MANUFUTURE-EU

European TOOLING Platform

Vision & Goals

Proposed by:

MANUFUTURE-PT

January 2008

1 – EDITORIAL

MANUFUTURE Technology Platform (http://www.manufuture.org) was created with the support of the European Commission, involving European Companies, Universities, Research Centers and public decision bodies, to support the development and competitiveness of Manufacturing in Europe.

MANUFUTURE MISSION is to propose, *develop and implement a strategy based on Research and Innovation, capable of speeding up the rate of industrial transformation to high-added-value products, processes and services, securing high-skilled employment and gaining a major share of the world Manufacturing output in the future knowledge-driven economy.*

The main ROLE of ***MANUFUTURE*** *is to* govern research, technological development and innovation (RTDI) efforts aimed at the transformation of the European manufacturing industry at two levels:

- Policy level aimed at the continuous development of the MANU*FUTURE* vision and the promotion of the Lisbon objectives;
- Operational level using a technological approach capable of exploiting all possible synergies arising from the converging nature of science and technologies.

The technological approach should address common problems or bottlenecks faced by the several sectorial platforms.

The HIGH LEVEL OBJECTIVES, of ***MANUFUTURE*** are the following:

- Competitiveness in manufacturing industries;
- Leadership in manufacturing technologies;
- Eco-efficient products and manufacturing;
- Leadership in products and processes, as well as in cultural, ethical and social values;

During the last years the **European Tooling Industry** *has been working in close connection with* **MANUFUTURE**, *not only on the definition of its* **SRA – Strategic Research Agenda** *and* ***Work Plan***, *but also on the definition of the* ***Industry Strategic Road-maps***, *gathering, through ISTMA Europe, the support of the European Tooling Industry to the VISION and the global strategy of the* **MANUFUTURE Technology Platform**.

It was in the scope of this strategic and cooperation context that the ***European Tooling Forum*** was co-organized with ***MANUFUTURE*** in Lisbon – in September 2007 - under the Portuguese Presidency of the EU. This event was an important step further for the visibility of the infrastructural importance of the Tooling Industry on the development and differentiation of the European Industry as a whole. Another decisive factor was the presence of European Union policy-makers, National Governments and other representatives of relevant Institutions, along with National Tooling Associations and Company decision-makers, who explained the strategic and infrastructural position of **Tooling, Mould and Die making** towards the development and sustainability of the European Industry.

Considering that the ***Tooling*** Industry is a horizontal enabler and a fundamental pillar of the whole European industrial structure, whether on the development and industrialization of new products, or on the sustainability of industrial employment, ***MANUFUTURE*** promoted and supported a special working group under the coordination of Portuguese ***MANUFUTURE***

Platform - Forum MANUFUTURE Portugal – in order to gather European Tooling SMEs, related Research Organizations and Public Decision bodies, for the implementation of the ***MANUFUTURE*** Action Plan.

The result of this work was the EC's recognition of its quality and relevance, by the definition of a specific and dedicated ***Tooling*** industry topic (***NMP-2009-4.4.0-3: Innovative and knowledge-based Tooling Industry***) under the ***FP7*** Calls for Projects. To address this Topic, the ***Portuguese Engineering & Tooling Cluster*** and ***Fórum MANUFUTURE Portugal*** promoted, within the ***EUREKA Initiative***, a set of brokerage events, namely the *Moulds and Dies Innovative Products and Processes* - October 2008 – in Marinha Grande, Portugal.

It is our strong opinion that the **European Tooling Industry** has already spent a considerable and valuable effort in addressing and working out promising innovative business models for a successful joint transformation of Tooling supply base and customer relationships. We believe that other strategic actions have to be implemented in order to strengthen existing relationships and develop new links based on valuable knowledge engineering, also involving the industry's relevant political entities and academia plus R&D institutions.

