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The World Manufacturing Forum 2016 is an event organized by the “WMF2015” Project, funded by the European Union Framework Programme for Research and Innovation Horizon 2020 under Grant agreement n° 646347



Barcelona, 3-4 May 2016

**"From Global Challenges
to Grand Manufacturing Opportunities:
Leading towards Growth and Sustainability"**



How can industry accelerate advanced manufacturing technology in the era of smart, sustainable and inclusive growth?

The importance of manufacturing as a key contributor to economic wealth and growth was recognized and elevated as a priority in industrialized and developing countries in the early 21st century. Innovation fuelled by ever increasing customer demand drives research efforts toward increased productivity through the development and use of new technologies, whilst respecting the need for a more sustainable use of resources across the globe.

In their aspiration to generate new revenue, manufacturing enterprises have expanded beyond traditional boundaries. Globalization was the biggest driver of growth for many of them over the past decades, but today, it may not be sufficient anymore as sustainable competitive advantage requires solid innovation and effective resource-use strategies.

In this context, the World Manufacturing Forum will bring together policy experts, industry leaders of large multinationals and small to medium-sized enterprises, as well as academic leaders across the globe to discuss the economic, social and technical challenges that will impact global manufacturing in the near future.

The Forum will address technological and financial challenges affecting industrialized and emerging economies alike as well as the policies supporting and defining new manufacturing megatrends and challenges to SMEs in global markets. In addition, trends such as manufacturing intelligence, social innovation, the circular economy, zero-waste concepts and disruptive technologies as drivers for products and services in the future will be explored.

PROGRAM OVERVIEW - Tuesday, 3 May 2016

08:30 - 09:30

Registration

09:30 - 10:00

Welcome to the Forum and Opening

- **José Lorenzo Vallés**, Head of Unit "Advanced Manufacturing Systems and Biotechnologies", DG Research & Innovation, European Commission
- **Abraham Tijerina**, Chairman of IMS
- **Marco Taisch**, Scientific Chairman of WMF2016
- **Begoña Cristeto**, Secretary General of Industry and of the SMEs, Ministry of Industry, Spain

10:00 - 13:30

"Panel on Government Policies for Enabling the Fourth Industrial (R)evolution"

Policy makers and key industry players will present, share and discuss their national agendas and key issues on how to foster the manufacturing growth with national action plan.

What will the consequences be for business, the work force and societies? Is the policy framework right? Will new standards be needed? What is the role of security for business and society? It is expected that the Panel's conclusions will be instrumental for the shaping of policies and global industrial partnerships in the future.

In the first round, the key pillars of national agendas will be presented and shared between all the panellists and the audience. A second round will be dedicated to manufacturing key issues and should focus on the messages the panellists would like to convey.

- **Dean L. Bartles**, Executive Director, DMDII (Digital Manufacturing & Design Innovation Institute), USA
- **Mario Buisán**, Coordinator of the Spanish strategy in Industrie 4.0 Spanish Ministry of Industry, Energy and Tourism
- **Carlos Costa**, Governor, Portugal Bank, Portugal
- **Mauro Fenzi**, CEO, Comau S.p.A., Italy
- **Stefano Firpo**, Director for Industrial Policies, Competitiveness, SMEs, Italian Ministry of Economic Development, Italy
- **Norbert Gaus**, Executive Vice President, Head of Research and Technology Center, Siemens AG, Germany
- **Benjamin Gallezot**, Deputy Director General, Directorate General for Enterprise (DGE), Ministry of the Economy, Industry and Digital Affairs, France
- **Lewis Gossett**, President and CEO, South Carolina Manufacturers Alliance (SCMA), USA
- **Bruce Grey**, Chairman Advanced Braking Technology Limited, Australia
- **Imraan Patel**, Deputy Director-General, Socio-Economic Partnership, Department of Science and Technology, South Africa
- **Max Lemke**, Head of Unit "Complex Systems and Advanced Computing", DG CONNECT, European Commission
- **Ernst Stöckl-Pukall**, Head of Division, Federal Ministry of Economic Affairs and Energy/ Unit IVA5 Digitisation, Industrie 4.0, Germany
- **Guillaume Vendroux**, CEO, DELMIA - Dassault Systèmes, France

