



Project Number: 134306-LLP-1-2007-1-GR-ERASMUS-ENW

ENHANCING THE ATTRACTIVENESS OF EUROPEAN STUDY PROGRAMS IN BIOSYSTEMS ENGINEERING IN MALTA

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Abstract

The National Strategy for Research and Innovation for 2007-2010, entitled 'Building and Sustaining the Research and Innovation Enabling Framework' is the pivot on which the Maltese efforts to enhance the attractiveness of Science and Technology is based. Four main entities, namely The Malta Council for Science and Technology, University of Malta, Ministry of Education, Youth and Employment and National Student Travel Foundation come together to complement each other and the national educational system through a variety of different but complementary activities. Information is freely available to students from the websites of the various entities.

Introduction

International benchmarks issued by the EU, the World Economic Forum, and other international organizations of stature showed that some 10 years ago Malta was, with the exception of ICT, not only not improving but regressing in terms of its competitiveness and the supporting role played by Research and Innovation. Malta did not have a permanent multimedia, interactive infrastructure designed to capture the imagination on the wonders of Science Engineering and Technology (SET). A comprehensive and multi-pronged science popularization strategy is of fundamental importance. The sustainability and aggression of such a strategy over a period of twenty years is a necessity to achieve impact in Malta. The National Strategy for Research and Innovation for 2007-2010, entitled 'Building and Sustaining the Research and Innovation Enabling Framework' is the pivot on which the Maltese initiative of enhancing the attractiveness of Science and Technology is based. Four main entities, namely The Malta Council for Science and Technology (MCST), University of Malta (UoM), Ministry of Education, Youth and Employment (MEYE) and National Student Travel Foundation (NSTF) come together to complement each other and the national educational system. Information is freely available from the websites of the various entities. Contact information including contact person, phone number and e mail addresses are also posted on the site adjacent to the particular programme of interest. The following is an overview of the enhanced efforts to draw in more students into the SET fields.



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The Malta Council for Science and Technology

The Maltese Government established a public entity 'The Malta Council for Science and Technology' in 1988, with the mandate to act as the national focal point for science and technology policy. In an effort to include and involve stakeholders, prominent members of the private and public sectors and academia sit on the board of MCST. In fulfilling its mission, MCST has over the years focused on promoting stronger networking between these sectors and develop public-private sector partnerships. Currently, the organizational structure is being enhanced in view of making more efficient use of national Science and Technology (S&T) resources. In addition to the original specific mandate of advising government on S&T policy, MCST's remit has developed and expanded to include:

- Responsibility for National Strategy in the field of Research and Innovation (R&I) and the ownership of the National Strategic plan 2007 – 2010.
- Responsibility for Policy in the area of Research and Innovation, and represents government in the following EU fora related to R&I:
 - CREST - facilitates the progress of policy coordination throughout Europe.
 - Joint Research Centre Board
 - DG Research working parties
 - European Institute of Technology working parties
 - European Strategic Forum on Research Infrastructure
- The management and administration of the National Research and Innovation Funding Programme
- The responsibility as National Contact Organisation for creating awareness and providing support for EU's Research and Development Framework Programme.

In 2005, MCST underwent a Strategic Audit and the outcome recommended the articulation of a National Research and Innovation Strategic Plan that reflects the national economy as directed by Government so as to ensure that State R&I financing is channelled to these priority areas that can truly become local drivers of economic growth. During the consultation process of the drafting of this Strategy, the high leakage of students is the result of a number of failures of our educational system was emphasized. The tedious way SET disciplines were taught; the educational institutions persistence that only the best and the brightest should pursue such studies; and the subsequent impression that SET disciplines are difficult and hence should be avoided where highlighted. In 2006, the MCST launched the National Strategy for Research and Innovation (NSRI) for 2007-2010, entitled 'Building and Sustaining the Research and Innovation Enabling Framework'.



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University of Malta

The NSRI strongly supported the Yom and recommended the following:

- The R&I National Investment program is to act as a leverage to reward those departments and institutes within the University of Malta that secure international as well as local industry / business funding for their research activities.
- The Yom should consider initiating a Campus agreement in the designated platforms of strategic importance with Universities or Institutes of international repute in order to strengthen its research facilities as well as provide joint undergraduate and post-graduate programs.
- The Yom should seek to reach a level of excellence in the designated platforms of strategic importance that will allow it to attract Masters, MPhil and PhD foreign students from within and outside the Mediterranean region.
- The UOM should seek to establish an Alumni Network in the SET disciplines to strengthen both its international as well as local networking abilities.