In this context, the recent approval and formal acknowledgement of the **European Tooling Platform** as a **Sub-Platform of the MANUFUTURE Technology Platform,** has a strategic relevance to support the implementation of a coordinated Action Plan at a European level. To reinforce all the above and the strong engagement of the ***European Tooling Industry***, we have the confirmation and firm support from ***ISTMA Europe*** (the *European Tooling Association*), the ***EuroTooling-21 Network*** (35 R&D and Industrial partners from 10 European Countries), the ***Engineering & Tooling Portuguese Cluster*** (created last October 2008, in line with the strategic guidelines of ***MANUFUTURE***) and other relevant key-players within the Sector, to guarantee the needed critical mass for the implementation of the ***European Tooling Platform***.

In November 2008, the EC launched a ***European Economic Recovering Plan*** *that includes* the development of major partnerships for research and innovation, between the public and private sectors, in three strategic areas – ***Automobile, Construction*** and the ***Initiative "Factories of the Future"***. The last one, promoted by **MANUFUTURE**, aims to *"help EU manufacturers across sectors, particularly SMEs, to adapt to global competitive pressures by increasing the technological base of EU manufacturing through the development and integration the enabling technologies of the future, such as engineering technologies for adaptable machines and industrial processes, ICT, and advanced materials"*. The estimated envelope for this initiative is € 1.2 bn.

The consolidation of the ***European Tooling Platform*** within ***MANUFUTURE*** will bring in a horizontal and structural industry and, simultaneously, it will open new opportunities for ***Tooling*** SMEs in Europe, taking advantage of this global and integrated movement to promote the competitiveness of ***European Manufacturing Industry.*** One should think about the words from ***Professor Francesco Jovane*** (***MANUFUTURE***), during the last **MANUFUTURE INTERNATIONAL CONFERENCE**, in Saint-Etienne (France):

"(...) **MANUFUTURE** *is an intellectual machine to produce the drivers, but now, we need COMPANIES to implement the strategy for the success of the European Industry*".

We believe in the Future of the European Industry!

Joaquim Menezes
(President of ***Fórum Manufuture Portugal***)
(joaquim.menezes@centimfe.com)

2 – EUROPEAN TOOLING INDUSTRY

The ***Tooling Industry*** (moulds, dies and special tools) ***in Europe represents*** an average annual turnover of 13 billion USD and comprises more than 7.000 companies, being 95% of them SMEs, representing a high added value workforce (more than 100 000 workers directly in the sector) with a remarkable know-how in design and manufacturing processes.

The Tooling Industry is a capital intensive and knowledge-based-Industry, supported in innovation and playing the rules of global co-opetition. ***Moulds, Dies and Tools are present in*** the design and manufacturing of ***almost all industrial products,*** from aeronautics and automotive, to electronics, household, equipment goods and micro-devices. Having interfaces to the final parts (products and components) and production equipment (such as, machine-tools), the **Tooling industry is in the core of the production system of final products**, determining its **competitiveness, efficiency** and **robustness**.

Product innovation, technological development and the optimisation of the whole manufacturing system ***strongly*** **depend on innovations and developments in Moulds, Dies and Tools**. **Tooling costs and time to market,** as well as their quality and reliability, **are key competitive factors**, which, directly or indirectly, have a structural and horizontal strategic effect in the sustainability of the European industrial competitiveness.

2.1 – EUROPEAN TOOLING PLATFORM

The consolidation of the ***EUROPEAN TOOLING PLATFORM*** involves the integration of its key players at a European level, involving the known Innovation virtuoso triangle (enterprises; research and high education institutions; related public bodies). Within this context, the consolidation of this strategy involves the integration of ***ISTMA EUROPE*** members (the European Tooling Associations), ***EuroTooling 21***[1] Consortium, ***Tooling Clusters*** and individual SMEs, in an open and common development strategy.

2.2 – VISION

The Tooling Industry is a horizontal enabler, being one important and fundamental pillar of the whole European industrial structure, whether on the development and industrialization of new products, or on the sustainability of industrial employment. **Tooling, Mould and Die making** companies are infrastructural strategic players towards the development and sustainability of the European Industry.