13:30 - 14:30

Networking Lunch

14:30 - 16:00

SESSION 1: "21st Century Manufacturing"

- Chair: **Alberto Ribolla**, President, Association "Confindustria Lombardia"

A new era of global manufacturing is emerging with many economies acquiring significant manufacturing innovation capacity in materials, processes, information technology, and supply chain operations. At global level, manufacturing accounts for approximately sixteen per cent of GDP and fourteen per cent of employment. Governments and their policies are essential actors. This session will present trends that are likely to define the manufacturing business over the next 20 years and require attention and cooperation by policy-makers, social stakeholders, business leaders and finance. A coherent stakeholder engagement can ultimately lead to manufacturing-driven wealth for all with greater opportunities for business and work, better product and service offers and more respect for the environment. At the same time, central banks, financial institutions, research and innovation agencies need to adequately respond to the challenges of the manufacturing industry.

- **Tanja Rueckert**, Executive Vice President LoB Digital Assets and IoT, SAP
- **Sanjay Brahmawar**, Global Head and Managing Partner, Strategic Business Development, IBM's Watson Internet of Things Business
- **Luis Torreblanca**, Chief Strategy for Technological Attention of the Automotive Industry and Manufacturing, National Council of Science and Technology of Mexico

16:00 - 16:30

Coffee Break

16:30 - 18:00

SESSION 2: "Manufacturing Intelligence"

- Chair: **Max Lemke**, Head of Unit "Complex Systems and Advanced Computing", DG CONNECT, European Commission

With the increasing complexity and sophistication of in-process data collection, the shop-floor information collected is trending towards expansion without limits. At the same time, the decision-makers must have visibility of the bigger production picture and access in real-time to key criteria for assessing and choosing the best options every time a change occurs. However, all data collected does not necessarily translate into useful information to support an ever-increasing demand for flexibility and adaptability. How can enterprises transform data into useful information whilst ensuring that no harm is generated from its use? How can 21st century companies ensure that the information is made available where and when it is appropriate while being protected against misuses or third parties attacks? This session explores how to extract and use large data for achieving intelligent decision-making towards the "liquid enterprise".

- **Pascal Brosset**, Senior Vice President, Global Solutions, Schneider Electric
- **Max Blanchet**, Senior Partner Automotive Industry, Process and Materials, Roland Berger
- **Rainer Kallenbach**, Chairman of the Executive Board, Bosch Software Innovations GmbH

18:00 - 18:30

KEYNOTE SPEECH: CONVERGENCE OF THE DIGITAL AND PHYSICAL WORLDS

Introduction by **David Romero**, IMS

- **James Heppelmann**, President and CEO, PTC

18:30 - 20:30

Gala Cocktail

Introduction by **José Lorenzo Vallés**, Head of Unit "Advanced Manufacturing Systems and Biotechnologies", DG Research & Innovation, European Commission

- **Roberto Maroni**, President, Lombardy Region (Italy)

PROGRAM OVERVIEW - Wednesday, 4 May 2016

08:15 - 08:30

Registration

08:30 - 08:40

Welcome to the Second Day

- **Abraham Tijerina**, IMS Chairman
- **Joaquim Minguella**, Director Learning and Technology de la Fundació CIM Universitat Politècnica de Catalunya

08:40 - 10:10

SESSION 3: "Small is Beautiful?"

- Chair: **Dan Nagy**, Managing Director, Inter-Regional Secretariat, IMS

SMEs and entrepreneurs play a significant role in any economy's manufacturing sector and are key generators of employment and key drivers of innovation and growth. However, the increasingly global competition, the recent global crisis, and the scarcity of entrepreneurial and institutional lending has created a particularly difficult environment for SMEs to survive and grow. On the other hand, the strong correlation between improved business performance and cross-border trade suggests that there is a clear need for SMEs to target the global market. This session intends to reveal best practices of SMEs engaged in global manufacturing value chains and explore current and future enablers and obstacles related with their business performance and expansion in international markets.

