



REPLANET NEWSLETTER

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Editorial

Welcome to the first Newsletter of the REPLANET Project.

If you are a company that wants to launch to the market an innovative product-service line, characterized by a large increase of the customization degree offered to your customers, through an open innovation strategy in order to utilize the inputs for the innovation process from a wide non-hierarchical network of partners, you will find some interesting models, guidelines and tools to support you in this project.



The current financial and economical crisis is greatly affecting medium-sized businesses in Europe. Companies expect a deterioration of market demand and plan reduce their investments and employ fewer staff. Today European companies are finding more difficulties to deliver consistently superior returns and outperform their competitors; sustaining success is more fragile than ever. In this context, companies need to continuously transform to meet new opportunities and challenges.

REPLANET defines strategic resilience as the ability to dynamically reinvent business models and strategies as circumstances change. It is not about responding to a one-time crisis, or just having a flexible supply chain, it is about continuously anticipating and adjusting to discontinuities that can permanently impair the value proposition of a core business. Strategic resilience refers, therefore, to a capacity for continuous reconstruction. It requires innovation with respect to those organizational



values, processes, and behaviours that systematically favour perpetuation over innovation, renewal being the natural consequence of an organization's innate strategic resilience.

On the other hand, in terms of operational resilience, a key issue faced by companies today is the challenge to deliver the products matching the needs of individual customers, in different geographical markets, at any time, and preferably individually customized, as cheaply and as quickly as possible. The mass customization strategy has been suggested as a way to address the challenge of providing individual products with mass production efficiency. It has been shown that both the efficiency and the effectiveness of innovation can be increased dramatically when innovation is not seen as a closed process conducted with one form, but as an open activity within a network of loosely-coupled actors, including the users of the product or service.

Concluding, the REPLANET's models and tools will focus at the strategic level on the integration of an open innovation network for product and manufacturing process design. At the operational level, the responsiveness to customised market demands shall be enabled by non-hierarchical global manufacturing networks for mass customization, enabling a real-time non-centralised decision making context. The project results will be contrasted, validated, and enhanced through empirical cases from different machinery and equipment enterprise networks which have multi-site and multi-nation manufacturing plants as well as customers distributed around the globe.

I hope that the REPLANET project arouses your interest and I invite you to visit the project site regularly to be aware of its results.

Raul Poler

REPLANET Project Coordinator.



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News

Kick of Meeting – Valencia

The 5th and 6th of May 2009 started the Resilient Multi-Plant Networks (REMPANET) project in Valencia (Spain) that will last for 36 months.

This project is funded by the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° NMP2-SL-2009-22933.

The project has as main goal to design methods, guidelines and tools for non hierarchical manufacturing networks where decisions are taken in a decentralized way in order to improve their competitiveness through increasing their capabilities for adapting to seen and unforeseen changes taking advantages over less adaptive competitors.

So, in the meeting, members of the 13 entities involved in the project from England (University of Liverpool, Aerogistics LTD and Newton Industrial Group), Germany (Rheinisch-Westfaelische Technische Hochschule Aachen, Festo AG & CO KG and Bimatec-Soraluce Frästechnologie), Italy (VL Idrodinamica SRL, Ghepi SRL and Centro di Ricerca e Innovazione Tecnologica SRL), Spain (Universidad Politécnica de Valencia, Ikerlan S. Coop. and Instituto Tecnológico de Informática) and Switzerland (Scuola Universtaria Professionale della Svizzera Italiana) participated in the different meetings that prepared the necessary conditions for the project realization.

At the same time, the REMPLANET portal was made available at: www.remplanet.eu both for project participants and interested public.





Aachen Workshop

The second meeting of the REPLANET project was held in Aachen (Germany) the 22nd and 23th of September 2009.

During these days the leaders of the different work packages explained and described the work already done in each one of them. Moreover, all the participants also discussed and agreed about the work to be done in the following months in order to achieve the goals and fulfil the original project schedule.

At the same time, two special meetings were organized, one for industrial partners and other for research and technological development partners, for increasing the knowledge among the members through member presentations.

Finally the Aachen Workshop finished with the Executive Board meeting, where subjects such as the definition of the activities for the proper execution of the project, the establishment of mechanisms to monitor the effective and efficient implementation of the project, and the determination of the goals and objectives of the project for the next period, were treated.