2.3 – MISSION

The ***Mission of European Tooling Platform,*** within a common Vision of the ***MANUFUTURE*** strategy, is to support the global integration of the European Tooling key players, towards the proposal, development and implementation of Research and Innovation activities to promote the competitiveness and differentiation of the ***Tooling*** companies in Europe and create the conditions to gain a major share of world Manufacturing output in the future knowledge-driven economy. The Platform is the ***Tooling*** focal point for Research and Innovation at a European level, in line with the strategy and representativeness of the member states, and will support

[1] ***Eurotooling 21*** – Tooling research project developed within the 6FP of the EU (www.eurotooling21.org)

Tooling companies to strengthen their competitiveness and also their European engineering and production base.

3 – TOOLING INDUSTRY ROAD MAPS

During the last years, the **MANUFUTURE Technology Platform** has promoted a long discussion with European industrial companies to identify their needs and, accordingly, be the source of inputs to the development of new instruments for the 7th Framework Programme of the European Union.

The main conclusions achieved and the strategic guidelines proposed to support European Policies for the future of the European Manufacture were published in a book launched during the International MANUFUTURE Conference – 2008, at Saint-Étienne

"***THE MANUFUTURE ROAD – Towards Competitive and Sustainable High-adding-Value Manufacturing***", by F. Jovane, E. Westkämper and D. Williams, edited by Springer, 2008.

Another main result of the work performed over the last years is the reinforcement of SME oriented innovation as a fundamental issue to accomplish a robust European programme for R&D.

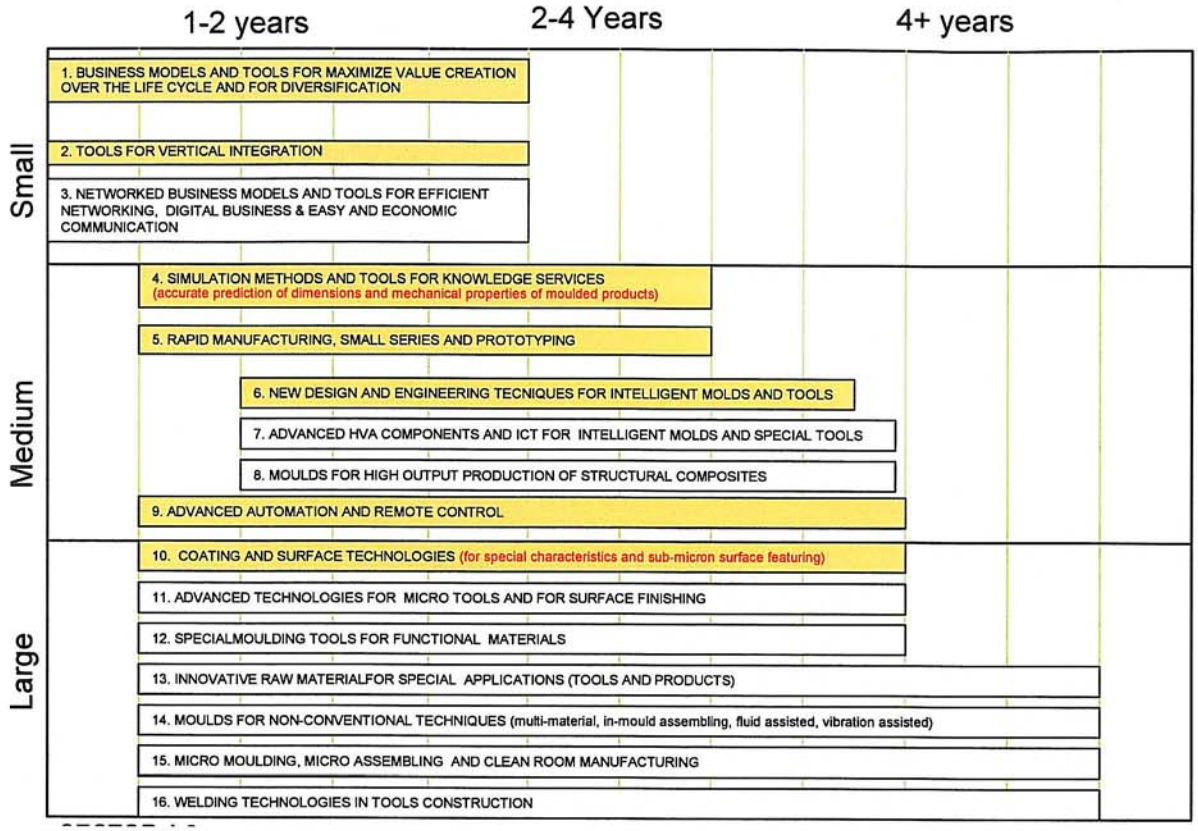
The ***European Tooling Industry*** has been playing a very important role for the consolidation of the achievements of **MANUFUTURE**, through a continuous work performed in close articulation between ***ISTMA Europe***, ***EuroTooling 21*** and ***Fórum Manufuture Portugal***. As a result of this work, two major results can be identified:

