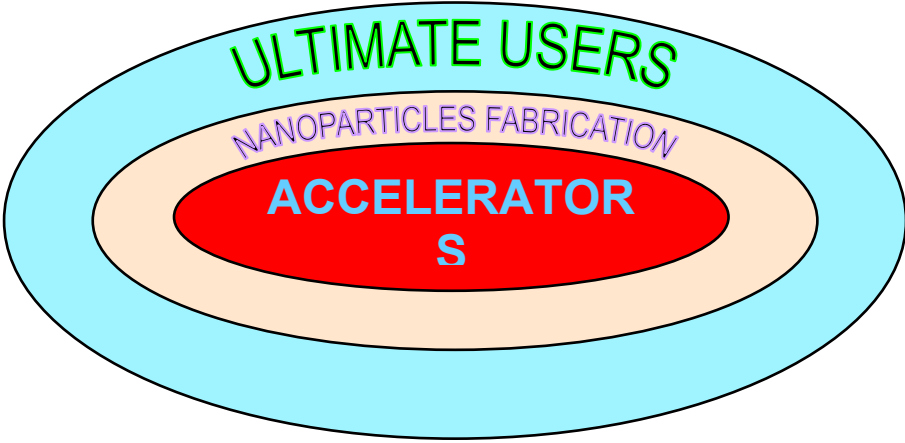


BR-FoF-01

→ Powerpoint presentation

BR-FoF-02

Contact person			
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Project information			
PPP <input type="checkbox"/> Factories of the Future			
Topic/Title	ACTNAP – ACTIVATED NANO PARTICLES FOR INDUSTRIES, MEDICINE AND ENVIRONMENT		
Project idea, objectives	<p>THEME:</p> <ul style="list-style-type: none"> * Objective: Monitoring/mapping of mixing progress and homogeneity * (a) Metal/Material heavy industries – Homogeneity of minute constituents in alloys, composites etc; * (b) Medicine – Diagnostics and Radiation-Therapy in Oncology and other conditions; * (c) Environment protection - Monitoring the distribution of hazardous waste. <p>CORE PERCEPTION:</p> <ul style="list-style-type: none"> * (a) Constructing first the "cold" core NPs; * (b) Application-driven coating onto NPs; * (c) Activate NPs via accelerators; <p>WHY NANO ?</p> <ul style="list-style-type: none"> * Minimize constitution changes (ppb range) * Maximize particle mixing resolution (< 0.1 mm) > 106 particles / cm3 => d < 100 nm. * A small ensemble of ACTNAP can serve a variety of industries and applications. <p>CONSORTIUM</p> 		
Partner search description Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	Material Industries, Medical Industries, Industry Organizations		
Partner 2	R&D Groups		

BR-FoF-03

Contact person			
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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	Adaptive Networked Small Factories of the Future		
Project idea, objectives	<p>The focus is on the large number of small and micro companies (less than 50 employees) supplying products and services in different manufacturing sectors. They normally belong to supply chains, industrial districts or business ecosystems and often collaborate on the basis of trusted bilateral agreements.</p> <p>However, and in spite of their central role in the European economic fabric, no significant progress is noted with respect to their capacity to overcome organisational problems and productivity limits caused by a poor offer of ICT solutions that could make them participate in dynamically adaptive networks.</p> <p>The problems to face are many and include: (a) integrated visibility of the network production, (b) distributed planning / scheduling of networked small factories, (c) management of shared resources, (d) territory-oriented optimisation of logistics and transports, (e) systemic feed-back on product life, (f) trust building in a multi-linguistic business environment.</p> <p>The solution relies on a number of conditions: (a) critical role of intermediaries to promote innovation and assure trust, (b) offer of solutions at the district / ecosystem scale, (c) entry level solution free of charge to reach soon a critical mass of users, (d) room for third parties to propose added-values solutions at the local scale, (e) semantics to overcome linguistic problems and extend the factory knowledge base, (f) regional incentive policies.</p> <p>This proposal is twofold: include this topic as relevant and very urgent aspect of the Factory of the Future initiative, and organise an RTD project to deploy at the largest scale an ICT solution specifically conceived for adaptive networked small factories. Both intentions are open to contributions from research, industry and public bodies.</p>		

BR-FoF-04 a

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	Intelligent, Modular Low Cost Robotic System For Reconfigurable Manufacturing of Customized Products		
Project idea, objectives	<p>Current industrial environment searches for new solutions which will be able to fulfil all required tasks with high level of safety in touch with human being and simultaneously they will offer cost effectiveness and high performance. The special area of the current production systems is handling and transportation of goods.</p> <p>The European Production System (EPS) will be focused on production of high value added and intelligent customized products. The EPSs will have to use modular robotic platforms (MRP) for handling and transportation of goods. Such platforms will be designed as the flexible, reconfigurable, low cost systems, based on intelligent solutions, self control and management, with the high level of safety.</p> <p>The single robotic system will use its independent intelligent control system. The entire control system of the MRP will coordinate the activities of single robotic systems with the use of intelligent methods, like Multi Agent Systems (MAS), Ant Colony Optimisation Algorithm (ACOA), etc..</p> <p>Objectives- to develop:</p> <ul style="list-style-type: none">• new robotic platform for low cost transportation and handling solutions• new control system for MRP based on Artificial Intelligence methods		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	Industrial companies in the relevant field		
Partner 2	University – robotic and control systems		

