

Presentation of the European Powder Metallurgy Association

May 2019

Dr Lionel Aboussouan Executive Director

Bruno Vicenzi Technical Manager

Kenan Boz Technical Manager

Registered Office Blue Tower, 326 Avenue Louise, B-1050, Brussels, Belgium

UK Office: 1st Floor, Haughmond View, Sitka Drive, Shrewsbury Business Park, Shrewsbury, Shropshire, SY2 6LG United Kingdom

French Office: 1 Avenue du general de Gaulle. F-60500 Chantilly, France

Overview

- What is EPMA?
- EPMA mission
- Overviews of the status and trends in the European PM Industry

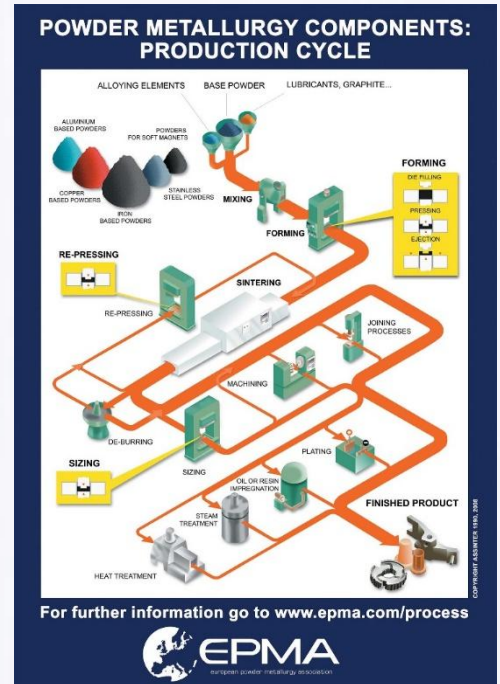


Who are the EPMA?

The European Powder Metallurgy Association (EPMA) is a non profit association formed in Brussels in 1989 with three key missions:

- Promote and Develop PM Technology in Europe
- Represent the European PM Industry within Europe and Internationally
- Develop the Future of PM

EPMA is what its members want it to be



Membership Levels of the EPMA

Full Member **

European PM companies are welcome to join the EPMA as Full Members. Companies must be actively involved in one or more areas of powder metallurgy as listed in the EPMA Bylaws*. Only Full Members have voting rights.

Annual Membership
€3600

Full Member: Small Company Discount **

Companies eligible for Full Membership, who have annual PM related sales of more than €3 million but less than €10 million, are entitled to a 40% reduction on Full Membership Fee.

Annual Membership
€2215

Full Member: Micro and Start-up Company Discount **

Companies eligible for Full Membership who have annual PM related sales of up to €3 million are entitled to a 60% reduction on Full Membership Fee.

Annual Membership
€1440

Affiliate Member

Membership in this category is open to manufacturing subsidiaries of Full Member holding companies in the same sector. This category also applies to PM Consultants who wish to be listed as a consultant within the EPMA Directory of Members. Affiliate Members do not have any voting rights, but otherwise enjoy all other benefits of Full Membership.

Annual Membership
€930

Associate Member

Open to the following organisations:

- European companies with an interest in PM, but not active in manufacturing metal powders, components or production equipment
- Non-European companies active in the manufacture or metal powders, PM products and production equipment
- Research establishments, scientific institutions or societies

Annual Membership
€1800

Individual Member

'Individual Membership' (without voting rights) is open to persons with clear professional interests in the objectives of the Association.

Applications from individuals employed by organisations which are eligible for 'Full', 'Affiliate' or 'Associate' membership cannot be accepted as 'Individual' members unless their organisation is already a member in one of the above categories.

Individual Members also receive a free subscription to the journal Powder Metallurgy. Individual Members' companies do not receive online promotion.

Annual Membership
€200

Student Member (Junior)

'Junior Membership' is open to persons under 30 years of age under the same conditions as those for 'Individual Members', but not including a subscription to Powder Metallurgy.

Annual Membership
€100

European full fees

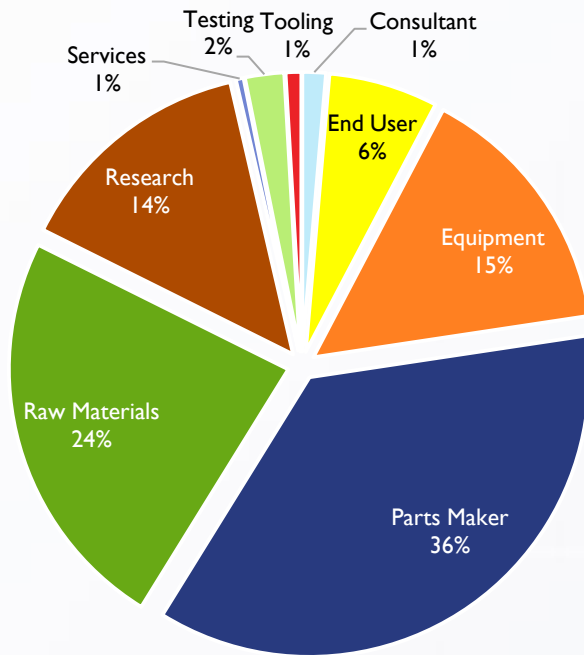
European full members with one Full Member and several Affiliates