The EB members approved that the following REPLANET Workshop will be held in IKERLAN located in Mondragón (Spain) the 19th and 20th of January 2010. In such workshop, the REPLANET members will visit the facilities of BIMATEC-SORALUCE.





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RTD Partners

UPV - CIGIP

Polytechnic University of Valencia

The Polytechnic University of Valencia (UPV) is a public, dynamic and innovative institution that is dedicated to researching and teaching. The UPV maintains strong bonds with its social environment and a strong presence abroad.

The UPV is a Spanish Public University with 15 High Technical Schools, 58 degrees and 44 Masters. The teaching and research staff is 2.778, the administrative staff is 2.088 and the students are more than 38.000. In 2009 its budget was roughly 382 MEuro (54 MEuro for R+D Projects and contracts).

www.upv.es

Research Centre on Production Management and Engineering

The Research Centre on Production Management and Engineering (CIGIP) is at the leading edge of research on Enterprise Modelling, Enterprise Integration, Enterprise Interoperability, Virtual Enterprise, Extended Enterprise, Business Process Models, Supply Chain Management and Knowledge Management. The CIGIP is one of the 13 Research Centres of the Polytechnic University of Valencia.



CIGIP gathers more than 30 members including professors, associate professors and full researchers dedicated to teaching and research & development. From 1994 the CIGIP has participated in several European and Spanish Research Projects and several research & development contracts with regional industrial firms from different industrial sectors.

CIGIP is involved in transferring technology to companies and advanced postgraduate training. CIGIP has designed and implemented a series of products that offer solutions for the wide range of everyday problems that modern companies have to face and offers training for those who need to acquire new knowledge in the area of Production Management and Engineering for immediate application in solving new challenges in businesses and other organisations.

www.cigip.org

CIGIP REMPLANET Contribution

The CIGIP is the Coordinator of the REMPLANET Project. In regard to the research activities, the CIGIP offers its knowledge and core competences to develop optimization models for production planning and capacity management of global supply networks; to contribute to the design of the Simulation and Optimization DSS and to define the guidelines to perform what-if simulations; to implement and validate the REMPLANET Service Oriented Platform for Extended Business Process Management; to disseminate the project results through publication of technical articles in journals, conferences and workshops and to support the coordinating of the exploitation activities.



IKERLAN

IKERLAN – Technological Research Centre

IKERLAN (www.ikerlan.es) is a private non-profit Technological Research Centre in the north of Spain, with a vocation for public service. IKERLAN is a point of reference for **innovation** and **comprehensive product development** (mechatronic systems). IKERLAN works closely with companies to improve their competitiveness, through the application of technological knowledge to develop innovative products and new tools and methodologies for implementation in design and production processes. It has a staff of more than 200 qualified researchers and engineers, with experience in interdisciplinary work and capable of tackling complex problems.

From its creation 1974, IKERLAN has maintained close relations with companies from the machinery and capital goods, domestic appliance, electronics and computing, automotive and energy sectors; where IKERLAN's developments go until the materialisation of final products. As a centre of excellence in the transfer of technology, more than 800 R&D projects were completed so far in cooperation with companies developing new products and implementing customised systems in design and manufacturing processes.



What does the IKERLAN have to offer companies?

IKERLAN collaborates with companies in the radical renewal of their business processes, in particular, those relating to design and production, by steering them in accordance with the mass customization paradigm. It collaborates with companies in the definition of how an innovative product should be developed, how a competitive business area

should be organized and how business processes (processes that play a part in product life cycles: design (process management and use of technical data), order cycle production management models and processes under the extended enterprise concept via the Internet) can be improved. IKERLAN focuses on the development of innovative concepts that help to create and boost the ability to redesign their business model, especially small- and medium-sized industrial enterprises as regards the efficient management of the processes upon which product life cycles are based.

Working with IKERLAN provides great flexibility and the possibility to organize and systematize company innovation; to develop modular, sustainable platforms for extended products; to ensure the response of the supply chain and the production flow; to streamline and start the business processes of the sustainable company and the automation of business processes by means of customized software applications.

