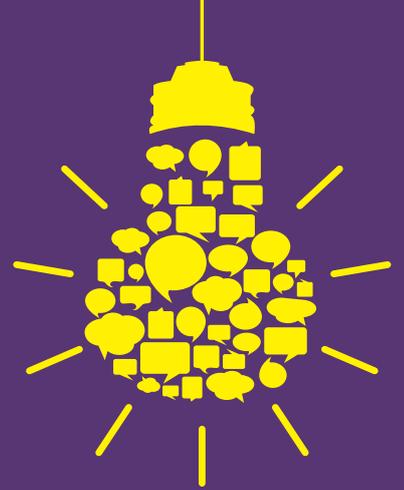


RUBICON

University College Dublin (UCD),
University of Ulster and Pintail Ltd
collaboration in FP7



Introduction

The FP7 funded RUBICON project that is co-ordinated by UCD, focused on creating a self-organising, learning and goal-oriented robotic ecology. The three year foundational science project began in 2011 and concluded in May 2014 with a demonstration of the working ecology in Bilbao.

In this case study Dr Mauro Dragone, who was the scientific co-ordinator for RUBICON, based in UCD as a research fellow, will share his experience of working on a FP7 project and describe how EU funding can help in the development of new skills and knowledge transfer and how North South collaboration can make the process easier and more successful.

About the project

www.fp7rubicon.eu

RUBICON – Robotic **U**BIquitous **C**ognitive **N**etwork

The RUBICON project involved the partners working towards the development of a smart environment, composed of simple devices that together can learn to accomplish complex tasks. This was completed by abandoning the traditional view of autonomous robotics, i.e. building a humanoid pre-programmed robot with no ability to develop beyond its current capabilities, and creating a receptive ecology where a robot ‘talks’ to other devices via sensors and actuators in order to learn, evolve and predict necessary tasks and changes to routine.

Dr Dragone explains: *“Our vision for RUBICON was that the ecology could be used in two settings; a hospital setting, where it could provide a supporting role, helping to carry out tasks, such as transporting medicines and foods and; in the home of an elderly person where it could adapt to the resident’s changing needs, completing tasks and supporting their independent living. Through its environment, RUBICON is able to identify, commission and fulfil tasks more effectively and efficiently.”*

The RUBICON project came to a close in May 2014 and, as Dr Dragone explains, the end result was an evolution of what was proposed in the original FP7 submission bid. “Science is living and breathing and an important element of this, which is at the very heart of RUBICON, is that as technology evolved during the course of our project, so must our ecological solution. We continued to learn and adapt RUBICON and will continue to do so.”



Acronym	RUBICON
Start	2011
End	May 2014
EU Grant Aid	€2.5million

Scientific Co-ordinator

Dr Mauro Dragone, UCD School of Computer Science & Informatics

Project Partners

University College, Dublin (UCD)
University of Ulster, (Coleraine)
Pintail Ltd, Ireland
Consiglio Nazionale Delle Ricerche, Italy
Università Di Pisa, Italy
Fondazione Stella Maris, Italy
Robotnik Automation SII, Spain
Fundación Tecnalia Research & Innovation, Spain
Örebro University, Sweden



Why engage in collaborative EU R&D and innovation projects?

"I knew that collaborative European projects could work extremely well in progressing foundation science with transformational applications in the real world and saw the FP7 European grant as an opportunity to secure funding for an ambitious robotics project.

"With so many intermixing project aspects, an EU-funded project was a suitable means by which to build a collaborative consortium to address the desired goals."

"With an overview of the RUBICON project in mind, I initially set about consortium building. I had worked with institutions previously within the wireless sensor network and robotics arena and had made excellent contacts so I directly secured the majority of key participants in the project with partner recommendations for leaders in the additional fields. "A multi-disciplinary approach was required to attempt to build the working ecology and those involved have expertise across many arenas, including robotics, multi-agent systems, novelty detection, dynamic planning, statistical and computational neuroscience methods, efficient component and data abstraction, robot/WSN middleware and robotic test-beds."

Benefits of North South collaboration in FP7

Dr Dragone explains, *"Leading experts in the varying disciplines were scattered right across Europe; however, two of the key players were based on the island of Ireland. This allowed for increased communication and direct benefits based on this close location and working relationship.*

"I was based in UCD co-ordinating and leading the project and we used the University's research expertise to interweave the contributions developed

by the other partners. I secured a fellow Ireland-based partner, Pintail Ltd. to look after the project administration, allowing me to focus on the scientific management of the project and with my support, the UCD researchers worked very closely with the RUBICON researchers from the Cognitive Robotics Research Team based in the Intelligent Systems Research Centre in the University of Ulster to bring the project vision to life.

"This North South element contributed to the success and progression of the RUBICON project, especially in disseminating its results to a wider audience.

"Logistically, being on the same island allowed us to move between each jurisdiction easily, transferring skills and knowledge without significant travel and time expenditure."

"It was also advantageous that we were the two partners who were able to collaborate to showcase a visual representation of our ecology simply. The University of Ulster's Intelligent Systems Research Centre is a state-of-the-art facility and the Cognitive Robotics Research Team are world leaders whose work addresses robot learning, robot vision, collaborative robotics, networked robotics, robotics as a science, tactile sensing and cumulative skills acquisition and adaption.

"To have this vital expertise so close at hand was extremely valuable."

"The North South element of RUBICON demonstrates that academia across Ireland are at the top of their game, creating and researching metamorphosing technologies and scientific advancements."

How can InterTradeIreland help?

Dr Dragone adds: *"European funding streams, such as the former FP7 and current Horizon 2020, really do offer excellent opportunities for academia and industry.*

"European projects are a chance to become involved in something that could change the face of the future."

"I had previously been co-principal in two other EU projects before I took the lead in putting together the RUBICON consortium and it is helpful to know that there are support systems out there.

"With an overview of academic and industry across the island of Ireland, bodies such as InterTradeIreland are able to guide those interested in securing EU funding in terms of advice, consortia building and finding the right partner.

"Having at least one partner in such a diverse project close at hand and on the same landmass can certainly facilitate collaborative success."

