

**KNOWLEDGE PLATFORM FOR TRANSFERRING RESEARCH AND
INNOVATION IN FOOTWEAR MANUFACTURING**

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Knowledge 4Foot (K4F) is an ERASMUS+ project which is running for a period of three years (2015-2018) within the framework of Key Action 2: Cooperation for Innovation and the Exchange of Good Practices/Strategic Partnerships for Higher Education. The project will develop and demonstrate new types of cooperation between universities, research organisations and business, which is based on open innovation aimed to increase the flows of knowledge. The three sides of the ‘knowledge triangle’ are joined through K4F project in order to enhance the contribution of higher education to growth in EU footwear sector, as well as its attractiveness in partner countries by applying good practices and mastering the most advanced methodologies for transferring the results of research into business environment through real project-based work focused on technological transfer. The Knowledge4Foot project introduces innovative tools to adapt and update the learning and training curricula of higher education providers for managers, designers, and engineers, in order to achieve greater creativity, innovation and high performance in European footwear manufacturing and related sectors.

Keywords: e-learning, shoe, research, higher education

RATIONALE OF AND BACKGROUND TO THE PROJECT

In the report titled *Key Data on Education in Europe 2009*, published by the Education, Audiovisual and Culture Executive Agency, the idea of involving higher education, research and industry will increase the Europe's capacity for innovation (in *Key Data on Education in Europe, 2009*). By creating and developing so-called Knowledge Communities through a real partnership among higher education, research and industry this idea will become sustainable.

The quality of higher educational programs should be assessed not only according to the university curricula, but taking into consideration also the students' involvement in different extracurricular activities, in order to adjust the study programs to a problem-solved approach of learning, which is more suitable to industry needs. Equally, the university curricula and the other activities (research, industrial placement, volunteering etc.), which students (undergraduates and graduates) should be motivated to participate at, contribute for graduating competent and multi-skilled engineers and managers (Mihailescu *et al.*, 2008).

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Starting with 1990s, in order to face the future demands of the knowledge-based society, the higher education is being asked to produce graduates who are flexible and have market-related skills and abilities. Barnett (1998), cited by Savin-Baden (2000), stated that there is a growing awareness for developing skills and abilities to research and critique information.

In terms of how the future graduate of higher education should look like, whatever is the technical and scientific field he/she graduates, an ideal profile has been defined: able to work in teams, to communicate well, to analyse and synthesise, to be self-transformative, to have reflective and critical abilities. Harvey (2000) stated that the graduates need to be flexible and able to help the organizations/ companies, in which they work after graduation, to face with all rapid and continuous changes. Therefore, the training and study programs must treat the student as intellectual performers rather than as conforming audience.

The European reports and directives, official political declarations, scientific reports upon this subject require for integrating research with teaching activities based on the numerous advantages that are reflected to the ones who are customers of higher education business, the students. Beside the incontestable truth that research enriched training, there are factors that make this process not so easy. A research about fundamental review of research policy and funding, undertaken by Higher Education Funding Council for England (HEFCE) has concluded that “new ways of managing the teaching and research relationship need to be considered” (Coate, 2001). The university – research – industry relations should function increasingly as laboratory of knowledge-intensive networks.

Europe has valuable tradition and leading recognition in footwear manufacturing. In a global economy where enterprise sustainability and employability are uncertain, the need for making the knowledge triangle (education, research and business) to work becomes obvious. It is very well known that the manufacturing sectors are very sensitive to international challenges represented by globalization and competition. In this general context, the footwear companies are forced to make important strategic changes by adding value to their products. And the added value comes from research and innovation in terms of styling and design, customization, brands, high quality, high-tech, new business models, sustainable development and environmental values.

On the other hand, the footwear companies in Europe are small and medium sized. For this reason most of the companies cannot create own research and technological transfer departments and they are very much dependent on external offers of universities and/or research centers. All these challenges require for highly qualified employees, including technicians, engineers, product & process developers, top and middle managers, who should have the right mix of skills, both professional and transversal, in order to demonstrate their competence for applied research, development and technological transfer. This goal of having right skills for transferring knowledge and innovation into the daily based business environment of the footwear companies could be possible by improving the quality and relevance of higher education addressing to these professionals. Also, because of labour costs, most of the footwear companies do not afford to have numerous staff having an academic degree or much narrowed specialized employees. Therefore, for top and middle managers, for engineers, for product and process developers having skills and competencies in research, innovation and technological transfer is more than necessary in order to complete their professional university degree, experience and knowledge background. Linking the

education with the work environment is one of the goals of the EU policies and national political priorities in all EU 27 countries. Therefore, supporting active learning by creating right mix of core, transversal and professional skills emerges from the recommendations on different levels: EU, national authorities and social partners. The European Commission's report - 'New Skills for New Jobs: Action Now' (2010)-emphasizes the following directions: 'to better link education, training and work, to develop the right mix of skills, and to better anticipate those skills needed in the future'.

AIM AND OBJECTIVES OF THE PROJECT

Making the knowledge triangle work by connecting Higher Education, Research and Business for excellence is one of the goals of the EU policies and national political priorities in all EU countries. Knowledge 4Foot (K4F) project aims to contribute at fostering the excellence in training for footwear manufacturing by connecting the three areas of education, research and business oriented innovation in order to demonstrate good practices of cooperation and to bridge the worlds of education and work. Therefore, the Knowledge4Foot project targets the following two groups:

- Students enrolled in Higher Education
- Professionals involved in top and middle management in footwear companies: managers, designers, engineers and technicians.

