



Sandra Bischof

University of Zagreb Faculty of Textile Technology, Zagreb, Croatia

REINFORCING THE TEXTILE RESEARCH POTENTIALS THROUGH FP7 PROJECTS

Abstract

University of Zagreb, Faculty of Textile Technology was coordinating the FP7 project entitled Unlocking the Croatian Textile Research Potentials (T-Pot), funded by the European Commission in the amount of almost 1 million euro. This project was first in the row, aiming to reinforce textile research capacities of TTF. The main project goal was to upgrade institutional research capacities with emphasis on strengthening the cooperation with the industry. T-Pot project is funded under the Capacities funding scheme, where the activity of the integration of researchers and SMEs from the associated countries into the European Research Area is of great importance. This paper presents the review of the project activities such as purchase of top class equipment, training of researchers and industrial representatives and know-how transfer from the experts from the EU partnering institutions. The cooperation of the academy with the SMEs is a necessity which is consequently leading to their increased competitiveness outside the regional borders.

Keywords: FP7, FP7-REGPOT-2008-1:T-Pot, textile and clothing industry (T/C), innovations

1. INTRODUCTION

The overall objective of T-Pot was to unlock and upgrade the research potential of the Faculty of Textile Technology (TTF), particularly its newly established Textile Science Research Centre, enabling enhanced participation of Croatian textile organizations in research activities at the European level, in order to support the harmonisation and integration process of Croatian textile entities into the European Research Area.

The reinforcement of TTF's research potentials was done through the reinforcement of human and material potential, as well as the research infrastructure. Previously established Textile Science Research Centre (TSRC) was upgraded to become one of the components of the national innovation. Top scientists are attracted to the country for exchange of know-how and guidance of Croatian textile manufacturers.

That is why T-Pot addresses all major issues of improvement of research capacities, addressed in FP7 Capacities Work Programme: Research Potential, as topics for REGPOT-2008-1:

1. Reinforcement of S&T potential
2. Developing strategic partnerships with well established research groups
3. Supporting and mobilising the human & material resources
4. Facilitating communication between the centres having similar scientific interest
5. Disseminating scientific information and research results.
6. Improving the responses to socio-economic needs (of Croatia).

2. ABOUT THE PROJECT

The project has strong regional and national interest since TTF is the only HE institution in Croatia performing research activities in the textile and clothing sector. Textile Science Research Centre (TSRC), offering assistance in managing and counselling in the field of textile research, was significantly upgraded with the measures performed within this project. The Centre started to be the driving force of TTF's research and its major task is to strengthen links with other T/C research centres in EU or worldwide, so as with the industry at the other side.

The main purpose of one of the projects work packages (WP) was to develop strategic or twinning partnerships with related textile institutions. Purpose of such a partnership is pooling the experiences and collectively figures out the ways to address common problems. Through flexible framework collaboration common goals and objectives of knowledge based society were accomplished within the project.

Strategic partnerships were established with research institutions and SMEs from Germany, Spain, Poland and Italy (STFI, Leitat, INFMP and GZE), presented in Figure 1.

Several face-to-face visits were organized to partner institutions, in order to establish or upgrade new partnerships. The first visit was to Grado Zero Espace (GZE), Italy, at their new premises at Montelupo, Italy in May 2010.

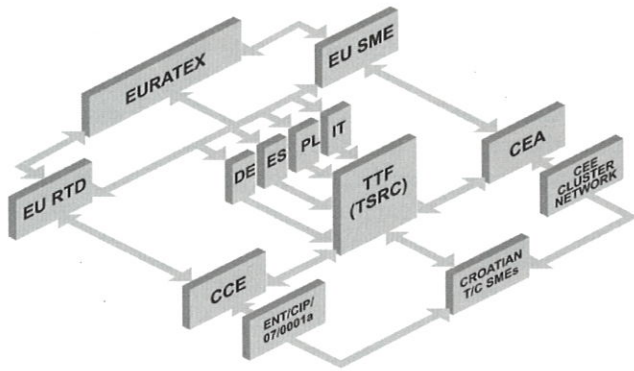


Figure 1. Cooperation scheme between Faculty of Textile Technology (TTF), its Textile Science Research Centre (TSRC), EU partners: STFI (DE), Leitat (ES), INF (PL), GZE (IT) and Croatian partners: Croatian Chamber of Economy (CCE) and Croatian Employers' Association (CEA) [1]

Next phase was organisation of research secondments of PhD students and researchers. The institutions involved were:

- EMPA, Switzerland
- INFMP, Poland
- University of Ljubljana, Slovenia
- University of Georgia, GA, USA
- University of Leeds, UK
- LEITAT, Spain
- GZE, Italy.