BR-FoF-04 b

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	Intelligent production cell for rubber tyres production		
Project idea, objectives	<p>Current production systems of rubber tyres for automotive are configured so that apply usually common technologies. Turbulent market environment requires customer focused products which brings many challenges for research and development of new production machines, equipment and technologies to the rubber industry. Those machines, equipment and technologies should be intelligent and have to create an integrated system.</p> <p>The objective of the project is to research and develop new intelligent, high performance production cells for rubber tyres production which will be part of an entire intelligent production system. The new production cells will be designed as the modular and standardized systems. Such production cells will be equipped with new intelligent control and optimisation systems, machines, robotic handling system, automated transportation system, etc.- assuring their high performance and safety.</p>		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	University – robotics, control systems, optimization theory		
Partner 2	Company – producer of tyres – responsibility for implementing and for the testing of prototypes		

BR-FoF-04 c

Contact person			
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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	Digital Factory Environment For SME		
Project idea, objectives	<p>Flexible Manufacturing System (FMS) is a fundamental principle for future production system. To be able produce at cost and time effective level in wide range product mix and short time innovation period is possible only by utilizing modern technologies and new concepts and methods being offer cutting time to market and optimize product and manufacturing process in the proposal phase of the project. Tool being supporting this way is concept of Digital Factory (DF). There are developed software tools for implementation of DF at current time. These tools are too complex, difficult to use, difficult to operate and too expensive for utilizing in SME companies environment. On the other hand, many of these companies are suppliers of automobile industry were being the idea of DF created and developed and should profit from utilizing of it.</p> <p>There is place to creating basic data platform and creating modular system of the most useful modules of DF concept for SME. It should cover the area like process designing, layout and workplace configuration with focusing on safety and ergonomic principles and dynamic material flow verification and optimization. The goal is to make interconnection between real production system and virtual production system to control it and effectively used of available resources.</p> <p>Objectives - to develop:</p> <ul style="list-style-type: none">• concept of new data platform for DF• modular SW tool for DF concept supporting SME companies		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	Industrial company in the engineering/automotive industry with digital factory tools experience		
Partner 2	SME: software developer		

BR-FoF-04 d

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	Virtual Design of Manufacturing Systems (VDMS)		
Project idea, objectives	<p>Currently, modern technologies and classical disciplines of industrial engineering covering technological design of production systems, obtain new dimension. Technologies and concepts such as digital factory, reverse engineering, 3D modeling, simulation of production and logistics systems, transmit problem solving layout design in the virtual environment.</p> <p>Interactive 3D layout design using the tools of virtual reality allows in phase technical Preparation of Production to shorten the start-up of new products at high elasticity and flexibility proposed solution. During the proposal of virtual Workstation by means virtual reality will be possible to create detailed models for the design and operation solutions and for testing multiple system configurations, to affect any system variables that are to affect output and to test individual results without limitation of existing production system. Virtual design manufacturing systems (VDMS) will be designed in concept of digital factory and will be solved process of "digitizing elements of the system - 3D layout - dynamic simulation of the layout system in 3D environment."</p> <p>Objectives - to develop:</p> <ul style="list-style-type: none">• Innovation module for interactive virtual layout design supporting team solution and top-down approach.• Virtual design manufacturing systems using tools and technologies in the integration of large-scale operations widely, id est design of a full system.		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	Industrial companies in the engineering/automotive industry		
Partner 2			

BR-FoF-05

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	FoF.NMP.2010-1 Plug-and-Produce components for adaptive control		
Project idea, objectives	<p>VTT has several year experiences about combining expertises of sound and vibration control to know-how of advanced materials. The research field covers active, adaptive and passive solutions</p> <p>The current idea is to develop add-on type adaptive vibration damping components with sophisticated control systems.</p> <p>The main focus is to develop general vibration control devices such as (semi-)active mass dampers, other on-line adjustable damping devices and adaptive structural members. Smart materials like magneto- or electrorheological elastomers will be utilized in adaptive elements. In addition to vibration attenuation, damping devices have to be matched and synchronised with manufacturing processes. The devices developed are not allowed disturb primary processes. Also additional, functionalities will be studied such as using devices for manufacturing process monitoring or condition monitoring of manufacturing machinery</p> <p>Interesting topics: performance and long-term durability of adaptive materials, control algorithms, dynamic simulations.</p> <p>Objective is to provide the state-of-art know-how for application engineers concerning to utilizing smart material based solution in controlling of machinery dynamics</p>		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	Research organisation/university <ul style="list-style-type: none">- application know-how- control systems		
Partner 2	Company/SME <ul style="list-style-type: none">- application know-how		

BR-FoF-06

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Project information			
PPP <input type="checkbox"/> Factories of the Future			
Topic/Title	Cognitive Manufacturing		
Project idea, objectives	<p>The <u>objective</u> of the project is to develop and test ambitious machine learning technologies targeted to improve the performance of complex industrial processes.</p> <p>Improving the performance in terms of time and resources, and reducing the consumption of energy and the emission of pollutant gases or wastes is an increasing need of many manufacturing plants, specially those operating large and complex processes with interdependent, heterogeneous and distributed process parts. The project results will have the potential to improve significantly the competitiveness of traditional manufacturing companies and help them comply with protective environmental regulations.</p>		
Partner search description			
Type = Company			
Partner 1	We are looking for large industrial partners, in the role of technology end-users with own manufacturing processes.		
Partner 2			