Pay two Full Memberships instead of one membership and several affiliates
€7200

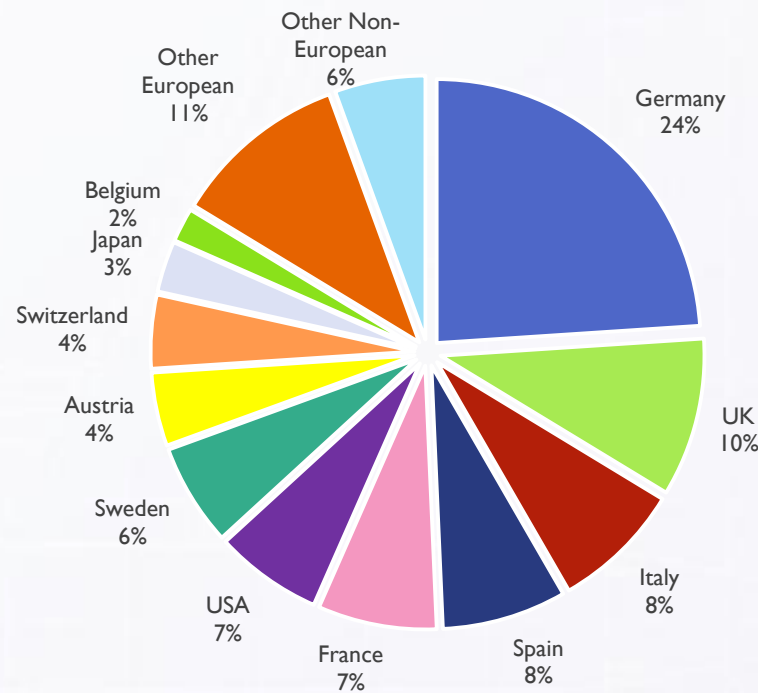
Membership

EPMA members: ca. 222 Corporate + ca. 78 Individual Members

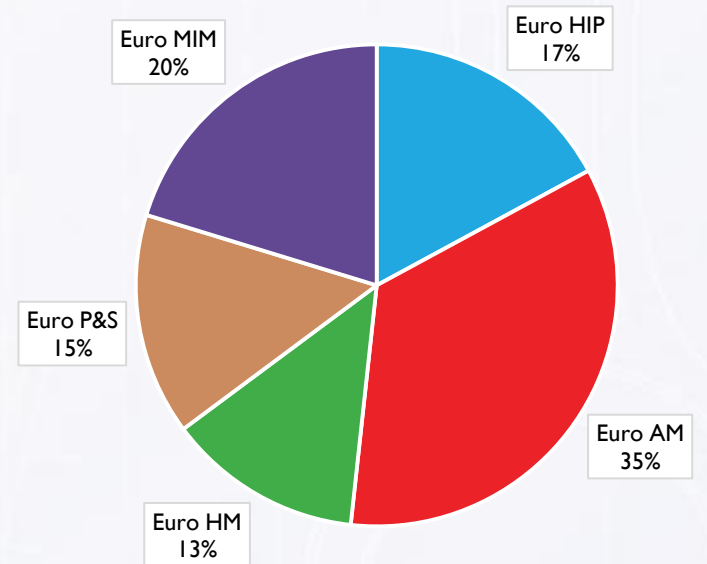
By activity