IKERLAN REMPLANET Contribution

In regard to the REMPLANET project, IKERLAN provides its expertise in three different knowledge areas: Design and Production Technologies [process re-engineering (design, technical offer, production, the supply chain and after sales service) and development of innovative methodologies



for the development and/or structuring of products/processes], Strategic Innovation [customization of the whole innovation management process: strategy, products, processes, organisational model] and Information Technologies [design, development and integration of computer applications and innovative tools covering all phases of the integrated product development process: innovation, supply, design, production, service, business, control and decision making]. The specific main competences related to REPLANET project are: Product-Process-Supply Network Structure Design and Alignment, Mass Customization Business Strategy and Simulation & Optimization Decision Support Systems.

RWTH

RWTH Aachen – Technology and Innovation Management Group (TIM)

RWTH Aachen (www.rwth.de), Germany, is the largest university of technology in Germany and one of the most renowned technical universities in Europe, with around 28000 students, more than the half of which in engineering. Teaching and research are characterized by an international, innovative, and interdisciplinary approach and a close cooperation with industry. The RWTH Technology & Innovation Management Group (www.tim.rwth-aachen.de) is part of RWTH's School of Business & Economics. The school has a focus on process innovation, value chain design and the development of global supply chain management systems. The Technology & Innovation Management Group at RWTH Aachen University is a European institution to study the economics and management of innovation and change. The group has a huge expertise in researching mass customization strategies and open innovation methods to integrate knowledge from users and solution providers into the development of customer - centric product and service designs.



TIM's main interests

The Technology and Innovation Management Group focuses on:

1. The acquisition and integration of knowledge on needs (users' preferences) and solutions (technical information) to reduce uncertainty in innovation. In this process, the integration of users and customers into the innovation process plays a central role → **Open innovation.**
2. The situational modelling and designing of innovation processes. At this, modelling and measuring the degree of innovativeness plays a central role of our research. Especially, we are interested in the management of extreme cases of discontinuous innovation → **continuous / incremental vs. Discontinuous / radical innovation.**
3. The formation of organizational frameworks and cultural contingencies which influence the result of the innovation process. At this, the creation and the effects of an particular innovation culture plays a central role → **culturing innovation.**
4. The macro-economic effects of knowledge production which lead to a **new form of regional division of work** in the generation of innovation. At this, "spill-over" and clustering effects play a central role → **innovation cluster management.**



Main competences related to the REMPLANET project

The TIM group will be able to deliver valuable input to the REMPLANET project in the fields of Mass Customization and Open Innovation/ User Innovation. The Technology & Innovation Management Group at RWTH Aachen University is one of the few research institutions with a dedicated research focus on mass customization. Focuses of the research are the strategic alignment of mass customization with cooperate strategy, the design of mass – customization – based business models, issues of customer behaviour, and the design of configuration toolkits. In the area of Open Innovation / User Innovation the TIM group conducts research on the role of external knowledge for the innovation process and the development of methods and tools to benefit from the creativity in the periphery of the firm.

University of Liverpool - EBSCM

The University of Liverpool – eBSCM

The University of Liverpool (www.liv.ac.uk) in the UK is a member of the Russell Group of universities, the UK's top 20 research-led universities. It is the original 'red brick University' with the term being inspired by the distinctive Victoria building. The University has around 21000 students and 4900 members of staff. The University of Liverpool is one of the UK's leading research institutions, with a world class research portfolio, and an annual turnover of £340 million, including £123 million for research.



The eBSCM group (e-Business and Supply Chain Management) is based in the University's Management School. It is one of the UK's premier e-Business research groups working on supply chain management and novel applications of e-Business and internet technologies to improve business competitiveness. The group embodies the University's vision and the School's strategy of utilising established and outstanding research strengths in manufacturing engineering and information systems to inform and develop the research portfolio of the School.

eBSCM's Main Interests

The research expertise of eBSCM is broad and extends to the qualitative, quantitative and technological aspects of operations and supply chain management. Specific competencies include organisational agility and responsiveness strategies, build-to-order supply chain design, network modelling and mapping, mass customisation and personalisation, supply chain network design, operations strategy, holistic supply chain performance measurement and lean thinking. eBSCM has worked with over 120 industrial collaborators over the past five years principally in the automotive, aerospace and food sectors. Key research sponsors include Jaguar, Ford, Westland Helicopters, Novartis and Princes Foods. Agility in SMEs is a particular competency of eBSCM. eBSCM is a UK centre of excellence for the use of integrating technology with supply chain practices and has SAP demonstrator accreditation. New research projects include supply chain initiatives to support traceability in the food sector.