- The European Commission recognized the quality and relevance of the work and defined a specific and dedicated ***Tooling*** industry topic (***NMP-2009-4.4.0-3: Innovative and knowledge-based Tooling Industry***) under the ***FP7*** Calls for Projects;
- ***EuroTooling 21*** consortium published a book presenting the main results from the discussions with the Tooling Industry in Europe promoted during the last four years. The book focuses on the Business Models and Road Maps for Tooling research ("***New Business Models for the Tooling Industry***", Elsa Henriques, Centimfe, 2008).

The next graphic presents an overview of European Tooling Technological Road Map, discussed within the first phase of the ***EuroTooling 21*** project, foreseeing the major challenge areas for the Tooling Industry, on the short, medium and long term:

European Tooling Technological Road Map

Graphic 1



The evolution of the initial road map, through its further refinement during the last phase of EuroTooling21, based mainly on the identification of references to specific types of tools and on the aggregation of topics, lead to the identification of thirteen (13) topics (***see Annexes***) as strategic development issues for the European Tooling Industry, under the 7thFP:

R&D topic	
1.	New functional materials and new surface coatings/treatments for tooling
2.	Micro-manufacturing and micro-tooling
3.	Development of materials and technologies for tools for small production volumes.
4.	Next generation technologies and processes for tooling industry.
5.	Environmentally friendly manufacturing processes
6.	Tools design rules and process parameters "optimization" for the production of parts in new materials
7.	Reliability models for tooling and tools life assessment and management
8.	Intelligent tooling involving mechatronics
9.	Knowledge based, fully digital mock-up of tools
10.	Lean & Digital tooling factory
11.	Distributed engineering and manufacturing
12.	Tools life cycle management
13.	New business models in tooling industry

4 – TOOLING INDUSTRY & JOINT TECHNOLOGY INITIATIVE (JTI)

The formalization of the ***European Tooling Platform*** within ***MANUFUTURE*** will allow the European Tooling Industry to have a formal representation in the ***MANUFUTURE High Level Group***, participating in its main strategic decisions.

Since the focus is on the Industry needs, the ***European Tooling Platform*** will develop an integrated and intelligent system to monitor policies and competitive issues and propose future actions to be taken at the different levels (local, regional, national and European) to reinforce the competitiveness of the whole European Industry.

A set of initiatives are being promoted by MANUFUTURE, namely a Joint Technology Initiative (JTI) in production technologies, in the scope of the "Factories of the Future" Initiative.

Considering the formalization of the ***European Tooling Platform*** as a ***MANUFUTURE*** sub-Platform, the participation of the ***Tooling Industry*** (as a horizontal enabler) in this ***JTI*** can be foreseen, in line with its Technological Road Map defined for the ***MANUFUTURE***. Within this context, the ***European Tooling Platform*** will propose to actively participate in the ***JTI*** development process, namely indicating relevant topics to address complementary research at a global level, for the next years.