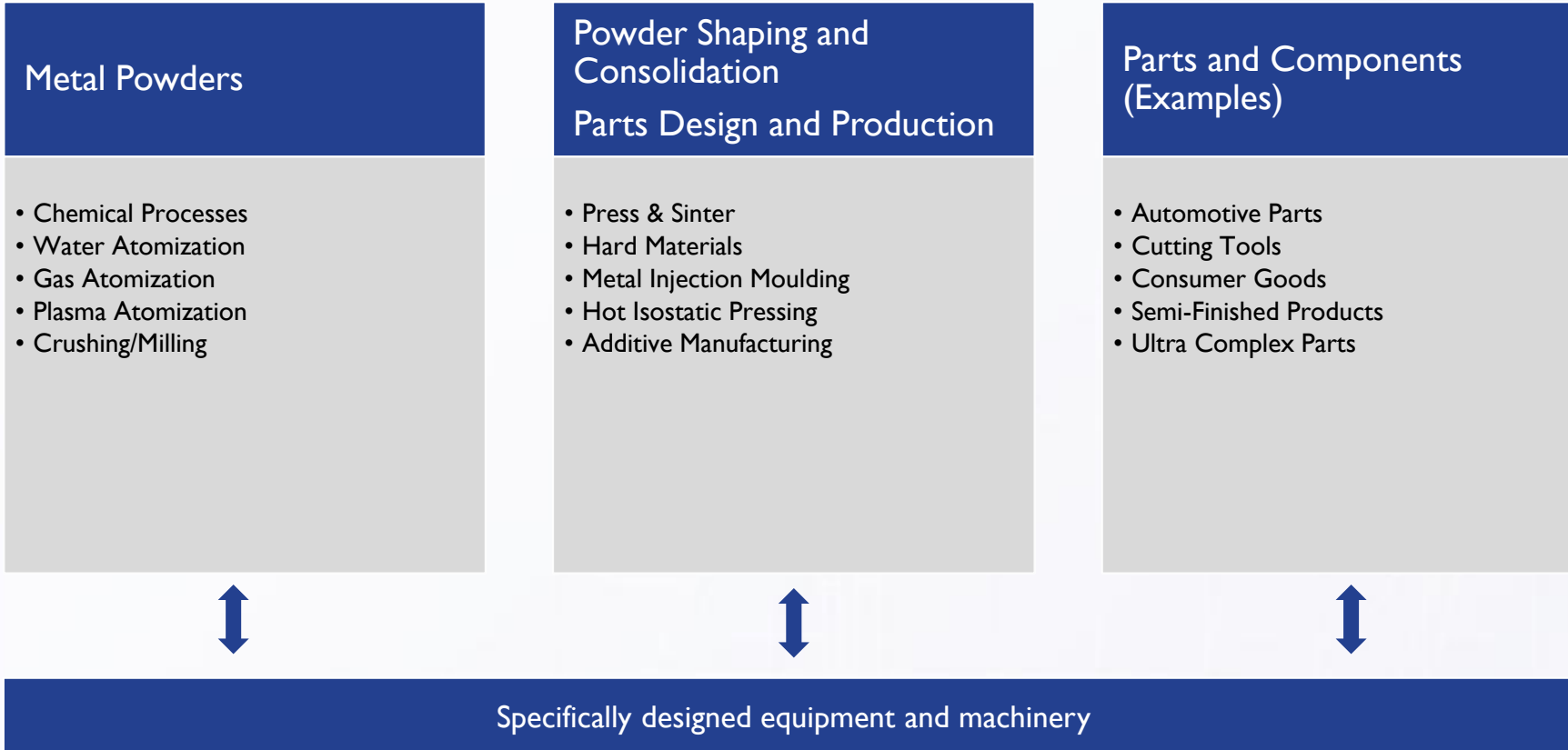
By geographical area



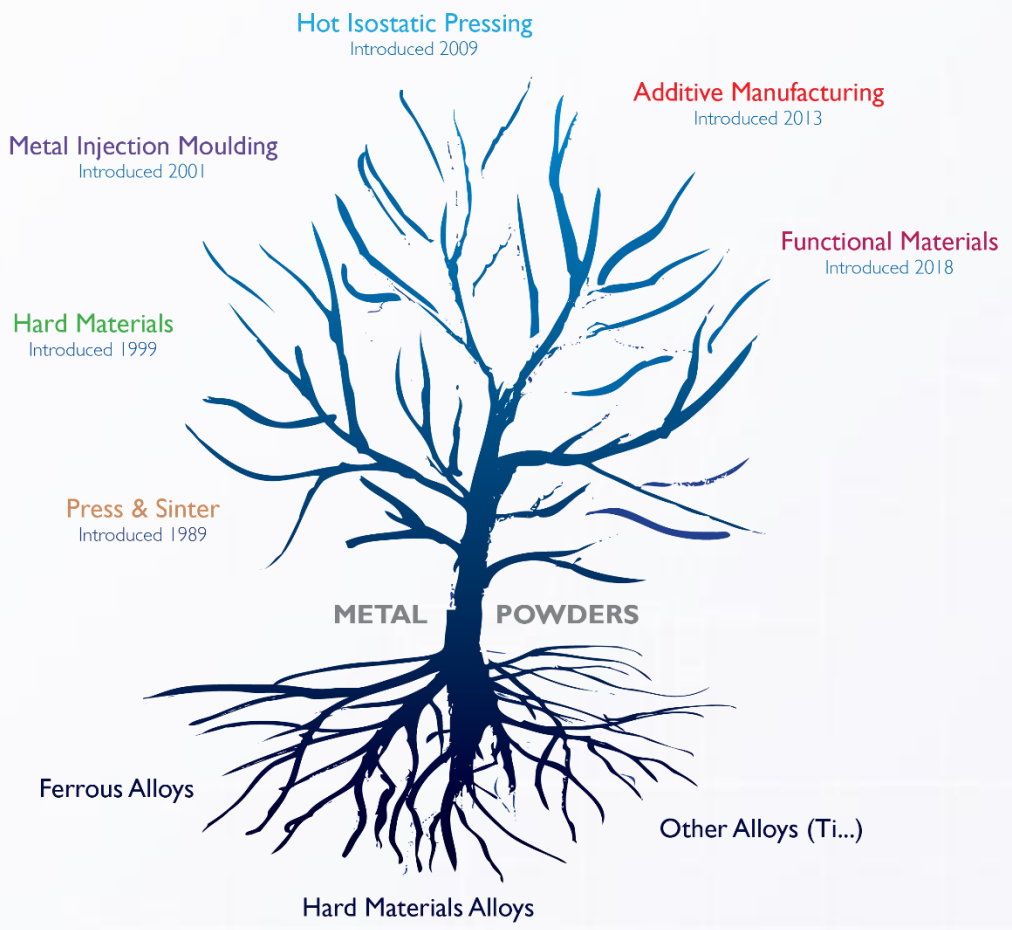
By sectoral group



PM Processes and Materials covered by the EPMA



History of the PM 'Growing Tree' as covered by the EPMA



➔ New Needs (Projects, Lobbying, Networking etc...)