Main Competencies Related to the REMPLANET Project

Specific competencies relevant to the REMPLANET project concern organisational agility and responsiveness strategies in SMEs, supply chain network design and information transparency-enhancing initiatives.

ICIMSI

ICIMSI – Institute CIM for Sustainable Innovation

Founded in 1992, ICIMSI (www.icimsi.ch) is part of the Innovative Technologies Department of the University of Applied Sciences of Southern Switzerland (DTI-SUPSI). Since 1998 ICIMSI has functioned as a venue for applied scientific computer applications and industrial technology to increase the innovation capabilities of local SMEs. The Institute collaborates with different networks of national and international centres of expertise committed to provide technological and sustainable solutions to SMEs. The ICIMSI is articulated in various research groups (mechanics and material technologies; software technology for automation; customisation and sustainability; production and logistics), which regroup the competences required to rapidly develop new products, improve assembly and manufacturing process, propose enhanced production management approaches, supporting the management of the entire product life cycle according to the three sustainability axes (economic, social, environmental).

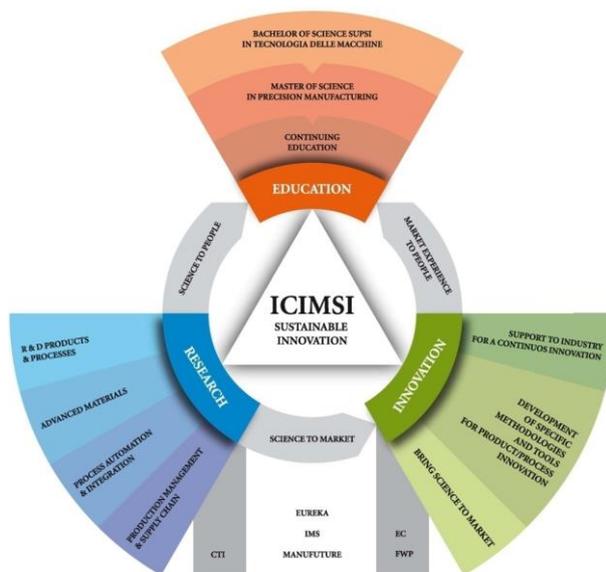
What does the ICIMSI have to offer companies?

ICIMSI contributes to increasing the innovation capability of local companies providing a coherent and integrated blend of education, applied research and innovation transfer activities. These education and research activities are focused on the development of new products, employing virtual prototyping techniques in parallel with the study of advanced materials, as well as on the design of new manufacturing systems and processes.



ICIMSI

Istituto CIM per la sostenibilità nell'innovazione



The great majority of research activities are undertaken in strong collaboration with local companies. This implies, from the beginning of the research project carry on, the application of a methodology aimed at transforming research results into market oriented commercial products. Furthermore, in order to avoid the classical up and down of short term innovation, ICIMSI promotes the use of a Sustainable Innovation approach, which covers the activities required for the development of new technological products and processes as well as the analysis of the impact of these innovations in terms of Sustainable Development along their whole life cycle. Finally, the knowledge acquired in research and innovation transfer activities are integrated into the various education

programs, where, thanks to the emphasis on practical application and hands-on experience, students are prepared for the professional practice and are exposed to a full range of engineering functions.



ICIMSI REPLANET Contribution

ICIMSI thanks to its experience in knowledge transfer and valorisation activities will manage the exploitation of the REPLANET results. The ICIMSI competences in Mass Customisation will be applied for the development of the Strategic Innovation model. ICIMSI will also provide expertise during the development and the use of the Decision Support System (DSS) for the analysis of the impact of various operational resilience and strategic resilience scenarios. ICIMSI competences concerning discrete event simulation modelling and about collaborative management practices in non-hierarchical manufacturing networks are particularly suitable for this task.

ITI

ITI – Research and Development Institute

The ITI -Instituto Tecnológico de Informática- (www.iti.upv.es) is a Technology Centre specialising in software technology Research, Development and Innovation. Created in 1994 as an initiative of the Institute for Small and Medium Sized Companies of the Valencia Region (IMPIVA), the Technical University of Valencia (UPV) and a group of companies from the IT sector, the ITI was set up as a non-profit organisation. Its mission is to improve and maintain the competitive positioning of companies in the IT sector by means of R&D and the provision of advanced services.