The Management of the ***European Tooling Platform*** will coordinate this work with the ***MANUFUTURE Technology Platform***, to maintain the integrative consistency with the global policy of ***MANUFUTURE***.

5 – CONTACTS:

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ANNEXES

TOOLING Technology Roadmap

A Technology Roadmap was developed to support the Tooling industry in the identification of the critical development axis for the next five to ten years. The tooling industry supply-chain, academic and research groups and governments were involved in its development, having jointly identified and prioritized the technologies needed to support strategic R&D, marketing and investment decisions.

In this context, the Table presents a set of relevant technologies for future research and development within the ***Tooling*** domain. Their relevance should be understood as a need to make technological innovation breakthroughs happen and also to support the providing of new services associated to tools and to extend the tooling value chain.

Materials and Manufacturing Technologies	
Technology topic	**Technology description**
New functional materials and new surface coatings/treatments for tooling	Traditionally tools have been mainly constructed in steel and sometimes, for some specific applications, in aluminium. Tools for small or extremely large production volumes and for micro parts require developments regarding materials. As examples one can mention: new PM-powder metallurgical materials, low cost resins, ceramic and smart materials for tooling, and micro/nano-structured surfaces to reach desired working surfaces properties (activation of advantageous properties as regards surface quality, lubricant properties, impact, thermal, wearing and corrosion resistance). For a reliable process/manufacture of such materials/surfaces the interactions between the desired properties and the basic material structure must be subject to applied research.
Micro-manufacturing and micro-tooling	Market demand of micro-products is increasing, which requires the production of micro-tools and a better understanding of downscaled material processing technologies, such as micro-machining, metrology, and micro handling devices and fixtures. The design and production of micro-parts requires: (1) new design rules for micro products development -- design for manufacturing and assembly of micro products; (2) knowledge development as regards micro-tooling design; (3) knowledge development as regards technologies for micro-parts production - machining, injection moulding, etc., and for surface engineering; (4) development of new algorithms for process modelling and simulation; (5) development of new techniques for inspection and process control suitable for micro dimensions; (6) development of new solutions for materials handling, assembly and packaging adapted to micro-components Applied research is needed at both levels, experimental and process modelling and simulation, as regards metrology for micro-parts; micro-milling; laser machining; micro-injection moulding; micro-metal forming; surface engineering; micro-EDM. In addition, knowledge generation as regards the understanding of the physics of the micro-processes is required in order to achieve appropriated and reliable process planning levels
Development of materials and technologies for tools for small production volumes.	More and more final products are being produced in small volumes. Small volumes frequently inhibit (due to economic reasons) the use of tools in manufacturing chains, limiting the design freedom of the final products. The concept of low cost tools ("disposable tools") requires the development of integrated solutions (business/engineering/technology/materials) involving new design approaches for low life cycles, new and low cost manufacturing technologies and materials in order to allow the economic/competitive penetration of tools in this increasing market niche. The recycling and