➔ New Processes

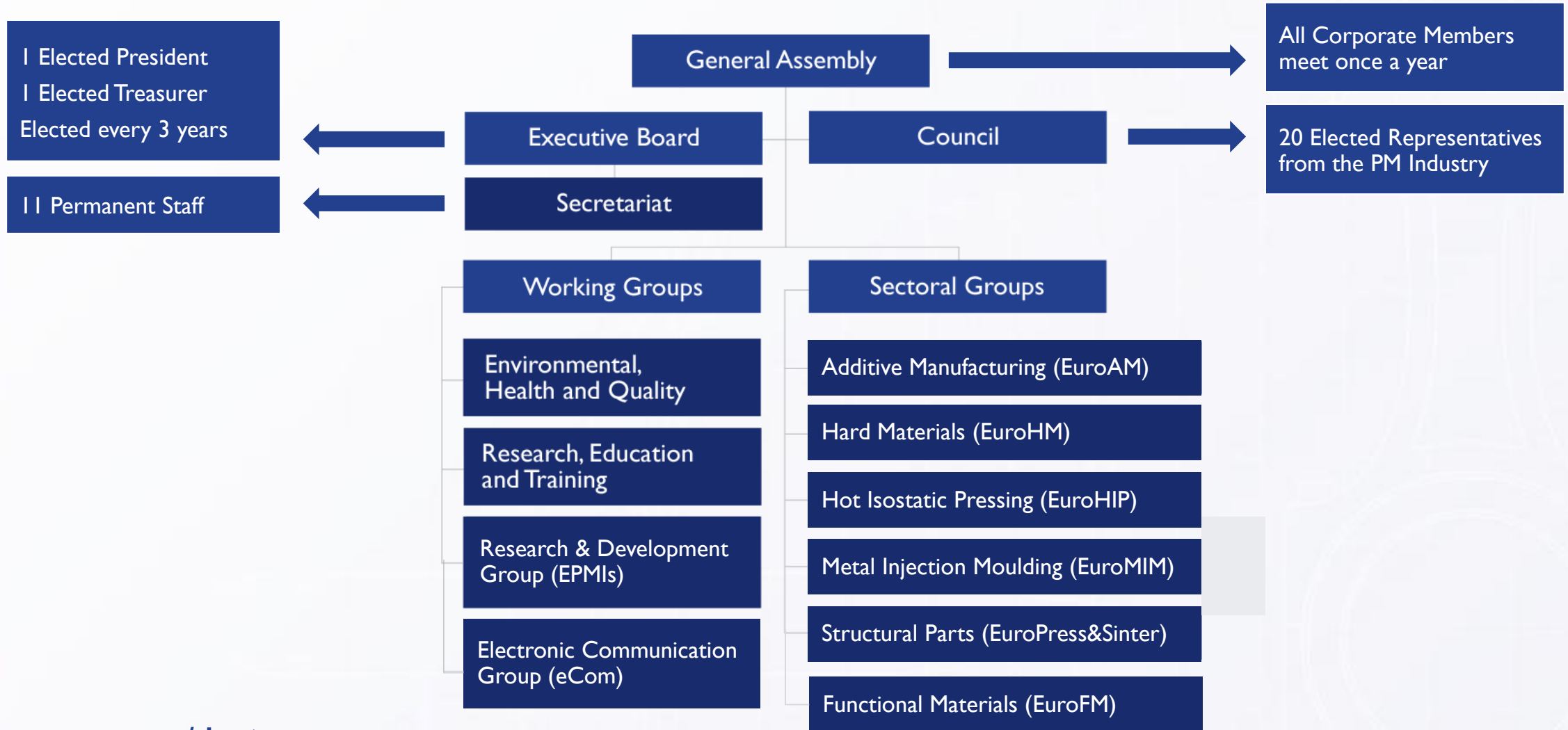


New Sectors



➔ New Materials

Organisation Chart of the EPMA



EPMA Secretariat



Dr Lionel Aboussouan
Executive Director



Mrs Delphine Nicolas
Event and Project Co-ordinator



Mrs Jackie Peters
Accounts



Mr Kenan Boz
Technical Manager



Mrs Sabine Hazoumé
Event and Project Co-ordinator



Ms Karen Fisher
Graphic Designer



Mr Bruno Vicenzi
Technical Manager



Mrs Rhianna Jones
Membership, Database & IT Co-ordinator



Mr Andrew Almond
Marketing & Exhibition Manager



Mr Andy Cormack
Marketing Assistant



Miss Kate Blackbourne
Congress Manager



Miss Emma Powell
Event Assistant

EPMA Executive Board

President

Mr Ralf Carlström (DigitalMetal, Sweden)

Treasurer

Mr Pierre Blanchard (Erasteel, Sweden)

Vice Presidents

Dipl. -Ing Ingo Cremer (Cremer Thermoprozessanlagen GmbH, Germany)

Mr Guido Degen (GKN Sinter Metals, United Kingdom)

Mr Philippe Gundermann (Eramet, France)

Mr Thomas Lambrecht (Dorst Technologies, Germany)

Dr Cèsar Molins (AMES SA, Spain)

Dr Harald Neubert (Miba Sinter GmbH, Germany)

EPMA Council

Representing the Additive Manufacturing Sector

Mr Ralf Carlström (Höganäs AB, Sweden)

Representing the Applications Sector

Dr Steven Moseley (Hilti AG, Liechtenstein)

Representing the Hard Materials/refractory Metals Sector

Dr. Heinrich Kestler (Plansee SE, Austria)

Representing the Hot Isostatic Pressing Sector

Mr Martin Brear (Bodycote Hot Isostatic Pressing AB, Sweden)

Representing the Metal Injection Moulding Sector

Dr Georg Breitenmoser (Parmaco, Switzerland)