- **César Molins**, CEO and Chairman of the Board, AMES S.A. Group
- **Massimiliano Ruffo**, CEO, Fimap S.p.A.
- **Drew Greenblatt**, President and Owner, Marlin Steel Wire Products LLC

10:10 - 10:40

Coffee Break

10:40 - 12:10

SESSION 4: "New Manufacturing Powerhouse Challenges"

- Chair: **José Lorenzo Vallés**, Head of Unit Advanced Manufacturing Systems and Biotechnologies, DG Research & Innovation, European Commission

New manufacturing opens up several industrialisation avenues. Countries willing to build new manufacturing capacity through smart procurement, energy and resource efficiency as well as through modern infrastructure development will have a significant advantage. Still today, manufacturing is a key enabler of economic growth and the new manufacturing powerhouses will aim to jump ahead by simultaneously developing product, process and organisational competencies at firm, local and national levels, thus contributing disproportionately toward enhanced competitiveness and innovation. This definitely requires knowledge- and technology-intensive activities such as R&D, an overwhelmingly daunting but necessary exercise.

- **Siyabonga Gama**, Group Chief Executive, Transnet SOC Ltd
- **Dilek Cetindamar**, Academic Director, Competitiveness Committee and Member of School of Management, Sabanci University Istanbul
- **José Caldeira**, President, National Innovation Agency of Portugal

12:10 - 13:10

Networking Lunch

13:10 - 14:40

SESSION 5: "Circular Manufacturing"

- Chair: **Jack Harris**, IMS Head of Delegation - United States

The linear 'take, make, and dispose' economy model relies on large quantities of easily accessible resources and energy with an increase of waste generated. Considering the world, population growth of eighteen per cent to 8.4 billion people in fifteen years from now, the economy model needs to move from a linear perspective to a circular one. The Circular Economy aims to eliminate waste through the superior design of materials, products, systems and business models, improving the reuse of products and the recycling of materials. Manufacturing industries have started to adopt the Circular Economy concept with this regenerative model of manufacturing in which products and components are re-used multiple times: "Circular Manufacturing". The advantages provided by the Circular Economy seem to create benefits both for consumers and manufacturers, but significant challenges remain in adopting the circular approach.

- **Martin Stuchtey**, Director, Centre for Business & Environment, McKinsey & Company
- **Axel Eggert**, General Director, EUROFER (European Steel Association)
- **Mark Housley**, Executive Vice President, Carbon Conversions Incorporated

14:40 - 15:10

Coffee Break

15:10 - 16:40

SESSION 6: "Disruptive Strategies Towards the Next Manufacturing Era"

- Chair: **Maurizio Gattiglio**, Chairman, EFFRA

The primary impetus in all manufacturing companies is to reinforce the manufacturing competitiveness by fostering differentiation and continuously improving operational efficiency. Current trends such as the increased rate of technological change, market globalization, customization needs and social and environmental sustainability requirements are considered key drivers for the future of manufacturing. The session will discuss modern manufacturing challenges and will explore new manufacturing paradigms and strategies able to promote future sustainability and competitiveness in the global market.

- **Al Siblani**, President and CEO, EnvisionTEC Inc.
- **Saul Haro**, President and CEO, MACROLYNK
- **Luigi Galdabini**, President, CECIMO

16:40 - 17:00

WMF Closing

Introduction by **José Lorenzo Vallés**, Head of Unit "Advanced Manufacturing Systems and Biotechnologies", DG Research & Innovation, European Commission