	reuse of tool materials and components is also an issue that requires suitable solutions both regarding the remaining life evaluation and businesses approaches. Some prototyping approaches are being tried within tools for small production volumes, in what is currently called the Rapid Tooling field (build a tool rapidly at a convenient cost). However, these solutions developed for prototyping do not fulfil the objective of small series tools, which is to build a low cost tool in a convenient time frame (with robustness designed for specified but small life time).
Next generation technologies and processes for tooling industry.	Advanced technologies have been a strong research field in Europe. Laser-Surface engineering, Laser-Engraving and Laser-Machining, High Speed Cutting of very hard materials, EDM (Electric Discharge Machining) for micro and nano-dimensions, Solid Free Form Fabrication, are some examples of emerging technologies with high potential in tooling making. Developments on those "advanced manufacturing technologies" targets improvements in accuracy, automation, flexibility, productivity,... New machine tools are also an important development field. For example the "hexapod" machine tool represents an emerging and revolutionary approach for machine tools construction. Instead of the conventional bed-frame design, the configuration of the "parallel actuators" promises to offer manufacturers a combination of versatility (machine tool application in multi-process operations, such as machining, welding, plasma spraying, coordinate measuring as well as part and fixture manipulation), stiffness, speed and accuracy. Although the technology is still emerging, the industry (tooling and machine-tools) and research institutions must collaborate to fully explore the potentials of the machine in coordinate measuring as well as part and fixture manipulation.
Environmentally friendly manufacturing processes	Environmental sustainability has acquired a direct influence in the economy and its special incidence has been felt in the industrial processes. The new integrated environmental strategy involves the analysis of the manufacturing systems, the systematic evaluation of the material and energy flows, the identification of the pollution sources and the elimination of residues generation causes and the overspent of resources. Alternative manufacturing processes should be studied, optimized and developed in order to eliminate certain environmental nuisances (as an example, rapid and precision casting instead of machining and milling instead of EDM). Within this principle, net shape and near net shape technologies for core and cavities (or dies and punches) manufacturing; technologies improvement from a cleaner production perspective; data and algorithms for environmental impacts assessment for most relevant technologies should be developed towards their economic and competitive application in the industry.

Tools Design, Process Planning and Digital Mock-up	
Technology topic	**Technology description**
Tools design rules and process parameters "optimization" for the production of parts in new materials	Manufacturers are increasingly using light weight and ultrahigh strength materials, bio-materials, composites, engineered honey-comb and sandwich materials in an effort to reduce component weight, cost and manufacturing requirements, environmental impacts and improve functional performances. The production of parts in such new materials involves knowledge acquisition of their behaviour in the manufacturing processes. For example the injection moulding of bio-polymers involves knowledge acquisition as regards the technology, new ranges in process parameters, new mould design rules. The objective is to achieve robust processes when dealing with innovative materials in order to facilitate their transfer and dissemination into the industrial world.
Reliability models for tooling and tools life assessment and management	More and more the delivery of tools integrates a guarantee. The current approach is based on over-dimension principles tacitly applied to support the safety of the tool producer, resulting in augmented costs without the correspondent perceived value by the client. Knowledge regarding the reliability of tools and its materialization in reliability models and design for reliability rules are required. Tools reliability management system include feedback loops to retrieve information regarding the performance of tools from their in-production life phase (Field/Service Engineering) to the design office, in order to continuously evaluate and improve the reliability of existing engineering solutions. Technologies, methods and algorithms for tooling condition monitoring and data collection, data mining, pattern recognition, decision-making, etc., are needed to improve process stability, tools reliability and quality control.
Intelligent tooling involving mechatronics	Intelligent tooling involves a merging of mechanical and electronic domains (sensors and actuators are built in the tool to support specific functions). The intelligent tool should be able to monitor and even control the production process in real time, allowing automatic quality assurance, product and process fault detection, tools condition analysis for preventive maintenance, historical operational conditions surveillance, etc. This research area targets the automated process monitoring and control (the conceptual model, the hard and soft components) built in intelligent tools and engages suitable integration of micro sensors & actuators devices and the development of analysis, control and decision algorithms for intelligent and adaptive processes.
Knowledge based, fully digital mock-up of tools	The development of integrated systems designed to allow a complete virtual manufacturing and production start-up (moulds&dies design and production, part production processes, machine interfaces, automation systems, etc) contributes to achieve a pro-active and first-time right production launch. This calls for the combination of several scientific and technological areas, namely: (1) Intelligent and virtual manufacturing systems -- development of systems integrating design, process and production planning, involving planning, simulation and analysis, part programming and process simulation, under a virtual environment. Besides consider the processes within tools production, the ability to simulate and analyse production processes should also focus tool-user technologies to support the production start-up of final parts (produce right the first time with minimal ramp-up time) (2) Knowledge based engineering systems for tooling design and testing – development of integrated knowledge based software tools able to generate engineering solutions, considering the whole tool process/life cycle, with learning capabilities and allowing the capture of knowledge from experience. Tool making is highly dependent on tacit knowledge. The one-of-a kind type of production has difficult its conversion into explicit and structured knowledge. Real knowledge based systems for the sectors are nonexistent or immature.