BR-FoF-07

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Project information			
PPP ■ Factories of the Future			
Topic/Title	COMPASS		
Project idea, objectives	<p>Modern production has shifted from build-to-order to assemble to order. Coupled to competitiveness, global markets and demands for shorter time-to-markets, assembly has become of vital importance. High-performance assembly is a core competitive factor for manufacturing industry in Sweden. However, it is difficult for companies to predict the type and range of products that are to be developed. Uncertainty relates increasingly to production volumes and lifespan reached by future products. Today highly automated assembly systems frequently have limited flexibility and are primarily dedicated to single products.</p> <p>Therefore, the main future challenge for assembly system development and operation is the system's adaptivity to changes. Competitiveness relies on rapid introduction of new products and variants with maintained productivity, quality, and cost efficiency. Therefore, adaptivity, robustness, and fault tolerance become necessary features for assembly systems subjected to highly variable operation conditions.</p> <p>This is the goal of COMPASS. By increasing adaptivity through self-organisation and self adaptability, lead-time will be minimized while maintaining product variant flexibility and system robustness, thus the ability to absorb rapid market requirement changes increases. This requires an understanding in how a product design affects the process characteristics, and how this is translatable to the modular process oriented component. By introducing a human agent in the system, both human-operated and automatic assembly operations can be performed, increasing the assembly system's capability to achieve a high level of adaptability.</p> <p>Collaboration partners in Sweden are KTH, Chalmers, Scania CV AB, DynaMate, Autoliv, Electrolux AB and Swerea IVF.</p>		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Company/SME /Research organisation/university	The goal is to develop a highly decentralised control architecture that enables self-organising, and self-diagnostic capability. Knowledge about the exploitation of system components with embedded controllers and the use of multi-agent control solutions.		
Company/SME /Research organisation/university	The goal is to develop advanced human supervisory control aspects desired knowledge about derivation of HMI design characteristics, develop prototype human interface devices, and integrate a structure for local knowledge management and enhancement.		

BR-FoF-08 a

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	CO-PROCESSING FOR INDUSTRIAL CO2 REDUCTION		
Project idea, objectives	<ul style="list-style-type: none">• New options to radically improve competitiveness and environmental performance of Resource and Energy Intensive Industries• Reducing CO2, reducing or recycling waste, including by developing the breakthrough notion of co-processing, creating innovative production equipment, processes and products• Co-processing, the recovery of energy and materials from waste• Removal of current barriers to application by design and demonstration of advanced preprocessing and conversion systems, establishing use of non-conventional sources for energy and materials and by appropriate tuning and modifications of the process.• Radical changes of best existing processes and products and technical improvements address also waste issues in solid, liquid and gaseous states, in two directions: prevention or reduction of their generation and alteration of remaining waste to offer again alternative Low Grade Resources		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	IMS regional partners: <ul style="list-style-type: none">• China• US		
Partner 2	Others: <ul style="list-style-type: none">• India• Brazil		

BR-FoF-08 b

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	Resource & Energy saving and GHG emission reduction in Resources Intensive Industries by alternative material & energy sources and innovative technology application.		
Project idea, objectives	<p>The Resource Intensive Industry (RII) contributes to about 35% of the global anthropogenic GHG emissions, making the RII an important sector for GHG emission mitigation strategies. GHG (CO₂ in particular) are emitted from the thermal treatment processes (calcinations, melting, sintering,...) from combustion of fuels as well as from power generation. Material & Energy reduction and emission mitigation options include:</p> <p>I. substituting raw materials by increasing the use of additives & wastes (ash, slag, cullet, scrap,...) requiring far less energy per tonne of product.</p> <p>II. Wastes as fuels (rubbers, waste oils, solvents, Industrial sludge), renewable energies (biomass, wind, solar), syngas produced by reforming of flue gas & combustion of MSW.</p> <p>III. Gas emission control and treatment by careful selection and control of substances entering the kilns and furnaces.</p> <p>IV. Monitoring procedure, control techniques and “closed-loop feedback control systems” in the thermal cycles .</p> <p>V. Improved or new energy efficient technologies by energy conservation and preheating. Since thermal plant are already thermodynamically very efficient the 21% reduction target for the 2020 can be achieved if five technological options are synergically developed.</p> <p>The 2020 target represent huge opportunity for RII to reduce the rate of energy consumption and CO₂ emission.</p>		
Partner search description			
Type = Company/SME/Research organisation/university			
+ desired skills/knowledge			
Partner 1			
Partner 2			

BR-FoF-08 c

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	ALTERNATIVE to CHROME and CADMIUM		
Project idea, objectives	<p>On one hand, the industry requires plating processes that are mandatory for the various components of aerospace, defence, electronic, etc..applications, but on the other hand Chrome and Cadmium, to name but a few, are gradually banned and have to be replaced by alternative treatments.</p> <p>Study of innovative techniques, such as electroplating in Ionic liquid, could lead to offering new environmentally acceptable coatings together with protecting both the workers in their operations, and retaining the technical qualities and characteristics of the processes, answering to the customers' request.</p> <p>Candidate coatings are Al and Cr but issued from Cr³ salts; also Ta can be deposited with high mechanical properties in nuclear, space and military applications.</p> <p>Other metals such as W, Nb, Ti can also be deposited thanks to the electrochemical range wider in IL than in aqueous solutions.</p>		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	IMS partners: <ul style="list-style-type: none">▪ USA manufacturers▪ Japanese, Korean chemical specialists, R&D centers, SMEs		
Partner 2	EU partners: <ul style="list-style-type: none">▪ Academics and R&D partners▪ End-users from industry▪ SMES for coating processes		

BR-FoF-09

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Project information			
Factories of the Future			
Topic/Title	FoF.NMP.2010-3: Intelligent, scalable, manufacturing platforms and equipment for components with micro- and nano-scale functional features		
Project idea, objectives	<p>Technical content/scope:</p> <ul style="list-style-type: none">➤ multipurpose micro- and nano-manufacturing platforms➤ integration of micro- and nano-features➤ manufacturing of customised products➤ cost-efficient and flexible in volume and product features➤ process & material characterisation➤ new in-line control solutions and sensor technologies➤ self-learning & auto-calibrating systems <p>BASF, The Chemical Company, is interested in contacts to project partners or to an already existing consortium.</p>		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	Academic partners with new scientific or technical approach Coordinator for the EU-project		
Partner 2	Additional partners along the value chain from academia to application		