Representing the Metal Powders Sector

Mr Michael Rehnig (Höganäs Sweden AB, Sweden)

Representing the Plant & Equipment Sector

Dipl Ing Ingo Cremer (Cremer Thermoprozessanlagen GmbH, Germany)

Representing the PM Semis Sector

Mr Philippe Gundermann (Eramet, France)

Representing the PM Based Parts Sector

Dr César Molins (AMES SA, Spain)

General Representatives

Dr Pierre Blanchard (Erasteel Kloster, Sweden)

Dr Sven Fleischmann (BASF AG, Germany)

Mr Guido Degen (GKN Sinter Metals , United Kingdom)

Mr Magnus Ekelund (Sandvik Coromant AB, Sweden)

Dr Ing Matteo Federici (Sacmi Imola SC, Italy)

Mr Peter Kjeldsteen (Sintex A/S, Denmark)

Ms Izabela Kulszewicz (Polmo Lomianki SA, Poland)

Mr Christoph Laumen (Linde Gases Division, Germany)

Mr Thomas Lambrecht (Dorst Technologies, Germany)

Dr Harald Neubert (Miba Sinter GmbH, Germany)

Mr Carlo Sgarbossa (Pometon SpA, Italy)

+ Prof. Alberto Molinari (Univ Trento) as guest from PM Academia



Working and Sectoral Groups Chairs

Sectoral Groups

European Press & Sinter Group (EuroP&S)

Dr César Molins (AMES) / Caroline Larsson (Hoganas)

European Metal Injection Moulding Group (EuroMIM)

Dr Frank Petzoldt (Fraunhofer IFAM) / Dr Georg Breitenmoser (Parmaco, Switzerland)

European Hard Materials Group (EuroHM)

Dr Steven Moseley (Hilti) / Prof Luis Llanes (UPC)

European Powder Metallurgy HIP Group (EuroHIP)

Dr Susan Davies (Bodycote Hot Isostatic Pressing AB) / Mr Jim Shipley (Quintus Technologies AB)

European Additive Manufacturing Group (EuroAM):

Claus Aumund-Kopp (Fraunhofer IFAM) / Adeline Riou (Erasteel)