ITI is located within the Polytechnic University of Valencia Campus, where it has all its facilities, with an approximated surface of 1656 m². These facilities provide space for the research teams, as well as a technical education classroom, a seminar room library and laboratory



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with specific equipment for every group. Moreover, the Institute has hardware and software testing laboratories, prototype laboratories, training rooms, meeting rooms, etc. It has a team of 120 employees, with extensive experience in developing national and international research projects, in collaboration with companies and institutions.

What does the ITI have to offer companies?

The ITI offers companies the possibility of adding the technologies and capabilities developed in R&D projects to its products, processes or business. The technologies and services on offer are the result of a combination of advanced scientific knowledge and experience in collaboration with companies, generating and transferring the knowledge needed to industry and society evolution.

To carry out its mission, the ITI leads and takes part in: **a)** cooperative projects with companies in the sector developing basic and applied research projects, **b)** individual projects following ITI's research lines, **c)** technology spreading actions attending conferences and other forums of scientific and industrial knowledge, **d)** innovation management actions in companies, **e)** promoting ITI's partner products and **f)** supporting technological spin-offs. In order to fulfil its aims, it has a technological observatory and participates in technological platforms.

Working with the ITI provides great flexibility and the possibility of adapting its technologies and capabilities to the specific needs of each project, since all the technologies emerge from its own R&D.



ITI REPLANET Contribution

In regard to the REPLANET project, ITI provides its expertise in different IT areas as distributed systems and applications, interoperability, software oriented architectures and open source software. All this knowledge is oriented in the context of the project to the development of the Software Oriented Architecture for Extended Business Processes (SOA4EBPM) platform for supporting collaborative decision processes. Moreover, ITI also contributes to the project through its expertise in dissemination activities.

CRIT

CRIT Research™ - Centro di Ricerca e Innovazione Tecnologica

CRIT Research™ (www.crit-research.it) is a technology broker specialised in strategic management of innovation processes. The organisation is a totally private company, whose shareholders are first-class manufacturing companies from the Emilia Romagna Region, Italy. The aim of CRIT Research™ is to support enterprises in innovation and technology transfer by acting as a common ground for collaborative industrial research. In addition, CRIT acts as collective technological interface among industrial actors and Research Centres throughout the world.

CRIT Research™ applies techniques and methodologies of Open Innovation to enable a collaborative environment (Collaborative Innovation) allowing its members to share experiences, to exchange technologies and to develop joint innovation projects. Collaborative innovation is the think tank in which members of CRIT Research™ can imagine future applications and validate their feasibility. Collaborative innovation implements the [Coopetition](#) model, in which pre-competitive behaviours are enabled. For this reason, the access of new members is allowed according to previous approval of shareholders of CRIT Research™.



What does CRIT have to offer companies?

Expertise of CRIT Research™ is structured in services lines (Technology Brokerage, Collaborative innovation and Innovation management) and products (Mission Critical Information Analysis, technology transfer, Laboratories, Collaborative innovation and European Business development).

Technology brokerage. CRIT Research™ acts as broker between the requirements of companies and the information provided by technological and scientific sources, analysing and processing mission critical information on specific technology fields or key-players. Products in this area are: Technology Assessment; Technology scouting; Technology monitoring; R&D Project management; Intellectual property exploitation; Laboratory: LAPCOS (modelling and simulation); Laboratory: PatMOLE™ (text mining on patents portfolio)

Collaborative innovation. CRIT Research™ acts as knowledge facilitator, easing knowledge transfer between its industrial members, supporting technology transfer from research bodies to industrial actors and stimulating, integrating and coordinating joint activities to pursue common goals.



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Products are: Working tables; Seminars and conferences; Training; International brokerage; Endorsed suppliers network; Tecno-Tour.

Innovation Management. CRIT Research™ designs and implements advanced services for innovation and technology transfer in organisations (public and private). Products are: Local technology fostering, Technology transfer; Research sites planning and tutoring

CRIT REPLANET Contribution

CRIT Research™ will bring in REPLANET project its expertise in technology transfer projects. Methodologies to evaluate strategic planning in innovation process will ensure the consortium the proper implementation path of REPLANET solutions in pilots addressed. In addition, specific expertise in Open Innovation (even though at inter-enterprise level) will support R&D teams of REPLANET in better addressing specific needs of users and companies involved in the project.