innovations in the modern Ukraine.

1.2. Currently NMAU faces following problems related to innovations and knowledge transfer, generally common for the universities in Ukraine:

- weakening of human resource potential because of low attractiveness of academic career, lack of investments to research and brain drain;
- low level of awareness in the society of the role of university as an actor able to ensure current and future wealth creation;
- contradictions between academic tradition and entrepreneurial culture;
- lack of experience in establishing of knowledge transfer partnerships with wide range of stakeholders including SME;
- legislative obstacles limiting possibility of university to hold the shares in created spin-off.

1.3. As an advantage it should be noted that NMAU is located in a region with:

- diverse industry base with large enterprises and SMEs;
- various high skilled teaching and research organisations;
- long-term traditions in education embedded in community and economy;
- strong culture of knowledge.

1.4. NMAU has long-term tradition since 1899 of education and research with leading position in Ukraine in the domain of Metallurgy & Materials Science, reflected with its National status. Its research schools were established during the period of industrialisation and, therefore, rather oriented on the large industry needs, while the interests of emerging SME sector are less addressed. Therefore, general development strategy of NMAU envisages university management reform aimed to foster knowledge transfer within wide range of stakeholders in order to meet challenges and to exploit new opportunities of the market-based economy.

1.4. Important element of envisaged reform is creation of the Centre of Innovations. The Centre is created within the Joint Project “Boosting the Knowledge Triangle by Establishing Innovation Offices in Ukrainian Higher Education Institutions (UNI4INNO)” under the TEMPUS Programme, led by The University of Alicante (Spain) in consortium with three other EU partners (Chalmers University of Technology from Sweden, University of Bologna from

Italy, and the World University Service-Austrian Committee), 6 Ukrainian universities (Crimean University of the Humanities, Donbass State Engineering Academy, Lviv Polytechnic National University, National Aerospace University, National Metallurgical Academy of Ukraine and Odessa I.I. Mechnikov National University), the Kiev Chamber of Commerce, the Ukrainian State Institute of Innovation Technologies and Content of Education and the Ministry of Education and Science of the Ukraine. Therefore, the vision for the mission, goals and strategy for the Centre of Innovations reflects advanced EU experience and the best world practices of higher education reform through integration of education with research and innovation.

2. Scope

2.1. This Strategy outlines vision, measures and policy to support the innovations at the NMAU and will contribute to the reform of the Ukrainian higher education in line with the European practice.

2.2. This Strategy should facilitate the introduction of new services in the NMAU and thereby contribute to the realisation of common vision worked out within the TEMPUS Project “Boosting the Knowledge Triangle by Establishing Innovation Offices in Ukrainian Higher Education Institutions (UNI4INNO)”.

2.3. Guidance and support for wider implementation of this Strategy on the regional level will be provided by the NMAU through:

- a) dissemination of the experience attained during fulfilment of the TEMPUS Project;
- b) bringing the examples of the best practices;
- c) sharing with services and mechanisms for innovations support launched by other Ukrainian participants of the UNI4INNO Project and larger.

2.4. Ministry of Education and Science of Ukraine, appropriate governmental bodies on the national and regional levels are seen as important stakeholders to develop the legislative framework for the innovations support services.

2.5. The Strategy encourages multi-stakeholder cooperation and partnerships. The activities to be undertaken for the reform of innovations services will be developed and fulfilled in the partnership with:

- a) various external institutions responsible for creation, development, application and dissemination of knowledge;
- b) students committee as a driving force of innovations;
- c) industry and SME representatives, as well as policy-makers on regional and governmental levels;
- d) all kinds of organisations on both local and regional governance levels that have the professional capacity to contribute the sustainability of the achieved results;

- e) mass-media to increase the public awareness and to equip the society with understanding of mechanisms for support and development of innovations.

3. Mission and Objectives

3.1. General mission of the National Metallurgical Academy of Ukraine is formulated as “*Creation, development and dissemination of knowledge through teaching and research of the highest international standards for the benefit of society*”.

3.2. Centre of Innovations is established to contribute implementation of the strategic mission of NMAU through support of researchers, teachers and students through coordination of their efforts and communication with the external stakeholders from the world of business and industry in order to facilitate transfer and valorisation of knowledge for the benefit of society at large.

3.3. Methodology basis for the Centre of Innovations is the open innovations paradigm where the use of purposive inflows and outflows of knowledge of different stakeholders is a principle to accelerate internal innovation and expand the markets for its external use. **The objectives**, established for the Centre of Innovations are:

- 1) Transversal co-ordination of the efforts of NMAU structures responsible for research and innovations (R&D sector, faculties, departments, laboratories etc)
- 2) Efficient intellectual property management and protection aimed to facilitate commercial knowledge transfer, which should result in the increased number of patents offered to or implemented by industry
- 3) Monitoring of the demands of industry/business and feeding it back to the research activities as well as to the curriculum development which should result in
 - a. significant increasing of the volume of applied research;
 - b. improved quality of the applied PhD research;
 - c. enhanced role of innovations in the curricula and increased number of students (MSc and BSc level) taking part in the research activities;
 - d. wider engagement of university staff in providing up-to-date courses to meet the needs of LLL audience in knowledge of cutting edge research achievements.
- 4) Assistance in creation of spin-offs by advice, supervision, providing office facilities and premises in NMAU
- 5) Enhancing the level of awareness in the society at large of the importance of knowledge and innovations through publicity and media, fairs, round table discussions etc.