- **Núria Betriu**, General Director of Industry, Government of Catalonia

08:30 - 09:30

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- **Tanja Rueckert**, Executive Vice President LoB Digital Assets and IoT, SAP - "Industry 4.0: from Things to Outcomes"
 - The so-called "Industry 4.0" has arrived with a paradigm shift towards Smart Production with manufacturers becoming connected. Facilitated by the Internet of Things (IoT), it changes the ways goods are made and distributed, products are serviced and refined, and thus it constitutes one of the most fundamental aspects of digital transformation. Change comes from new technologies and the dramatic increase of available data, from devices and machines analysing and controlling the processes. Accordingly, a number of unexplored innovative business models become possible. This way, manufacturers maintain their core business whilst transforming it to deliver new offerings in rapidly changing markets, thereby effectively becoming service providers. To foster this transformation and to achieve unlimited benefits to all stakeholders (manufacturers, providers, and global customers), collaboration between them is crucial.
- **Sanjay Brahmawar**, Global Head and Managing Partner, Strategic Business Development, IBM's Watson Internet of Things Business - "The Internet of Manufacturing"
 - The Internet of Things (IoT) will quickly become the single largest source of data on the planet, generating tremendous amounts of structured and unstructured data every second, every day. Today, manufacturing equipment can tell you when it needs maintenance and consumer products communicate information back to their manufacturer about what's in demand. Yet, so much of the data being generated by these devices is never captured. Cognitive systems put all types of data -- even data that you may not be aware of -- into context and help make sense of IoT. The speech will highlight how these systems can think, sense, reason and learn, revolutionizing manufacturing asset management, security and take advantage of a burgeoning resource.
- **Luis Torreblanca**, Chief Strategy for Technological Attention of the Automotive Industry and Manufacturing, National Council of Science and Technology of Mexico - "Public Policy to Strengthen the Advanced Manufacturing in Mexico"
 - Mexico is a country that is determined to walk the path of sustained, sustainable and regionally balanced economic growth in order to achieve a prosperous nation. Growth must be then developed on the bases of a healthy balance between a dynamic external sector and a strengthened domestic market. In the last 20 years, there has been an imbalance in the contribution of both markets, domestic and global, to the Mexican economy. Hence, this Government Administration recognises the importance of a robust industrial, commercial and productive services structure that should contribute to strengthening the domestic market and at the same time facilitate the dynamics of local and global value chains. To this end, a new policy for industrial development and innovation is proposed with an approach of "open economy" to promote balanced economic growth by sectors, regions and companies; drive innovation in trade and services sector. Encourage technology-based entrepreneurship and strengthen the business development of added-value design, engineering and advanced manufacturing enterprises; promote greater local and regional markets competition; move towards a comprehensive regulatory reform; and increase international flows of trade and investment as well as domestic content of exports.

16:00 - 16:30

Coffee Break

16:30 - 18:00

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- Chair: **Max Lemke**, Head of Unit "Complex Systems and Advanced Computing", DG CONNECT, European Commission

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- **Pascal Brosset**, Senior Vice President, Global Solutions, Schneider Electric – "How IoT is Accelerating Information Transparency from Shop Floor to Top Floor"
 - A number of trends, from the rise of "cloud technologies" to the arrival of a new generation of engineers and workers, are accelerating the convergence of Information and Operational Technologies in manufacturing. For those companies harnessing these technologies in a smart way, alongside traditional automation, and who are ready to manage the cultural transformation, "shop-floor to top-floor" information transparency will accelerate the advent of a truly smart and sustainable manufacturing.
- **Max Blanchet**, Senior Partner Automotive Industry, Process and Materials, Roland Berger – "Industrie 4.0: New Industry Paradigm, New Economic Model"
 - As opposed to the third industrial revolution, Industrie 4.0 has new characteristics, which shift the paradigm of the manufacturing strategy towards a new economic model. Scale effect, mass-production, high-cost countries vs. low-cost economies issues are shifting towards capital employed optimisation, localisation and flexibility. Industrie 4.0 is also an opportunity to reindustrialise developed countries. It will change the relationship with emerging markets, which will have to follow a different industrialisation path. Industrie 4.0 will also induce a job shift, which has to be anticipated in order to capture recreation opportunities.
- **Rainer Kallenbach**, Chairman of the Executive Board, Bosch Software Innovations GmbH – "From Vision to Reality: Platforms and Solutions for Connected Manufacturing"
 - The Internet of Things (IoT) has started to transform our lives and many businesses. It is enabling new, data-based services, which show great potential for quality, efficiency and cost improvements also in connected manufacturing. In order to make those visions happen, four core technologies must be provided: sensors, connectivity, interoperable IoT platform software, and secure IoT cloud implementations. Beyond those technologies, considerable challenges regarding agile processes, security and data "ownership" need to be resolved. The presentation shows Bosch's approach towards those technological and its operational challenges. Examples based on Bosch's real-world manufacturing implementations conclude the contribution.

