Template for beneficiaries for 2018 Annual Report to feature Erasmus+ good practice projects

Key Action: Strategic Partnerships KA200 – Cooperation for innovation and exchange of good practices.

Sector: Strategic Partnerships addressing more than one field

Project Reference Number	2014-1-MT01-KA200-000327
Name of Sending Organisation (Applicant organisation)	Universita Ta Malta
Website of Sending Organisation (Applicant organisation)	www.um.edu.mt
Start and end date of project	01/09/2014 - 31/08/2017
Hosting Organisation/s	
Website/s of Hosting Organisation/s	
Countries represented in the project (apart from Malta)	United Kingdom Spain Ireland France Greece Belgium

Objectives of the project

The food chain comprises agricultural production, manufacturing, distribution, retail and consumption. The agro-food sector is not only one of the largest manufacturing sector in Europe but also has a direct impact on the (environmental) health and vitality of the population. Food security and energy sustainability worldwide faces increased challenges arising from the globalisation of food trade, intensive production systems and changing consumer preferences.

Predictive modelling and Quantitative (Microbial, Chemical) Risk Assessment plays a crucial part in food quality and safety around the globe, providing predictive tools which are used by the food industry, policy makers and managers to formulate and implement risk management policies and controls with the view to protecting human health. In addition, Life Cycle Assessment is required in order to guarantee that the environmental vector is also included in the portfolio.

The specific objectives of this strategic partnership (thematic area of Predictive Modelling and Quantitative Risk Assessment) were:

(i) to develop each participants capacity to design and generate informative experimental data,

(ii) to build skills in developing or selecting modelling structures appropriate to describe quantitatively chemical, microbiological and physical phenomena and develop capabilities for quantifying accurately the sources of stochasticity,

(iii) to make participants familiar with optimisation software and model simulation in research, that can be exploited for developing decision-making and quantitative risk assessment tools.

(Iv) to open participants minds to the holistic approach encompasses by LCA in order to guarantee that environmental impacts are also considered and that transfer of burdens among stages of the value chains do not occur.

(v) to expose participants to industrial environments and involve them with realistic problem based scenarios

(vi) to increase employability of the participants during the coming years

The main activities included theoretical lectures that were alternated with problem-based learning (PBL), student placements and dissemination activities. Theoretical lectures covered all the fundamentals and basic principles of predictive modelling. Additionally, PBL pedagogical tools were used in which students worked in groups to solve realistic multifaceted problems with the use of computer programming software. These problems included the construction of experimental designs, model development, regression analysis, sensitivity analysis and safety risk scenarios. Placements were accomplished for a number of students and external industrial, stakeholders and other participants participated in a dissemination event of a conference.

By the end of the programme students: (i) have attained a fundamental understanding of the substantial body of applied modelling, statistics and recent developments in the field of Predictive Modelling and Quantitative Risk Assessment of foods, (ii) have exercised personal responsibility and autonomous initiative in solving complex microbiological problems that are solved in a rigorous and professional approach, (iii) have engaged in critical dialogue and learned to criticise the broader implication of Applied Modelling approaches in Food Science through interactive teaching, (iv) have exploited available software packages and quantitative approaches for enriching current studies in the field in order to communicate results and innovations of research to peers, (v) were aware of the professional environment and (vi) have identified or been able to propose niche employability actions.

The cooperation in the strategic partnership programme resulted in establishing grounds for future knowledge transfer between participating institutions and facilitate the exchange of students for practical training in companies between the countries. Additionally, the multidisciplinary character of this strategic partnership provided an unprecedented opportunity for researchers to

communicate, collaborate and advance significantly beyond the current state-of-the-art supporting many pan European research projects as well as other international projects.

The project went also beyond its planned objectives with issuing a proceedings book for the Multiplier Event held in Syros, Greece in April 2017 as well as a book accompanying the electronic material developed in the area of Quantitative Tools for Sustainable Food and Energy in the food chain as part of Intellectual Output 3.

Target group
The target group of this strategic partnership was MSc or early stage PhD researchers working in the areas of public health, applied statistics, quantitative microbial/chemical risk assessment, food safety, process automation, food manufacturing. The programme aimed to promote an interactive participation, which stimulated frank and open discussions between young and experienced postgraduate researchers.