In order to achieve this aim, the project has following objectives:

- to develop active collaboration among universities, business community and research centres to assess the needs of skills for innovation and technological transfer;
- to design, test and implement a common curriculum for virtual internships and the related e-learning content, which incorporates a creative thinking and problem-solving approach;
- to set-up a Knowledge Platform that facilitates the transfer of innovation in footwear manufacturing by simulating the developing stages of the research projects.

The project consortium involves eight organizations with different expertise and competences such as universities, research centres, and SMEs from Romania, Spain, Portugal, Greece and Croatia and the European Confederation of Footwear Industry (CEC) with headquarters in Brussels. The project partners are:

- TUIASI - Universitatea Tehnica Gheorghe Asachi din Iasi
- CEC - European Confederation of the Footwear Industry
- Virtual Campus Lda
- INESCOP - Instituto Tecnológico del Calzado y Conexas
- CTCP- Centro Tecnológico de Calzado de Portugal
- UNIVERSITY OF ZAGREB - Faculty of Textile Technology (TTF)
- The Research Committee of the Technical University of Crete
- INCDTP - Institutul National de Cercetare-Dezvoltare pentru Textile si Pielarie
- CRE.THI.DEV- Creative Thinking Development

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Figure 1. The K4F project website - <http://www.knowledge4foot.eu/>

ENVISAGED RESULTS

The Knowledge4Foot project introduces innovative tools to adapt and update the learning and training curricula of higher education providers for managers, designers, and engineers, in order to achieve greater creativity, innovation and high performance in European footwear manufacturing and related sectors.

The envisaged project results/products are the following:

- **Mapping the knowledge triangle for transferring research and innovation in footwear manufacturing.** The aim of this study is to give a deep overview of the labor market needs for highly qualified professionals in footwear manufacturing with right mix of transversal and professional skills in order to boost the transfer of novelties coming from research and innovation in product, processes and services that provide added value.
- **Training program and e-learning content for transferring research and innovation.** The training courses will be focused on developing skills and competencies in research, innovation and technological transfer applied to footwear manufacturing. Three modular courses will be developed, with 4 units/modules each (total 12 modules), for a training program having 125 total hours.
- **Multimedia handbook for project-based training and virtual placement of HE students and trainees from SMEs.** The content of the multimedia handbooks addressing both to students and supervisors will be elaborated and transformed into e-booklets.

- ***Knowledge4Foot Platform for Transferring Research and Innovation in Footwear Manufacturing.*** An online knowledge-based platform will be designed, developed and released. It will integrate the developed resources within the project (curriculum, training content, guides, other resources) in order to resemble an Internet-based research and development center that will act upon virtual placement of trainees and project-based activities.
- ***Book of lectures for Entrepreneurial thinking in footwear manufacturing.*** This e-book will be used and tested by the participants in the Intensive Summer Course.
- ***Final conference on Research and Innovation in Footwear Manufacturing*** for experts, researchers and other professionals from the footwear and leather industries, universities, research institutes and training centers.
- ***Intensive program for higher education learners.*** The participants (students) will follow core and optional lectures where they will receive knowledge and skills for transforming innovative ideas into startup businesses in footwear sector. They will be tutored by trainers from partner institutions and will be coached by representatives from footwear companies.

The project is sharing the vision of the European Education and Training Commission (ET 2020) stating that opening up education may lead to a situation where all individuals may learn anytime, anywhere, with the support of anyone, using any device. The project promotes and supports the open access to educational materials, reports, published scientific or advertising material. All products without any exception will be delivered in English, but some of the project deliverables will be translated in the consortium languages.

In order to maximize the applicability of the tools and to achieve the greatest impact on the sector, a common action is required for better integrating wider working conditions, business principles, knowledge on technology, knowledge on IT tools, etc. The K4F project includes activities that meet the conditions for effective generalisation, and exploitation in other European countries. Thus, by following up a virtual internship program, the HE students and trainees will be able to understand the needs for innovation and to gain competencies for transferring, applying and adapting research results to boosting the economical grow of this traditional manufacturing sector that is identified with Europe itself in terms of brands and high quality products. The virtual internship will complement the real placements in work environment, as preparatory stage of it. As multiplication, the universities and the vocational education and training schools could apply the hereby solution in order to overcome the difficulties with their study programs addressing to applied technical sciences (including education and training for Leather & Footwear sector also). By K4F project, the area of study for applied technical sciences will be adequately promoted and sustained in order to be attractive and motivating for young generation of students.

The K4F project identifies a clear rationale for a European focus and proposes viable solutions that could have a great impact on footwear manufacturing from other EU countries. There are visible benefits accruing from the collaboration at national level and across national borders in sharing case studies as well as strengthening the need for

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appropriate training opportunities in transferring the results of research from technological centres to businesses through skilled graduates of HE study and training programs. The translations of the outputs in 7 project languages ensure a significant distribution of training materials, books, reports and guides across Europe. Also, the project considers the cultural differences based on geographical composition of the consortium, a special attention being given by all partners to supporting the cross-cultural dialogue. The inclusion of a large number of stakeholders is based on own networks and partnerships that each partner brings from previously implemented projects at national and EU/international levels.

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