BR-FoF-10

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	FoF.ICT.2010.10-1 'Green Manufacturing' for future Products		
Project idea, objectives	Objectives: Integrated development of future products and processes so as to maximise efficient use of energy and resources. Motivation for focus on Future Vehicles: The energy required to manufacture a vehicle assessed on lifecycle basis is close to 30% of the energy required to drive a vehicle in a lifetime of 150.000 km and is much more concentrated in time (few days vs. several years). Expected Results: <ul style="list-style-type: none">- Methodologies for the integrated development and optimization of products and processes- Development of innovative products and processes using lighter materials which are increasingly bio-based and/or recycled;- Life Cycle Assessment of products (eg. Vehicles) considering the CO2 emission reduction during each step of the life of the components		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1			
Partner 2			

BR-FoF-11 a

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Project information		
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars		
Topic/Title	TechnoGlobe Institutions	
Project idea, objectives	<p>The legal and institutional framework for industry defines regulations, standards and intellectual property rights, it determines how public and private knowledge and data resources are managed and can be acquired or transferred, and how conflicts surrounding it are resolved. Current crises indicate the weakness of those institutional arrangements. In many cases transparency, investment, productivity, knowledge fluidity and sustainability have been undermined, boom and bust cycles have been induced alongside expensive compliance, rapid erosion of IT investments, fragmented standards, de-facto monopolies, expensive lock-in, and environmental degradation.</p> <p>While addressing the institutional issues is politically sensitive and technically complex, recognition of their importance, decentralization, and technological developments prompted the emergence of new and promising approaches to improve the functioning of knowledge institutions for industry.</p> <p>This project will align those promising approaches, consolidate the enterprise architecture of the new industrial landscape, and test knowledge institutions and utilities that are fit for a competitive sustainable industry.</p>	
Partner search description		
Type = Company/SME/Research organisation/university + desired skills/knowledge		
Partner 1	At least one research organisation with extensive contacts with industry (in the areas of PLM), standard setting organisations, and patent organisation.	
Partner 2	Company with software tools for the development and publishing of distributed knowledge model repositories, such that these can be provided as dynamic service clouds.	

BR-FoF-11 b

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	FoF.NMP.2010-1 ADAPTIVE ASSEMBLY SYSTEM		
Project idea, objectives	<p>Objective: To develop robotized structures for assembly processes in order to achieve high flexibility and re-configurability without any negative compromise in precision and efficiency of assembly operations. The design of the new systems will be based on advanced perception and actuation capabilities, which will allow an high degree of adaptability to service requirements and environment changes.</p> <p>Main features: Modular and simplified architecture:</p> <ul style="list-style-type: none">- Functional modules approach- Ease of use- Distributed control- Standardization and openness <p>Sensing – actuating system:</p> <ul style="list-style-type: none">- Distributed sensing: Vision, sound, distance, contact, IR, UV, ...- Smart actuation: adaptive clamping, variable friction, ... <p>Adaptive control:</p> <ul style="list-style-type: none">- 100% quality monitoring- Closed loop logic- Self optimising- Safe human robot cooperation- Synthetic intelligence <p>Local power generation/transmission:</p> <ul style="list-style-type: none">- Harvesting, scavenging to support wireless sensor network- Remote trasmission of energy		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1			
Partner 2			

BR-FoF-12

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	FoF.ICT.2010.10-1: Smart Factories – ICT for agile and environmentally friendly manufacturing		
Project idea, objectives	<p>Advanced control system for real-time energy and quality management towards green manufacturing</p> <ul style="list-style-type: none"> • Limitations of current manufacturing systems: <ul style="list-style-type: none"> - Lack of robust, secure, and cost-effective communication networks, enabling real-time collection of critical information for quality monitoring and energy management; - Lack of cost-effective energy sensing methodologies that minimize intrusiveness, while providing required accuracy; - Lack of standards that promote interoperability. • Project Targets: <ul style="list-style-type: none"> - Development of robust, self-configuring, low cost <u>wireless sensor networks</u> for advanced energy management; - Development of optimised control strategies of production equipment, with self-adaptive capabilities of process parameters, aiming at reducing overall energy consumption; - On-line quality control; - Predictive maintenance. 		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	Centro Ricerche Fiat		
Partner 2	End Users (Fiat OEMs, other manufacturers)		
Partner 3	Builders of machine tools and manufacturing lines		
Partner 4	Companies: Developers of Control systems and SW, including interfaces management to existing equipment		
Partner 5	Universities (Methods, SW and HW development)		
Partner 6	Industrial Research Institutes		
Partner 7	SMEs (Electronic HW suppliers)		

BR-FoF-13

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	EFFICIENT LOW TEMPERATURE HEAT UTILIZATION		
Project idea, objectives	<p>Motivation: Low temperature waste heat (< 100°C) is available in significant amounts from industries avoiding condensation in their exhaust gas and currently remains largely unused. Waste heat recovery for temperature levels above 250°C is state of the art while the recovery of low temperature heat is not as advanced and much more challenging. The efficient recovery of waste heat on this temperature level represents an environmental and economic opportunity for both producers and users. Technology in vision will enable access to a number of low temperature heat sources such as industrial exhaust gas, thermal solar, geothermal or air conditioning cooler heat.</p> <p>Objective: The project will address systems and technologies to recover energy from low temperature waste heat to provide services to communities, residential and industrial users. Expected results include a systematic analysis from heat source to application, the development of highly efficient technologies (e.g. ORC based on supercritical or trilateral flash cycles, heat pumps, cooling, exhaust gas condensation) and their demonstration.</p> <p>Consortium: The consortium will reflect the steps of energy flow from low temperature heat source via conversion technology to application. It is in the composition phase and open to further partners.</p> <p>Holcim R&D interest: Belonging to the energy intensive industries, Holcim has a genuine interest to recover and use low temperature waste heat.</p> <p>Holcim is one of the world's leading suppliers of cement and aggregates (crushed stone, gravel and sand), as well as further activities such as ready-mix concrete and asphalt including services. The Group holds majority and minority interests in more than 70 countries on all continents.</p>		
Partner search description			
Partner 1	Company and/or SME with experience and R&D interest in advanced ORC, heat pumps, cooling, or thermal power generation technologies (e.g. solar thermal, biomass, geothermal, conventional).		
Partner 2	Company and/or SME with interest in application of products from low temperature waste heat recovery such as electricity, heating or cooling.		
Partner 3	University and/or research organisation with competence (modelling and application) in thermodynamic cycles and efficient use of energy.		