The Yom has responded and embraced these recommendations with the result that:

- Links have been forged with the Chamber of Commerce, the Federation of Industry and the Employment & Training Corporation in order to determine how the University, industry, business and the public sector can develop a mutually beneficial dialogue.
- The UOM is a member of the European University Association, the European Access Network, the Association of Commonwealth Universities, the Utrecht Network, the Santander Network, the Compostela Group, the European Association for University Lifelong Learning (EUCEN) and the International Student Exchange Programme (ISEP). A large number of bilateral cooperation agreements with universities overseas are active through which staff and students may also participate in programmes such as Erasmus, Leonardo and Comenius.
- International Masters Programmes are being offered on a Dual Degree basis, with each Masters being accredited by the University of Malta and at least another leading North American or European University. These programmes seek to achieve a wider exchange of cultural viewpoints, networks and experiences and at the same time provide students with global work opportunities.
- The Communications & Alumni Relations Office has been established and acts as a central hub through which UOM alumni can network.

Ministry of Education, Youth and Employment

In its effort to encourage and support students in broadening their educational exposure the MEYE has within its structures the following units:



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- The European Union Programmes Agency to support Maltese individuals and entities in availing themselves of funding under the various educational programmes provided by the European Commission.
- The Eurodesk to relay for European information to young people and their intermediaries. It provides information on volunteering or exchange opportunities, how to work or study abroad, how to find European funding and contacts and any other information which the youths might need.
- The Euro-Mediterranean Youth Platform aims at creating a network of all those involved in the youth sector in Europe and the Mediterranean. It strives towards bringing young people from the region together in an environment of tolerance and mutual understanding, facilitating networking between them, assisting in the capacity building of their organisations, increasing their participation, sharing relevant information with one another, and exchanging good practice. The Platform provides various networking facilities such as assistance in finding partners, a Magazine in three languages, a FORUM for discussion, and profiles on the situation of young people in each country.

The NSRI recommended that MCST together with MEYE commission an independent review to assess how S&T disciplines are taught at pre-primary, primary and secondary levels of education and benchmark such education with countries enjoying a high level of success in S&T. Additionally the development and implementation of a twenty-year science popularization strategy was recommended. The science popularization is managed by MCST and includes:

- Science in the Community Events – consisting of mini S&T Festivals organized by MCST together with six Local Councils. The public is invited to attend and interact with the science exhibits; participate in animated discussions about inventors and renowned scientists Local NGOs, S&T players, private companies and local schools are all involved. The event is free of charge and science animators explain the scientific concepts behind each exhibit.

S&T Festival consists of a variety of activities that are usually spread all over the UOM grounds. The public is invited to interact with the science exhibits on display and to explore and uncover the scientific principles exhibited. Many organizations are present to show the importance of science in daily work. Talks and speakers covering a broad range of topics, from cutting-edge technologies to focused talks are delivered by experts from various scientific fields and local entities.

- Edutainment - an entertaining way of passing on an educational message. MCST is using this novel approach by engaging professional scientific animators to entertain, educate and share their passion for science with all present. The animators will be performing live experiments.

National Student Travel Foundation

The National Student Travel Foundation (NSTF) was created in 1977 with the main objective being is: *"The direction and development of educational, cultural and social travel and exchange for students, scholars and youth at all educational levels in the nation, the expansion and improvement of services and promotion of a better understanding on an international level."* The NSRI recommended that:

- MCST assumes the role of official sponsorship to the NSTF in the management of the Young Scientists Competition in order to
 - support the aggressive marketing of the Young Scientists Competition;
 - support the successful winner in the European Young Scientists Competition; and
 - provide financial support to business incubation of the successful winner's solution if it meets criteria relating to business driven R&I within the designated platforms of strategic importance.
- NSTF together with MCST and MEYE launch an annual Science, Technology Design and Mathematics National Competition directed at the secondary level of education in public, private and church schools.

Presently NSTF complements the education efforts of local primary, secondary, post-secondary and tertiary educational institutions through a number of projects. The aims of NSTF Science project is: "to generate awareness and interest amongst students at all education levels of the nation in the importance of science and scientific research to one's daily life and to experience and promote science out of the classroom through hands-on projects, exhibitions, experimentation, research and discussion from both a scientific and ethical perspective".

NSTF Science Week 2010

NSTF has been involved in science since in 1984 by selecting students who excelled in science at post-secondary level to participate in the London International Science Fortnight. The foundation has taken up the recommendations in the NSRI and has over the past years developed a Science Programme together with the Malta Chamber of Scientists and MCST to increase the interest of students in S&T, and encourage them to read for degrees in science and take up careers within this sphere.

The peak of all these programmes is the NSTF Science Week organised in collaboration with MCST and consists of: NSTF contest for young scientists, NSTF school contest for young scientists, NSTF Science art contest, and NSTF little scientists village. Students with the winning projects will then go on represent Malta at the EU Contest for Young Scientists in Lisbon, the Expo Science Europe in Moscow and the Belgian Science Expo.