18:00 - 18:30

KEYNOTE SPEECH: CONVERGENCE OF THE DIGITAL AND PHYSICAL WORLDS

Introduction by **David Romero**, IMS

- **James Heppelmann**, President and CEO, PTC

18:30 - 20:30

Gala Cocktail

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SESSION 3: "Small is Beautiful?"

- Chair: **Dan Nagy**, Managing Director, Inter-Regional Secretariat, IMS

SMEs and entrepreneurs play a significant role in any economy's manufacturing sector and are key generators of employment and key drivers of innovation and growth. However, the increasingly global competition, the recent global crisis, and the scarcity of entrepreneurial and institutional lending has created a particularly difficult environment for SMEs to survive and grow. On the other hand, the strong correlation between improved business performance and cross-border trade suggests that there is a clear need for SMEs to target the global market. This session intends to reveal best practices of SMEs engaged in global manufacturing value chains and explore current and future enablers and obstacles related with their business performance and expansion in international markets.

- **César Molins**, CEO and Chairman of the Board, AMES S.A. Group Group – "Thoughts on Industry, Technology and Growth from the Viewpoint of a Medium Size Industrial Company"
 - Industry is increasingly perceived as one of the main sources of wealth and value added in the world. However, its strategic value has been often challenged in comparison with the service companies or by the ICTs. Small manufacturing industries exist all over the world, be it in the highest industrialised countries or in the emerging economies. What makes them valuable? What should be their evolution before an increasingly globalised and more technologically advanced economy? Here are some considerations from a growing industrial manufacturing company which was a small one and is now on its way to a "small large" company.
- **Massimiliano Ruffo**, CEO, Fimap S.p.A. – "Small is Beautiful, so Long as..."
 - In this competitive world, SMEs can develop only if some requirements are met. The characteristics of being small must become SME's competitive advantages. In order to do so a lot of targeted investments must be done, but people remain the most important resources. Horizontal communication and direct relationship between people are the bases onto which build SMEs success.
- **Drew Greenblatt**, President and Owner, Marlin Steel Wire Products LLC – "Power of Small"
 - Small Manufacturing in the USA have a large impact in the USA Economy. Comprising over 250,000+ companies with less than 500 employees, most around ten team members, USA factories contributed \$1.3 trillion in GDP employing over 5,086,000 workers with a \$231 Billion in payroll: ten best practices of small and medium sized factories to grow in challenging times. Marlin Steel will present the current challenges of small factories and ten techniques to grow despite the world tumult. Furthermore, policy prescription to help manufacturing thrive and prosper, ideas to grow jobs and grow wages and lift people from poverty.

10:10 - 10:40

Coffee Break

10:40 - 12:10

SESSION 4: "New Manufacturing Powerhouse Challenges"

- Chair: **José Lorenzo Vallés**, Head of Unit Advanced Manufacturing Systems and Biotechnologies, DG Research & Innovation, European Commission

New manufacturing opens up several industrialisation avenues. Countries willing to build new manufacturing capacity through smart procurement, energy and resource efficiency as well as through modern infrastructure development will have a significant advantage. Still today, manufacturing is a key enabler of economic growth and the new manufacturing powerhouses will aim to jump ahead by simultaneously developing product, process and organisational competencies at firm, local and national levels, thus contributing disproportionately toward enhanced competitiveness and innovation. This definitely requires knowledge- and technology-intensive activities such as R&D, an overwhelmingly daunting but necessary exercise.