Short description of beneficiary institution
Lying at the cross-roads of the Mediterranean, UM has been, over its 400-year history, the hub for international academic exchange on the island. UM is the leading higher education institution in Malta and its structures are in line with the Bologna Process and the European Higher Education area.
The University seeks to carry out academic research and provide a vibrant higher education setting in the arts, sciences and the humanities as required for Malta's economic, social and cultural development. The courses at UM are designed to produce highly-qualified professionals in multiple disciplines. The UM alumni community is growing exponentially: well over 3,500 students graduate in various disciplines annually.
Today UM is composed of fourteen faculties, a number of interdisciplinary institutes and centres, three schools and a junior college. Besides the main campus, situated at Msida, there are three other campuses: Valletta, Marsaxlokk, Gozo.
The language of instruction is English.

Summary of results and impact

The advantage in organising this course on Predictive Modelling, Quantitative Risk Assessment and Life Cycle Analysis in Food Science and Bioscience was that all participants had the opportunity to get familiar with the latest developments in this domain through educational, training and dissemination activities. A new graduate course was also developed that will run in a form of an e-learning activity following the completion of the project. Please refer to http://www.um.edu.mt/healthsciences/projects/q-safe/e-learning
With the results of the strategic partnership programme, the participating institutions will be able to add the assimilated new technologies in their own educational programmes. By exchanging thoughts and experiences during the strategic partnership programme, new ideas in planning case studies and development of theoretical and practical learning programmes could grow.
The project also contributed to the United Nations Decade for Education of Sustainable Development in the frame of the UNESCO efforts to allow 'every human being to acquire the knowledge, skills, attitudes and values necessary to shape sustainable future'.

The desired impact at local, regional, European and/or International levels is described hereunder in relation to the different groups involved:
1. Students: the project enabled international students to attend a high-level course delivered by top Universities in Europe. They also had the
chance of acquired more hands-on experience by having two months' placements at the participating Institutions. Their participation and
presentation of their project outcomes to the final dissemination event permitted further visibility of their capabilities to the Industrial world.
The project reinforced the employability of the target group. Based on the alumni database all students are currently employed as researchers
finalising the PhD degrees or they work to public or private Institutions. Please refer to : http://www.um.edu.mt/healthsciences/projects/q-safe/alum
2. Universities: the generated educational material are available through the digital platform of the UoM and the creation of an e-learning
activity http://www.um.edu.mt/healthsciences/projects/q-safe/e-learning. Therefore, the partner Universities will have an increased visibility in
all the areas related to food security and sustainability within the higher education in and outside Europe. The project enabled the partner
Universities to develop their links with the professional world, to the benefit of their students.
3. Local and regional stakeholders and public authorities: stakeholders and authorities participated (especially during the last dissemination
event of the workshop/conference). This ensured a stronger liaise with the local/regional, international level policy makers (e.g., EFSA) and
thus facilitated the integration of the project results.
4. Industry: due to the direct contact between the different parties, international exchanges through other Erasmus + programmes will be
appropriate. For example that the good relations of the partner Institutions with food companies stimulated the practical training of more
students. Some students are currently hired by Industries (e.g., Unilever, refer to http://www.um.edu.mt/healthsciences/projects/q-safe/alum).
Staying in contact with the Food industry also facilitated the adjustment of the curriculum to the industrial needs and the latest developments
5. General EU level: The project brought an important added value at EU level, in particular in terms of contributing to a stronger involvement of HEIs in integrating regional plans as well as in offering new skills on strategic planning at local/regional level, valid both for the labour market and the

public authorities.

Any Tools/Products Developed
One of the major intellectual outputs was the development of the intensive course programme. This was prepared and revised twice during the running of the project. It include the production of selected work materials, IT tools (programming codes with application in predictive modelling, risk assessment, life cycle analysis), and the applied peer-learning methods (e.g., exercises) for the course. The other major output was the development of an e-learning course http://www.um.edu.mt/healthsciences/projects/q-safe/e-learning. This will stay active for the next 3 years for students that wish to follow it. Other intellectual output is the production of Proceedings from research activities that were developed among other from the participating students and were presented in the Multiplier event :
https://www.um.edu.mt/__data/assets/pdf_file/0010/319888/PROCEEDINGS.pdf.
An additional output that was not originally planned and materialised was the development of an education book in the area of Quantitative Tools for Sustainable Food and Energy in the food chain.

Specific theme e.g. employability, social exclusion, early school leaving, citizenship …
Priorities:
Developing partnerships between education and employment
Contributing to the modernization of Europe's higher education systems as outlined in the 2011 EU Modernisation Agenda.

Topics:
Energy and resources
Enterprise, industry and SMEs (incl. entrepreneurship)
ICT – new technologies-digital competences

Testimonials/positive comments from participants in final report
N/A

Together with this template, please include at least 2 good photographs