BR-FoF-14

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	FoF-NMP-2010-2 Supply chain approaches for small series industrial production / Configure to Order Supply Chain		
Project idea, objectives	<p>To date research has demonstrated that specific supply chain designs are needed to achieve the flexibility and efficiency as simultaneous goals, a requirement that is becoming more and more common in multiple businesses.</p> <p>The problem of supply chain design for personalization and flexibility has been addressed from many different perspectives in an isolated fashion: supply chain structure, product structure and its relation with supply chain configuration and operation, information systems for supply chain integration under requisite flexibility. A further problem largely ignored in past research is the integration of customers and final users in innovations that have to be later delivered by the supply chain.</p> <p>This project aims to fill these gaps by developing an integrative approach to the design of configure-to-order supply chains, and approach that integrates such aspects as equipment, ICT; supply chain configuration to create blueprints for the flexible supply chain. Particular care will be given to the integration of the logic of product configuration in the supply chain operation, integrating past research on product configuration and supply chain design for flexibility.</p> <p>This project idea is being promoted by Zaragoza Logistics Center (ZLC) (www.zlc.edu.es). ZLC is a research institute established by the Government of Aragón in Spain in partnership with the Massachusetts Institute of Technology and the University of Zaragoza. The mission is to create in Zaragoza an international center of excellence for education and research in logistics and supply chain management that actively engages with industry and the public sector to develop and disseminate knowledge.</p> <p>ZLC runs the MIT-Zaragoza International Logistics Program (www.mit.edu/zlc). The MIT-Zaragoza International Logistics Program is a unique research and education partnership that brings together the supply chain interests of academia, industry and government – all linked to the development of the largest logistics park in Europe.</p> <p>ZLC faculty expertise in this area includes topics such as mass customization, concurrent product-process-supply chain design and organization design for efficient product configuration, supply chain relationships, collaborative learning, relational innovation, and project management. Previous work has been published in top Journals and books such as “Information Management for Mass Customization – Connecting Customer, Front-End and Back-End for Fast and Efficient Personalization”. On top of that, issues such as inter-organizational learning aiding companies in improving their supply chain relational performance are also addressed through empirical.</p>		
Partner search description Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	We are looking for a coordinator of this proposal.		
Partner 2	We are looking for additional industrial partners, including SMEs.		

BR-FoF-15

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	<p align="center">COOPERATION PROGRAMME: PPP1-NMP-2010-2 Supply chain approaches for small series industrial production (Deadline: 04/11/2009)</p> <p align="center">“VIPROCHAIN” - VIRTUAL PROTOTYPING FOR SMES PRODUCTION CHAINS.</p>		
Project idea, objectives	<p>At the moment, these tools are extremely expensive although they have a potential use for SMEs that can be a key factor in their short-term manufacturing process development. Thus, the main goal of this project is to develop a framework (methodologies, models and tools) that allows SME to:</p> <ol style="list-style-type: none"> 1. Create products faster and cheaper in order to stay competitive. 2. Cut manufacturing cost. 3. Reduce the time to market period. 4. Develop a collaboration relationship among different SME in the same supply chain. <p>To achieve that goal, the following work packages are defined:</p> <p>WP0: Project Management</p> <p>WP1: Technology Roadmap</p> <ul style="list-style-type: none"> o T 1.1 State of the art of related technologies o T 1.2 Definition of tool to be used / created o T 1.3 Definition of collaborative relationships between different SME in the same supply chain. <p>WP2: Modelisation and Requirements</p> <ul style="list-style-type: none"> o T 2.1 Methodology for logistic modelisation o T 2.2 Modelisation. o T 2.3 System requirements and testing plan <p>WP3: Architecture definition and development</p> <ul style="list-style-type: none"> o T 3.1 Framework definition o T 3.2 Services for Product Process Design o T 3.3 Services for Manufacturing Process Design. o T 3.4 Services for Logistics Process Design. o T 3.4 Integration of Services. <p>WP4: Test- Pilot installation and Evaluation</p> <ul style="list-style-type: none"> o T4.1 Definition of Final Demonstration and Test Cases. o T4.2 Definition of Performance Measures for Test Cases. o T 4.3 Test Cases Implementation o T 4.4 Test Cases Evaluation and Report <p>WP5: Dissemination and Exploitation Actions</p>		
Partner search description Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	Companies, especially SMEs		
Partner 2	R&D partners (research centres related to the topic)		

BR-FoF-16 a

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	Plug-and-produce components for adaptive control		
Project idea, objectives	We offer a partnership for consortium of partners in main topic a) Development of: Intelligent components for active adaptive actuators and new drive concepts Theses for the aims and goals of the project: -Powerful sensory-actuator system -high precision and self-optimizing units -Plug & Play drive module b) Implementation of: Production of prototypes and repeated component production or implementation of newly-developed activities (active, self-optimizing portable plug-and produce components for a new generation of adaptive production systems)		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	<ul style="list-style-type: none">- Partner for Integrated Servo Motion Package – ISMP- Research organisation/university- Desired skills/knowledge –cognitive & adaptive systems, software for Plug-and-Play		
Partner 2	<ul style="list-style-type: none">- Partner for implementation of the intelligent driving modules in motion platforms for monitoring and visual systems, mobile positioning platforms for service robotics and security robotics- Company producer & system integrator;		