- **Siyabonga Gama**, Group Chief Executive, Transnet SOC Ltd.– "Building South Africa's Manufacturing Base Through a Large Locomotive Modernisation Public Procurement Programme"
 • South Africa's state-owned freight transport and logistics company, Transnet, is currently modernising its electric and diesel locomotive fleet in a deal which is South Africa's biggest single corporate infrastructure investment initiative. Transnet awarded a R50 billion (approximately EUR2.9bn) contract to build 1064 locomotives to four global original equipment manufacturers (OEMs). The locomotive modernisation programme entails stringent local content, skills development and training commitments. In line with South Africa's commitment to boost its manufacturing capacity, all the locomotives except 70 will be built by Transnet Engineering in South Africa. Transnet Engineering aims to become an OEM and exporter of locomotives as a result of this modernisation programme via direct participation in the locomotive build programme. Importantly, the programme will contribute towards growing South Africa's manufacturing base through outsourcing of portions of the work to local emerging engineering and manufacturing firms. In total, the localisation elements are expected to contribute over R90 billion (approx. EUR5.3bn) to the economy and create around 30,000 jobs.
- **Dilek Cetindamar**, Academic Director, Competitiveness Committee and Member of School of Management, Sabanci University Istanbul Istanbul – "4th Industrial Revolution and Social Innovation"
 • 4th Industrial revolution has a lot to offer in terms of social innovations. Social innovation is an umbrella term that covers a broad range of activity ranging from market-oriented social innovations such as Fair Trade products and renewable energy to innovations, which cannot operate in regular competitive markets such as large parts of the fields of culture, youth aid, and other social services. Considering that UN Millennium Development Goals failed and revised in 2015 once more, there are mounting social problems in developing countries and they need to find new ways to tackle with these problems. New manufacturing capabilities have high potential to help developing countries. This presentation will offer some ideas how to grasp the potential from the point of developing countries like Turkey.
- **José Caldeira**, President, National Innovation Agency of Portugal – "Manufacturing Next: The role of R&D and Innovation Policies and Tools"
 • Competitive and sustainable manufacturing can push developing countries and regions to higher levels of performance, growth and jobs. Research and innovation are fundamental to boost these evolution paths but they call for effective and efficient innovation systems. Framework conditions can both support or hamper knowledge creation and valorisation. Especially in the case of manufacturing, public policies, programmes and initiatives can have a significant impact, by supporting the development and uptake of innovative solutions, reducing risks, leveraging private investment or promoting collaboration and internationalization. Examples will be presented to illustrate how Smart Specialization Strategies and the synergies between international, national and regional levels, can contribute to the success of these transformation processes.

12:10 – 13:10

Networking Lunch

13:10 – 14:40

SESSION 5: “Circular Manufacturing”

- Chair: **Jack Harris**, IMS Head of Delegation – United States

The linear ‘take, make, and dispose’ economy model relies on large quantities of easily accessible resources and energy with an increase of waste generated. Considering the world, population growth of eighteen per cent to 8.4 billion people in fifteen years from now, the economy model needs to move from a linear perspective to a circular one. The Circular Economy aims to eliminate waste through the superior design of materials, products, systems and business models, improving the reuse of products and the recycling of materials. Manufacturing industries have started to adopt the Circular Economy concept with this regenerative model of manufacturing in which products and components are re-used multiple times: “Circular Manufacturing”. The advantages provided by the Circular Economy seem to create benefits both for consumers and manufacturers, but significant challenges remain in adopting the circular approach.

- **Martin Stuchtey**, Director, Centre for Business & Environment, McKinsey & Company – “Towards a Circular Economy – a Next Industrial Paradigm”
 - The current pattern of resource is increasingly proving uneconomical in the 21st century. The inherited model of growth and industrial production has to give way to a new paradigm with massively improved resource productivity and higher investments into the productivity of earth systems. In an EU-wide study, the Ellen MacArthur Foundation, SUN and McKinsey have drawn a picture of a circular and regenerative economy and assessed the effects on the European Economy. The transition has already started with massive implications for industry: product development, manufacturing, supply chains and business models. The emerging industrial landscape offers multiple opportunities for adaptive companies, and the awakenings for laggards.
- **Axel Eggert**, General Director, EUROFER (European Steel Association) – “The EU Steel Industries Contribution to Circular Manufacturing in Europe”
 - Steel is 100% recyclable, losing none of its unique properties when properly processed. The European steel industry works to ensure that the steel is acknowledged as a ‘permanent’ material for EU Economy and that steel production’s by-products are put to the best possible uses. However, there are still challenges to be addressed within EU legislation in order to fully exploit the potential of steel in delivering high quality recycling, superior product design and more effective industrial symbiosis. This presentation will show how steel contributes to EU circularity and which measures the EU should implement to unleash the steel sector’s potential.
- **Mark Housley**, Executive Vice President, Carbon Conversions Incorporated – “Accelerating the Transition to Sustainable Practice: a Materials Perspective”
 - Over the past 50 years, activity directed toward sustainable practice in sourcing and utilisation of materials has increased dramatically due primarily to regulation and discovery of profitable advantage. Participants in the next 50 years will see much more of both motivations. In some ways, more sustainable practices will accelerate almost on their own, due to increasing urbanisation, leading to more nodes of scale in material collections, and higher precision de-manufacturing technology will continue to reduce costs of reclaiming pure streams from complex objects. Greater competition for material resources will tend to drive values for materials upward. While product and use design for sustainability will continue to advance, the fundamental and complex “push” system for materials acceptance will remain largely intact. Without an outright legislative mandate, the profit space in making sustainable materials transparent to the buyers’ needs and processes will grow significantly. This presentation will discuss how that will evolve and what can happen to accelerate these trends.