European Functional Materials Group (EuroFM):

Dr Sebastian Hein (Fraunhofer IFAM)

Working Groups

Research Education and Training (RET)

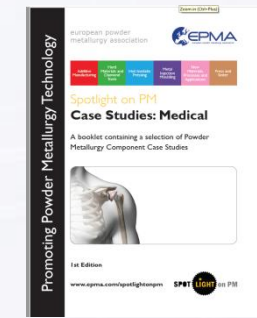
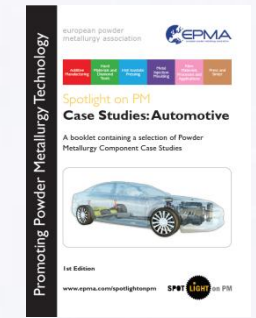
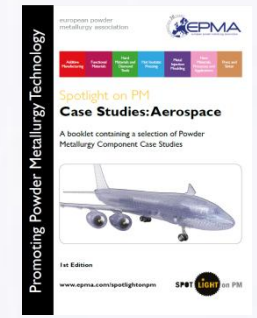
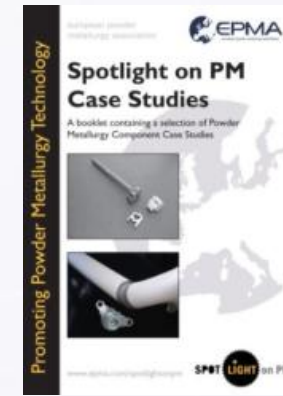
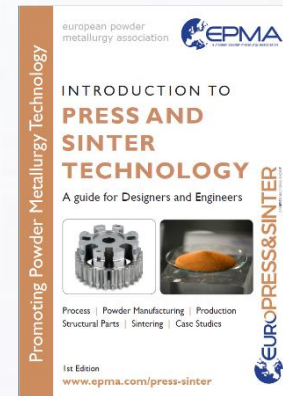
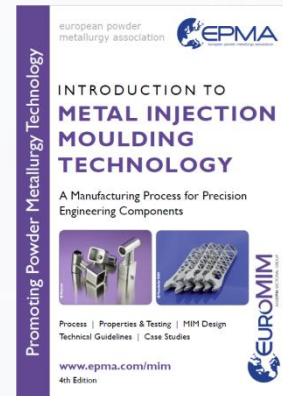
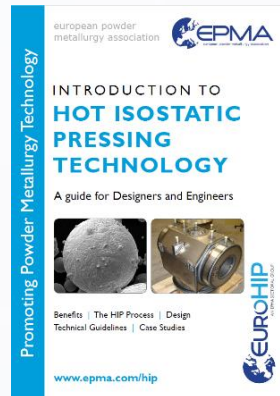
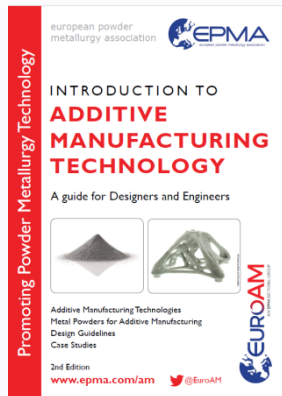
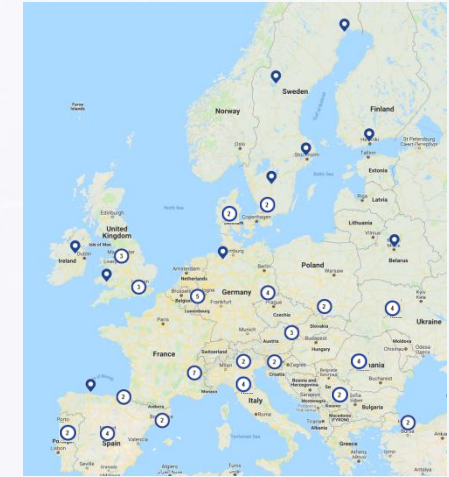
Prof José Torralba (UC3M) / Dr Pierre Blanchard (Erasteel)

EPMI (Academic Network)

Prof. Alberto Molinari (Univ. Trento) / Prof Elena Gordo (Uc3m, Madrid)

Promoting and Developing PM Technology

- End User Seminars
- Spotlight on PM
- Design for PM e-learning Website
- Global PM Property Database
- Website and Guides for End Users
- Events



Developing the Powder Metallurgy Future

Congress and Exhibition

- Euro PM Annual Event / World PM every 2 years: Europe, Asia, US
- Euro PM2019 Maastricht

Sectoral Groups

Working Groups

Education and Training

- Summer Schools
- Seminars
- Workshops
- Young Engineers Day
- PMLife

Technical work

- Benchmarking
- Statistics
- International Standards

Synergies

- Industry funded R&D programmes
- EU Programme

Roadmapping

www.epma.com



PM Life 

LIFELONG LEARNING IN POWDER METALLURGY



POWDER AND
HARD MATERIALS



PRESS AND
SINTER



HOT ISOSTATIC
PRESSING



ADDITIVE
MANUFACTURING



METAL INJECTION
MOULDING

www.pmlifetraining.com





LIFELONG LEARNING IN POWDER METALLURGY

PM Life is a lifelong training programme to help develop the future of Powder Metallurgy and help provide a comprehensive training course to those looking for a related career.