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Project information			
PPP <input checked="" type="checkbox"/> <input type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	Process automation for sustainable manufacturing		
Project idea, objectives	We offer a partnership for consortium of partners in main topic a) Development of: Reconfigurable and multipurpose positioning and manipulation modules for new shop floor-based platforms; a sensor network for process observation b) Implementation of: A flexible production system for the machining of rotary parts with very precise bearing tracks, leads and teething; a flexible assembly system for bearing and gearing mechanisms		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	Lead partner and consortium for development in "Process automation for sustainable manufacturing"& develop a sensor network for process observation		
Partner 2			

BR-FoF-16 c

Contact person			
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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	Robotics- enabled production process		
Project idea, objectives	We offer a partnership for consortium of partners in main topic a) Development of: Integrated drive modules and actuators for robotic equipment and systems visual and monitoring systems for robotic systems for packaging and logistics mobile platforms for robotic systems for logistics and SME b) Implementation of: Drive modules and effector production for robotic systems visual and monitoring module production for robotized workplaces mobile platform production		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	Lead partner and consortium for development & implementation in "Robotics-enabled production process"		
Partner 2			

BR-FoF-17

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	Energy-aware production planning and control		
Project idea, objectives	<p>Manufacturing facilities have low energy awareness; they focus instead on producing quickly and inexpensively. Modelling and optimization of energy costs can lead to improved manufacturing resource utilization.</p> <p>Objectives:</p> <p>Facility-wide Energy Transparency and Awareness</p> <ul style="list-style-type: none"> • Techniques to generate library of energy profiles for different classes of production equipment. • Link maintenance activities to equipment and process energy levels. • Tool for energy flow visualization. <p>Decision Support Tools</p> <ul style="list-style-type: none"> • Energy-aware production planning. • Energy-based condition monitoring. • Energy-based maintenance planning. 		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	University/Research Organisation <ul style="list-style-type: none"> • Data-driven or physical modelling of the energy profiles of manufacturing equipment. • Production planning and control. • Maintenance planning and scheduling. 		
Partner 2	Company <ul style="list-style-type: none"> • Development of manufacturing execution systems • Development of production control software 		

BR-FoF-18

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	Learning by TransFair – New Qualification for the Factory of the Future		
Project idea, objectives	<p>More Qualifications in the working-process are needed to adapt to global competitive pressures by increasing the technological base. In Germany many concepts are proven in projects together with industrial companies, but in practice of the qualification integrating by learning at work for the management and the workers it isn't accepted. GOM means, that companies have to go new ways in teaching and training learning outcomes.</p> <p>Little is known about the forms, which promote this integration. MTM in Germany, a great international education-company in Industrial-Engineering and Process-Management. With their partners, they wanted to develop new ways in training workers and management near their working processes. New curriculum frameworks are needed. Trainer and instructors are IE-Experts in the companies, who are also members of MTM or other IE-organisations. Learning at the workplace should be normal in the factory of the future.</p> <p>Partner are the</p> <ul style="list-style-type: none"> • GOM Company for Organization- and Media-Structure, Aachen • German MTM Association, Hamburg • Ifaa Institute for Advanced Industrial-Engineering, Dusseldorf • IGM German Metalworkers' Union, Frankfurt <p>We want to establish this new way of learning the technics of industrial engineering and workplace design in factories by training the IE-Experts in the factories. Many models and modules for learning at work are tested.</p> <p>The Partners will develop a new service offering portfolio for its education and coaching by the interactive learning the basics of industrial engineering, ergonomics, workplace design, scientific management and lean production technics etc. in special learning-modules taught at work by experts with certification.</p>		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	Company or Research-Organisations for education industrial- and production-engineering who train and develop this forms.		

BR-FoF-19

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	Intelligent Open Flexible Manufacturing Cell		
Project idea, objectives	<p>The main objective of this project is to increase the flexibility, productivity, and safety of automated manufacturing cells in order to improve the competitiveness and reduce the cost and time of reconfiguration to produce new products. A feasible technical approach to achieve these goals is to include the latest state of the art in intelligent monitoring and robotic adaptive manipulation systems. In particular, two of the focuses of the project are: (i) the elimination of safety fences, and (ii) the development of a variable geometry robotic manipulator.</p> <p>The elimination of the fencing will allow for a greater flexibility in case the cell needs to be rearranged to produce new products. Fencing typically is expensive and takes a lot of time to setup. Therefore, the elimination of the fencing will also reduce the cost and time required to rearrange the cell to new production conditions. Nevertheless, this improved flexible capability cannot reduce the safety level of the cell, therefore, systems must be smart enough to detect the presence of human operators and identify, avoid, and prevent risk situations for the production and human life. To this end, the project includes smart monitoring and prevention artificial vision systems, laser controlled safety barriers, and variable geometry manipulation systems. The integration of these technologies shall provide a higher degree of flexibility and a capability of the cell to auto-adapt and self-calibrate to changing manufacturing conditions and components. The systems must be interchangeable across different cells and be able to adjust to the proper manufacturing operation according to their current location within the manufacturing line (plug-and-produce).</p> <p>The project also aims to develop systems with a reduced need of supervision and human intervention. The main idea is to build intelligence into these systems to reduce the time of repair, adjustment and calibration so that a system can perform these operations by itself.</p> <p>The project includes the comparison and validation of the new cell technology with a current production cell for the automotive industry in order to assess the increase in productivity, improved safety and flexibility. This comparison is crucial to show the benefits of the new manufacturing technology.</p>		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	RTD/SME Robotics, systems control, intelligent systems, environment monitoring, software		
Partner 2	SME/LARGE Logistics, production technologies, engineering		