14:40 – 15:10

Coffee Break

15:10 – 16:40

SESSION 6: “Disruptive Strategies Towards the Next Manufacturing Era”

- Chair: **Maurizio Gattiglio**, Chairman, EFFRA

The primary impetus in all manufacturing companies is to reinforce the manufacturing competitiveness by fostering differentiation and continuously improving operational efficiency. Current trends such as the increased rate of technological change, market globalisation, customisation needs and social and environmental sustainability requirements are considered key drivers for the future of manufacturing. The session will discuss modern manufacturing challenges and will explore new manufacturing paradigms and strategies able to promote future sustainability and competitiveness in the global market.

- **Al Siblani**, President and CEO, EnvisionTEC Inc. – “3D Printing Process: Driving Mass Customization Manufacturing”
 - In the past decade, traditional manufacturing techniques served the production space quite well with processes such as CNC machining and injection moulding, but in the most recently 3D printing has taken manufacturing to new levels. Unlike traditional manufacturing with hundreds of steps between idea and creation and thousands of parts of the same design, 3D printers offer a comprehensive material, machine and software platform to deliver thousands of customised designs of the same part. Individuals following the 3D industry can now see mass-customisation as the new norm. With customisation of patient specific healthcare, automotive accessories, consumer products, and much more. This is a truly innovative and great pathway to the future in the agile yet lean production processes utilising 3D printing. The presentation provide an overview of specific markets in which 3D printing is disruptive in delivering mass-customisation as well as future challenges and megatrends in 3D printing.
- **Saul Haro**, President and CEO, MACROLYNK – “Improving Supply Chain Collaboration with Enterprise Social Networking”
 - Today, complex manufacturing ecosystems require a new generation of supply chain applications that embed social networking capabilities to enable communities of trading partners to communicate, collaborate, and execute business processes in more efficient, scalable, and innovative ways. Some of those applications are already here and they provide access to critical, real-time information by using technology that identifies problems as they happen using a collaborative social networking interface to bring the right people and transactional information from multiple organisations in the supply chain together to quickly and cost effectively resolve the problem.
- **Luigi Galdabini**, President, CECIMO – “Competitiveness of the European Machine Tool Industry in the Era of Digital Transformation”
 - Europe has the world’s most advanced and competitive machine tool industry. European machine tool builders generate more than one-third of the global production, and every second machine tool exported in the world originates from Europe. With its customised and resource-efficient solutions, the industry plays an instrumental role in producing complex industrial goods. In the last decade, the sector has been under the influx of disruptive technologies, and its leadership is challenged by new players in the market. In this speech, it will be shed the light on the key pillars underpinning the competitiveness of European machine tool builders and will touch upon the paths of action ensuring Europe’s reindustrialisation in the era of digital transformation.

16:40 – 17:00

WMF Closing

Introduction by **José Lorenzo Vallés**, Head of Unit "Advanced Manufacturing Systems and Biotechnologies", DG Research & Innovation, European Commission

- **Núria Betriu**, General Director of Industry, Government of Catalonia

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