Innovative Organization, Management and New Business Models	
Technology topic	**Technology description**
Lean & Digital tooling factory	The digital tooling factory involves the modelling, simulation and planning applications for complex production systems involving design, process and production planning and factory automation Besides the automation hardware, and the development of software, this area includes (1) the development /adaptation of production planning models (within the concept of lean and agile tooling production); (2) the development of new knowledge based engineering rules for automated (intelligent/assisted) process planning capabilities (bridging the gap between design and manufacturing and allowing the virtual manufacturing); (3) the development of performance evaluation systems for tooling industry (meaning new models, methods and applications to model, simulate and analyze the performance of the manufacturing system as a whole in order to support compromises between flexibility/agility and productivity in the decision making) Some of these research areas present already effective outcomes in industrial sectors like automotive and aeronautics. The challenge here is to adapt the basic models to the SME requirements and to the tooling sector characterized by one of a kind production system.
Distributed engineering and manufacturing	Traditionally tool-makers have developed a self-sufficiency culture. Globalization for SMEs can only be faced in a networking and collaborative context where cooperation exists with clients, suppliers, and other external entities with which is possible to develop complementarities, dimension gains or risk sharing. Development of Internet assisted tooling manufacturing systems and web-based engineering and management applications are required to supply global structured real-time information related to production operations and internal or external processes (logistics) to the extended manufacturing network. Distributed engineering and manufacturing if conveniently infrastructure and designed by and to the sector will be a way to achieve flexible capacity systems and provide solutions to a highly variable demand market.
Tools life cycle management	Depending on the production life of the final products, tools have life cycles ranging from some weeks to several years. However, tool makers only supervise tools during their production cycle. Tools are capital goods commercialized based on price, delivery date and quality characteristics and these characteristics are not directly correlated with tools performance and cost along life cycle. The cost of the part produced by the tool and the cost of the tool over the life cycle are important decision factors in the buying process. But, life cycle costs are neither a tool design variable nor a quality/performance indicator. New knowledge, models and applications to design and produce tools considering performance objectives from the stage of initial conception to the retirement stage (Product Lifecycle Management) are needed.
New business models in tooling industry	From the product/part development and prototyping to the industrialization, tools maintenance and disposal (recycling, re-use,...) there are a set of new market opportunities to enlarge the typical domain of the tooling industry. Besides core business concentration, the competitive conditions ask for integrated engineering solutions within a service providing framework which requires, in a SMEs sector, new businesses models based on collaborative approaches. Research is required as regards the identification of best practices and integrated organizational/technological/knowledge business strategies. Demonstration of these best practices and strategies, based on case studies, will facilitate the systematization and dissemination of new competitive business models

MANUFUTURE-PT

MANUFUTURE TECHNOLOGY PLATFORM

High Level Group

Chairman Prof. Heinrich Flegel

DAIMLER AG

Stuttgart

GERMANY

V/ Ref.	V/ Com. de	N/ Ref.	Data:
		JMpt-153/08	10/12/2008

***Subject:* Recognition of the European Tooling Platform as a MANUFUTURE Sub-Platform**

Dear Mr Henrich Flegel,

Thank you for your continued support to the activities of our Engineering and Tooling Group within our national MANUFUTURE Platform, as well as in Europe (ISTMA-Europe and MANUFUTURE Technology Platform).

At this point and having in mind the consolidation of our so far relevant actions, we would like to propose the formal recognition by the ***MANUFUTURE Technology Platform,*** of the ***European Tooling Platform*** as one of its **sub-platforms**.

As you know, during the last years the ***European Tooling Industry*** have been working in close connection with ***MANUFUTURE***, not only on the definition of its ***SRA*** and **Work Plan**, but also, on the definition of the **Industry Strategic Road-maps**, gathering – through ISTMA Europe - the European Tooling Industry to support the VISION and the global strategy of the ***MANUFUTURE Technology Platform***.