BR-FoF-20

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input type="checkbox"/> Green Cars			
Topic/Title	Factory of the future: Hethel Science and Technology Park		
Project idea, objectives	<p>Hethel Engineering Centre, the enterprise hub focussing on skills, enterprise and innovation within a clean technology context bringing together a consortium:-</p> <ul style="list-style-type: none"> • Group Lotus PLC • Cluster of Automotive businesses • Norwich Research Park, inc. UEA and other Engineering Universities. • Relevant Public sector <p>To deliver a third generation science and technology park that will be built using the latest technologies.</p> <p>This technology park will seek to build on it's significant expertise to become a world class research intensive cluster for low-carbon vehicle development</p>		
Partner search description			
Type = Company/SME/Research organisation/university + desired skills/knowledge			
Partner 1	Other Science and technology parks ideally located within low-carbon vehicle clusters		
Partner 2	Research technology development and innovation organisations including Universities seeking to share knowledge and best practice in factories of the future.		

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IESD

Factories of the Future
Ideas for brokerage and project activities

Marjan Sarshar
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Institute of Energy and Sustainable Development (IESD) is a research institute in De Montfort University (DMU) in the UK. The Institute's research addresses underlying knowledge, techniques and technology necessary to achieve more energy-efficient and sustainable lifestyles in the built environment.

IESD has 25 academic staff, 35 PhD students and two MSc courses. The first MSc course is in Climate Change and Sustainable Development. The second is in Energy and Sustainable Building Design. It aims to equip engineers and architects with the skills necessary to design low energy buildings. A third MSc which will be launched in 2010 is titled Green Factories and will be addressing greening the manufacturing industry.

IESD areas of research include:

- Low- and zero-carbon energy technologies (LZCTs): development of energy efficiency techniques and building-integrated technologies, both for residential and manufacturing buildings
- Low-energy buildings: practice-based research to deploy and evaluate new techniques in innovative buildings (including manufacturing)
- Urban energy management: city-scale carbon emissions measurement and management tools, including consideration of carbon trading schemes
- People and climate change: communication of climate change awareness and drivers of individual action
- Simulation systems: development of models, simulations systems, analysis methods, building control strategies and data collection techniques to underpin the above research areas.

Project Ideas

The IESD has world class expertise in the measurement of energy consumption in industrial facilities. In a discussion with Airbus it was confirmed that energy consumption is rarely if ever measured at the device level, meaning that it is difficult for energy managers to target improvements effectively. For example, how does the energy manager know

that a fan on a chiller unit in the roof space is consuming more power than expected unless it trips a circuit breaker? There are many examples of devices in factories that are left switched on when not needed or that run inefficiently due to age, poor maintenance or poor specification. The carbon trust claim that most wastage is from inefficient induction motors and leakage of compressed air - i.e. many small wastes that are harder to monitor than a small number of large wastes.

The collection and presentation of energy data to effect behavior change is a key skill that we could bring to an EU consortium in the Smart Factories area:

- One idea would be to be able to use a graphical display of energy consumption to drill down to the device level to make better analyses of opportunities for savings.
- Another idea would be the collection of data from every energy consuming device analysis of this data together with the expected consumption based on historical data and a knowledge of the planned schedule of asset use, and reporting excessive energy consumption by exception so that waste is spotted and reported early. Report could be short text message to mobile phone or similar.

Other areas in which IESD can contribute to the Smart Factories area are:

- Forensic monitoring
- Temperature sensing
- Sensor fusion

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iProd

Integrated management of product heterogeneous data

A reduction of development times for new products, an improvement in productivity and quality together with a reduction of costs are key objectives for company competitiveness. These objectives are achieved through three fundamental elements: corporate strategy, processes optimisation and computer support technologies. Data and knowledge management technologies are of industrial strategic importance for industrial innovation, provided they are integrated in the product development process, in the organisational structure, and can be flexibly adapted to company evolution.

As a matter of fact, more than 50% of product development costs are still currently related to experimentation (vehicle experimentation, bench tests, prototype construction, laboratories, suppliers). This can be overcome by the efficient use of information lifecycle, by the large adoption of virtual testing and by the inter-functional management of related data, thus becoming a strategic advantage for the innovation race.

This especially holds for manufacturing companies, where the Product Development Process (PDP) requires the efficient management of huge amounts of data from different sources and their integration in the subprocesses that compose the product chain, from target setting to product design, to experimentation management (physical and virtual) and to product delivery. This PDP approach is an essential driver for continuous improvement, for customer satisfaction and for quality achievement in modern companies.

However, although this process has a critical role in industry, it is also the less formalised one. This is mainly related to the complexity of the problems that it addresses and the amount of heterogeneous information, inter-functionality and know-how management involved.

Present ICT solutions separately address parts of product Development (CAD and PDM for design data, legacy systems for physical testing, virtual tools for virtual analysis), but an integrated approach that includes data and services required for the whole Product development process is not yet existing.

This project intends to address all these needs by developing a flexible and service oriented software platform that, in terms of the quantity and quality of the know-how managed, will be the backbone of the computer systems associated with new product development.