4. Principles

4.1. Positive experience existing in the R&D sector of NMAU must be adjusted to the realities of the market economy. Extensive experience of Europe should be learned and applied in order to facilitate knowledge transfer and valorisation, focusing not only on large industrial companies but also on the SME sector.

4.2. The reform of innovations services should be carried out with participation of students' committee and active involvement of the representatives from business and industry.

4.3. Reform of the innovations services should not be limited on creation of the Centre of Innovations and launching of special services. It should imply the development of human resources able to fulfil the services of a high standard.

4.4. The developed mechanisms of knowledge transfer must be attractive for both researchers and industry representatives. The involvement of these stakeholders must be based only on their willingness and interest to be active partners for the mutual benefit.

4.5. Reform should help to overcome such weakness of the Ukrainian higher education as a poor flexibility of the research in response to rapidly changing demands of the market economy.

4.6. Centre of Innovations should encourage use of systemic, critical and creative thinking among the students at all levels including life-long learning audience that are prerequisites to develop personal skills and qualifications towards creation and transfer of innovations.

4.7. Implementation of this Strategy requires multi-stakeholder cooperation and partnership. The main actors are not only researchers, students and employers but also governmental and local authorities, public sector, mass media and non-governmental organisations.

4.8. Sustainability of the created services must be provided with transparent and clear institutional reform of university management aimed to bring transversal collaboration among structures responsible for research and innovations (faculties, departments, R&D sector) through the Centre of Innovations.

5. Societal impact

5.1. The Centre of Innovations will provide a new platform for partnership among academia and business in order to generate an income and to create the benefits for the society at large.

5.2. Benefits for NMAU are seen as follows:

- academics, students (BSc, MSc and PhD levels), lifelong learning audience will profit from the inflow of interdisciplinary knowledge, entrepreneurial and innovation management skills, which will result in the enhanced employability;

- international networking within the UNI4INNO project and wider will foster internationalisation of the research activities;
- new possibilities to commercialise innovations with great social and economic value will be developed in the Centre;
- new funding opportunities will be created due to advice and services of the Centre.

5.3. Benefits for business:

- positive impact of cutting edge research on operational practice;
- access to the best research teams and students;
- fast promotion of innovative products and services to the market.

5.4. Important precondition for the successful operation of the Centre of Innovations is lasting support from the regional and national authorities. The vision of NMAU is that the strategy towards the structured collaboration between NMAU and world of business will ensure delivery of commercially feasible innovative products contributing to economic development and the growth of a knowledge culture in society at large.

6. Financial matters

6.1. Ensuring adequate financial means to implement the Strategy is an important precondition for its success. Establishing of Centre of Innovations is seen as an investment that will pay off in the long term.

2. During the UNI4INNO project's lifetime the Centre of Innovations is supported with the EU funding; however, yet during the project's lifetime and especially after the EU funding will be seized (in 2013) NMAU undertakes the obligation to sustain the innovation services through the developed Centre.

3. Naturally, the Centre must demonstrate its own financial sustainability. Involvement of different kinds of funding with the Centre's share, needed to sustain the office and staff, will be addressed through:

- commercialisation of available research results through promotion to the relevant customers;
- efficient intellectual property management, including development and trade of the patents;
- involvement of relevant partners from industry to invest in research and innovations;
- creation of spin-off companies able transfer the knowledge from university directly to its practical application in an economically feasible way;

- applying for different schemes of funding of the research activities on the regional and national levels;
- organisation of innovation's fairs to bring together researchers and industry representatives;
- international grant-seeking via FP7 and other relevant programmes.

7. Evaluation and timetable

7.1. The process-oriented evaluation and benchmarking of the Strategy will be done against implementation of the objectives formulated in section 3.3 above, considering also such issues as:

- a) identification of the leaders and coordinators responsible to drive the Strategy;
- b) appropriateness of policy, legal and operational frameworks to support the Strategy;
- c) multi-stakeholder cooperation and partnerships;
- d) relevance of services to the current needs and their impact not only on the research but also on the curriculum.

7.2. Implementation of the Strategy should be seen as a continuous process. However, in order to facilitate assessment of its progress following phases for implementation are considered:

Phase I (before January 2013): implementation within the UNI4INNO project lifetime. The schedule and the scope for Centre of Innovations during this period are stipulated by the project's workplan; however NMAU is responsible for the real content of work towards increased role of the Centre of Innovations and knowledge transfer activities in research and education. This would include a review of current content and scope for existing university structures, issuing of necessary decisions on the level of rectorate and Academic Council, review of activities, and identification of any obstacles or gaps.

Phase II (after January 2013): sustainable operation of the Centre of Innovations after the end of TEMPUS funding. NMAU undertakes the obligation to ensure that the impact of the project on university life, reinforced research activities, enhanced role of innovations in the curriculum, awareness of the Centre's services among internal and external stakeholders will be as strong as it was planned. By this period the mechanisms of financial sustainability against generated profit, supported by decisions of Academic Council and/or orders of Rector, should be created and implemented enabling allocation of required funding and appropriate staffing levels.