Figure 2. T-Pot group with patented Quota zero jacket

Important part of the project was hosting of scientists.

The major advantage of hosting of chosen scientists was not only to have the honour to meet and listen top class scientist in different fields (e.g. FT-IR spectroscopy) and obtain new knowledge, but also to gain new contacts with other researchers, working on similar topic, who attended the seminars. Obtained know-how was of great importance for future carriers of many young scientists.

Further goal of T-Pot project was to improve scientific infrastructure according to EU standards. Therefore, two series of apparatus were purchased and located at two laboratories and offered a great benefit to scientific work. First series is consisting of: FESEM (Field Emission Scanning Electron Microscope), EDS detector and sputtering device. Second one is consisting of: TGA (Thermogravimetric Analysis), DSC (Differential Scanning Calorimetry) and FT-IR (Fourier Transform Infra Red Spectroscopy).



Figure 3. Application of phosphorescent pigments at LEITATS premises, during one of the research secondments



Figure 4. Consultancy of Prof. Yang with TTF's PhD students at the premises of Textile Science Research Centre, Savska 16/9



Figure 5. New SEM Laboratory and researchers hired by T-Pot project

Part of the project was organization of in-house training events at partnering (host) institutions:

- LEITAT, Spain (topic: Functional finishing)
- Institute of Natural Fibres and Medicinal Plants, Poland (topics: Multifunctional fibres, Fibers reinforced composites)
- STFI, Germany, (topics: Technical textiles, Quality)
- GZE, Italy (topic: Functional Design),

so as the trainings organized in Croatia at the:

- Croatian Chamber of Economy (HGK), topic: Innovation,
- Croatian Chamber of Trades and Crafts (HOK), topic: Innovation management.

3. RESULTS

One of T-Pot's highest priorities was the improvement of scientific infrastructure in order to reduce the gap between our present state and EU standards. Investing in the equipment served another important purpose – to boost the development of applied research, development of methods, technologies, new products or services. Instrument supply significantly contributed to enhanced Croatian scientific capacity and targeted our research towards nanoscience and nanotechnology. Acquisition of the equipment in the area of morphological characterisation by SEM or thermal analysis by DSC, TGA and TG-FTIR techniques is significantly contributing to the reinforcement of Croatian internal scientific and technical capacities and enabling sharing the research resources with the project partnering institutions and SMEs. Our final results are sharing the research resources with a wider community and developing services in support of business and innovation.

Scientific cooperation, whether it regards use of equipment or project cooperation, takes place through the Textile Science Research Centre (TSRC) and its portal: <http://www.ts-rc.eu>. The long-term goal of the T-Pot project and the TSRC was to include as many Croatian SMEs and crafts as possible in the research activities of the European Research Area. It was done through the sustainable cooperation with the project partnering institutions and secondarily with any of the institutions in textile or related fields. TSRC, upgraded by the funds of T-Pot project, is open for further scientific cooperation.

4. CONCLUSION

Improvement of TSRCs scientific infrastructure served to important purpose – to boost the development of applied research, development of methods, technologies or new products. The acquisition of the chosen equipment is contributing to the reinforcement of Croatian internal scientific and technical capacities and enabling sharing the research resources with the project partnering institutions and SMEs. The expected final results include sharing the research resources with a wider community and developing services in support of business and innovation. The T-Pot project has gathered all the major stakeholders in the region in the field of textiles & clothing, becoming a strong point of knowledge transfer and industry support.

Future participation in the research activities of the European Research Area is enabled through joint research or new project initiatives, primarily with the project partnering institutions and secondarily with any of the institutions in textile or related fields.

Activities performed after the project finalization include continuous submission of project proposals, both to the national and international funding. Major goal of TTF's team is to establish stable funding for established TSRC. The possibility to enable it, we see in the funding scheme of Ministry of Science, Education and Sports (MoSES)

– Centres of Excellence, where TTF had submitted the proposal entitled Multifunctional Textile Materials (MTM). By extending Textile Science Research Centre (TSRC) of the Faculty of Textile Technology (TTF) to the Center of Excellence (CoE), interdisciplinary network of outstanding scientists who have a common goal: the development of advanced, environmentally-friendly multifunctional textile materials and products, will be achieved.

One of the specific objectives of MTM project is the implementation of research results into economy sector. The target group of SMEs is not only in textile sector but also in related areas such as defense, chemical, pharmaceutical, wood processing and creative industries.

Our further success is placement of project proposal entitled: Modernisation of Infrastructure of TSRC (MI-TSRC) at the indicative list of MoSES. Its funding is planned for 2016 from the ERDF 2014.-2020. funds.

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More information can be found on the project public website: <http://www.t-pot.eu>.