This platform will impact the product development process in order to:

- 1) **Reduce** drastically product development costs by means of an optimized testing process with a higher and more intelligent use and integration of virtual testing models
- 2) **Support** knowledge and competencies extraction, structuring and sharing also with suppliers
- 3) **Make** decisions more reliable by means of structured information and indicators along product development activities
- 4) **Strengthen** the supplier network management and integration by means of result and performance monitoring
- 5) **Improve** focus of new product development with a fast and structured management of competitor and market analysis data

This new engineering concept will generate innovative "flexible process configurations on demand" combining the latest technologies to each "component" requirements and incorporating standardized technical, environment and economic parameters in the

decision-making process. To achieve these goals, the framework will rely on knowledge management (KM), knowledge based engineering (KBE) and process integration and automation technologies. In particular, the following modules will be implemented:

- **A distributed Knowledge Base, where relevant product and process knowledge for product design can be captured and formalized by means of a dedicated Knowledge Management tool. In particular, the KB will contain:**
 - customer expectations, classified and structured on a flexible performance tree (PT);
 - subjective objectives (*customer expectations*) and a relative definition of technical objectives (*target setting*);
 - a link between subjective objectives and technical objectives (*target deployment*) at the product level (*product technical specification*) and the sub-system level;
 - knowledge about physical tests on the product/systems/components as defined for the product structure (standard functional structure)
 - knowledge about virtual testing plans and support to testing execution, parameters settings and result management;
 - knowledge needed for the integration of tests results with CAD design loops
- **A reasoning engine which will compose data and knowledge to achieve the following functions:**
 - Design new products according to customer needs
 - Plan and balance physical and virtual testing
 - Support virtual testing and CAD design loops by means of a decision support tool
 - release of the test plan and dispatch to testing organisations for the generation of results;
 - monitoring of test plan up until final approval and progress indicator support.
 - A Knowledge Based Engineering (KBE) application able to automate the various product design tasks starting from the CAD definition of the components.
- **A software integration framework to link the KB and reasoning engine with the various analysis tools into one distributed and seamless design, analysis and optimization process in order to**
 - allow a number of concepts and customized variants to be quickly elaborated and evaluated in terms of hours or days instead of weeks or months
 - Increase reliability of the evaluation and the success rate of the product development process
 - Include more concepts and more aspects (toolings design, material processing, cost, environmental impact, etc.) in the evaluation



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BR-FoF-22

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Project information			
PPP <input checked="" type="checkbox"/> Factories of the Future <input type="checkbox"/> Energy-efficient Buildings <input checked="" type="checkbox"/> Green Cars			
Topic/Title	<p>DEVELOPING and MANAGING the ELV (END-of-LIFE) DISMANTLING/REUSE TECHNOLOGIES for TRUCKS, COACHES, AGRICULTURAL VEHICLES for economic RECYCLING and for ecologic, SUSTAINABLE ENVIRONMENTAL PROTECTION and for hundreds of NEW JOBS around ALL REGIONS in Europe</p> <p>Addressing GC-NMP-2010-1- ..technologies and processes for sustainable automotive... applications,</p> <p>Addressing FoF-NMP-2010-2 .. Supply chain approaches for small series industrial processes</p> <p>Addressing FoF-ICT-2010-1 SMART Factories, ICT for agile and environmentally friendly manufacturing - ICT</p>		
Project idea, objectives	<p>There are directives and rules to manage the large number of personal car ELVs (M1,N1), but similar regulations and applicable technologies are MISSING for larger ELVs, like trucks, coaches, agricultural machines, etc. Without finding an environmentally and economically friendly solutions for the missing technologies, the increasing number of badly dismantled large ELV-s will create a disaster in the environment.</p> <p>The topic of EXTENDING the ELV TECHNOLOGIES and methodologies to involve trucks, coaches (busses) AND industrial/agricultural (transport) machines, like tractors, bulldozers, rollers, and further large mechanical structures, cranes, etc.. As far as we know it, presently the disassembly and recycling and reuse of these vehicles are NOT TREATED by directives neither by law nor by rules, but the environmental effects of dismantling a single truck is worth a dozen of personal car ELV's environmental risk. (e.g. 15+ liters of cooling liquid in the air-conditioners, 30+ liters of motor-oil, etc.)</p> <p>The R&D project could bring technological solutions for handling + management of such large ELVs.</p> <p>THEY DO NEED personal involvement, giving hundreds of new jobs, THEY DO NEED HIGH-TECH ICT solutions, e.g. adopting+ reuse of the successful 6th FW- E-MULT project, with many more advanced ICT applications, involving interactive multimedia support, etc.</p> <p>THEY DO NEED NEW networked SME management solutions,</p>		

	<p>THEY DO NEED the development of NEW EU STANDARDS, THEY DO NEED a set proven technological elements on phases of disassembly. THEY DO NEED technology research for the BETTER separation of secondary raw materials, (post-shredding technologies), THEY DO NEED a harmonized, EU standard to monitor and enable the documentation of the reuse/recycling ratio of the ELV-s, THEY DO NEED an EU-wide harmonized educational support, based on e-learning and accredited knowledge centres, THEY DO NEED a shared knowledge support on the individual technics needed for each large ELV's dismantling process, THEY DO NEED such solutions ALL around EU , and would equally benefit the new members states together with the older EU member states.</p> <p>and many more.</p>
<p>Partner search description Type = Company/SME/Research organisation/university + desired skills/knowledge</p>	
<p>Partner 1</p>	<p>INNOVATIVE SMEs and research-oriented industrial partners for topics in :</p> <ul style="list-style-type: none"> * POST-SHREDDING separation technologies, * robotized disassembly technologies, * intelligent sensor applications <p>.....* Computer Aided Design strategies for disassembly</p>
<p>Partner 2</p>	<p>Large truck / coach , etc., factories that will face the responsibility of addressing product-change (enhancement) for recycling</p> <p>...</p> <p>Industrial Associations for SME-s related to recycling/reuse</p>