It was also on this cooperation and strategic context that the ***European Tooling Forum*** was co-organized with ***MANUFUTURE*** in Lisbon – in September 2007 - under the Portuguese Presidency of the EU. This event was an important step further for the visibility of the infrastructural importance of our Industry on the development and differentiation of the European Industry as a whole. Your personal involvement and participation in our Forum and your relevant presentation were crucial to fulfill the main goals of the **Forum**. Another decisive factor was the personal attendance of European Union policy-makers, National Governments and other relevant representatives of appropriate Institutions, along with National Tooling Associations and Company decision-makers, who explained the infrastructural strategic position of **Tooling, Mould and Die making** towards the development and sustainability of the European Industry.

Considering that our industrial sector is a horizontal enabler, being one of the important and fundamental pillars of the whole European industrial structure, whether on the development and industrialization of new products, or on the sustainability of industrial employment, ***MANUFUTURE*** has promoted and supported a special working group under the coordination of our national ***MANUFUTURE Platform - Forum MANUFUTURE Portugal*** - to gather European SMEs, related Research Organizations and Public Decision bodies, for the implementation of the ***MANUFUTURE*** Action Plan.

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The result of this work was the EC's recognition of its quality and relevance, by the definition of a specific and dedicated tooling industry topic (***NMP-2009-4.4.0-3: Innovative and knowledge-based Tooling Industry***) under the ***FP7*** Calls for Projects.

To address this Topic, the Portuguese Engineering & Tooling Cluster and Fórum MANUFUTURE Portugal promoted, within the EUREKA initiative, a set of brokerage events, namely the Moulds and Dies Innovative Products and Processes - last October 2008 – in Marinha Grande, recognized as one of the most important regional hubs of moulds and dies industries in Europe.

It is our strong opinion that the **European Tooling** industry has already spent a considerable and valuable amount of time, in addressing and workingout possible new solutions of innovative business models for a successful joint transformation of Tooling Supply base and Customer relationships. We believe that other strategic actions have to be implemented to strengthen existing relationships and to develop new links, also involving the industry's relevant political entities and academia plus R&D institutions.

On this context, the consolidation of the **European Tooling Platform** as a **Sub-Platform of the MANUFUTURE Technology Platform**, is strategic to support the implementation of a coordinated Action Plan at a European level.

To reinforce all the above and the strategic engagement of the European Tooling Industry on this proposal, we have the confirmation and firm support from ***ISTMA Europe*** (the European Tooling Association – www.istma-europe.com), the ***EuroTooling-21 Network*** (35 R&D and Industrial partners from 10 European Countries), and the ***Engineering & Tooling Portuguese Cluster (***created last October, in line with the strategic guidelines of ***MANUFUTURE)*** and other relevant key-players within the Sector to guarantee the needed critical mass to support the implementation of the ***European Tooling Platform***.

Thanking in advance all your continued support, we will be looking forward to hearing from you on further actions soonest,

Yours Sincerely,

Joaquim Menezes
(President of the ***Fórum Manufuture Portugal***)
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MANUFUTURE-EU

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Stuttgart, 30. December 2008

Recognition of the *European Tooling Platform* as a MANU*FUTURE* sub-platform

Dear Mr. Menezes,

First of all I would like to wish you a happy and successful New Year.

Because of all your previous efforts and activities within the Manu*Future* Technology Platform we herby recognize formally the *European Tooling Platform* as one of Manu*Future*'s sub-platforms.

We strongly believe that it is essential for the success of manufacturing in Europe to follow the common ideas and goals defined by Manu*Future*. We look forward to the consolidation of the *European Tooling Platform* as a sub-platform of Manu*Future,* and their support of the implementation of a coordinated action plan at European Level.

Yours sincerely,

Heinrich Flegel
Chairman Manufuture HLG