2019 Dates

	POWDER AND HARD METAL	3-7 June 2019 Chalmers University of Technology Gothenburg, Sweden
	PRESS AND SINTER	17-21 June 2019 Grenoble INP Grenoble, France
	HOT ISOSTATIC PRESSING	1-5 July 2019 The Manufacturing Technology Centre (MTC) Coventry, UK
	ADDITIVE MANUFACTURING	26-30 August 2019 IFAM Dresden Dresden, Germany
	METAL INJECTION MOULDING	9-13 September 2019 Universidad Carlos III de Madrid Madrid, Spain

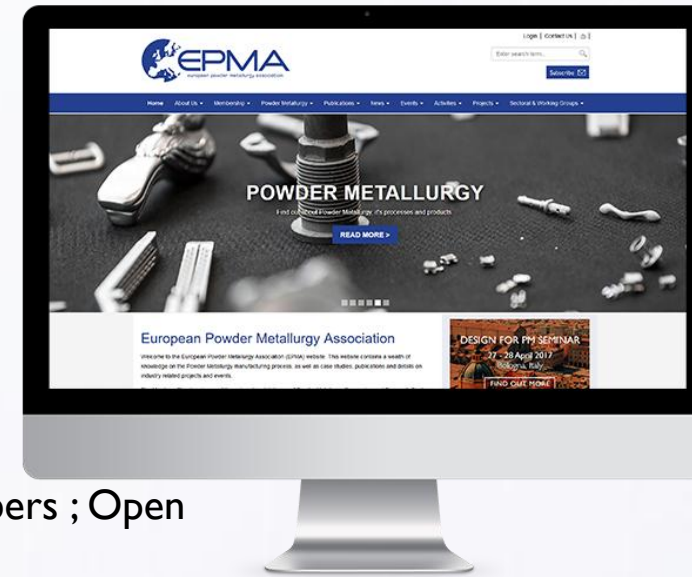
Registration NOW Open









www.pmlifetraining.com

This activity has received funding from the European Institute of Innovation and Technology (EIT), a body of the European Union, under the Horizon 2020, the EU Framework Programme for Research and Innovation

EPMA on the Web

- EuroPM: www.europm2019.com
- Seminars: <https://seminars.epma.com/>
- Summer School: <https://summerschool.epma.com/>
- PMLife: www.pmlifetraining.com
- LinkedIn
 - European Powder Metallurgy Association Networking Group
 - <https://www.linkedin.com/groups/2934690/> ; 1355 members ; Open
 - European Powder Metallurgy Association
 - <https://www.linkedin.com/company/european-powder-metallurgy-association/?viewAsMember=true> ; 1335 followers
- YouTube
 - <https://www.youtube.com/user/EuroPMAssoc>
- Twitter
 - @EuroPMAssoc
- Facebook



 <p>PM Life 2019 42 vues • il y a 1 mois</p>	 <p>Euro PM2019-Call-For-Papers-Submission-Help 26 vues • il y a 5 mois</p>	 <p>Euro PM2019 Congress & Exhibition - Meet with us in 286 vues • il y a 6 mois</p>	 <p>EPMA 2018 Component Awards in Powder Metallurgy 516 vues • il y a 6 mois</p>
 <p>EPMA 2018 Component Awards in Powder Metallurgy 237 vues • il y a 6 mois</p>	 <p>EPMA 2018 Powder Metallurgy Component 450 vues • il y a 6 mois</p>	 <p>EPMA 2018 Powder Metallurgy Component 848 vues • il y a 6 mois</p>	 <p>World PM2022 Congress & Exhibition - Lyon, France 71 vues • il y a 9 mois</p>

2019 Promotional Events Schedule

Based on consultation and feedback from the ECOM Group, EPMA's proposed 2019 Promotional Strategy included the following events, seminars and exhibitions:

EPMA Promotional Events 2019

- Advanced Engineering Sweden
- Develop 3D, UK
- AP&M Europe, Germany
- Automechanika, UK
- Titanium Europe, Austria
- Autonomous Vehicle, UK
- Advanced Engineering UK 2019, UK
- Formnext 2019, Germany
- Transmission Expo 2019, Germany

These 9 industry related exhibitions covering the main end user markets:

- Medical – Titanium Europe / Advanced Engineering UK
- Aerospace – Titanium Europe / AP&M Europe
- Consumer Goods – Develop3D Live
- Advanced Engineering Sectors – Automotive/Materials /Advanced Engineering UK
- AM orientated – Formnext 2019



Seminars and Training 2019

- Hot Isostatic Pressing Seminar | 11 - 12 February | Sint-Niklaas, Belgium
- Functional Materials Seminar | 3 - 4 April | Bremen, Germany
- AM Seminar Seminar | 13 - 15 May | Gothenberg, Sweden
- PM Life - Powder and Hard Materials | 3 - 7 June | Gothenburg, Sweden
- MIM Seminar | 4 - 5 June | Fischingen, Switzerland
- PM Life - Press & Sinter | 17 - 21 June | Grenoble, France
- PM Life - Hot Isostatic Pressing | 1 - 5 July | Coventry, UK
- EPMA Powder Metallurgy Summer School 2017 | 15 - 19 July | Trento, Italy
- PM Life - Additive Manufacturing | 26 - 30 August | Dresden, Germany
- PM Life - Metal Injection Moulding | 9 - 13 September | Madrid, Spain
- P&S Showcase | 3 - 4 December | Hary, France



Euro PM2019 Congress & Exhibition: Ensuring the Cohesion of the PM Community

- The EPMA organise an annual Congress and Exhibition in Europe
- In 2019, EPMA will be organising the Euro PM2019 Congress and Exhibition: **the** place for the European PM supply chain to meet and discuss new and innovative industry trends



EURO
PM2019
CONGRESS & EXHIBITION

www.europm2018.com

Euro PM2019 Congress & Exhibition



Highlights

- Congress with PM Specialist Plenary Speakers
- Three Day Exhibition featuring over 150 Exhibitors
- End User Days and Industry Tours
- Thesis Competition 2019
- Spotlight on PM Showcase
- Distinguished Service Award 2019
- Fellowship Award 2019
- Young Engineers Workshops
- Special Interest Seminars

www.europm2019.com

EURO PM20 CONGRESS & EXHIBITION

- Date: 4-7 October 2020
- Venue: Lisbon Congress Centre (LCC)
- Exhibition Stands go on sale September 2019
- Call for Papers goes out
1 November 2019



EuroPM2021: Malmö, Sweden

- Venue: Malmömässan
- Date: 10-13 October 2021



WorldPM2022: Lyon, France

- Date: 9-13 October 2022
- 8400m2 exhibition space pillar free
- 10+ session rooms
- 1000 hotel rooms within 2 minutes walk
- Airport in Lyon + 26 trains per day from Paris CDG

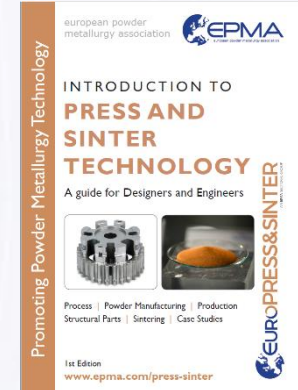
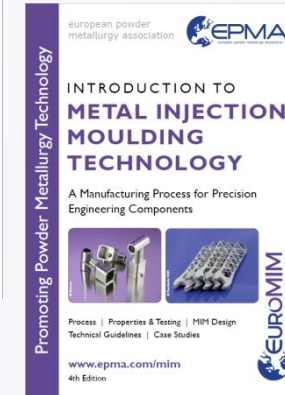
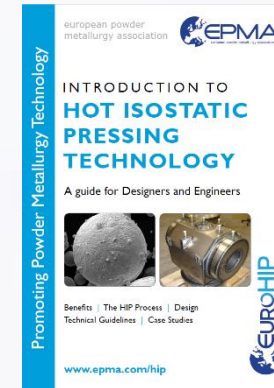
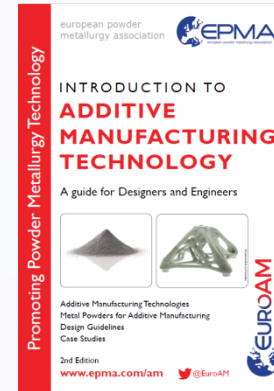


EPMA Sectoral Groups

- 6 sectoral groups
 - Euro Press&Sinter
 - Euro MIM
 - Euro HIP
 - Euro AM
 - Euro HM
 - Euro FM



- What do they do:
 - Sectoral group meetings during Euro PM
 - Statistical Surveys
 - Benchmarking Surveys
 - Trend surveys
 - Seminars
- Publications:
 - Brochures
 - Flyers
 - Yearly Statistical Book



Synergies Activities: EPMA Club Projects

Industry-defined Projects open to EPMA Members and Co-ordinated by the EPMA

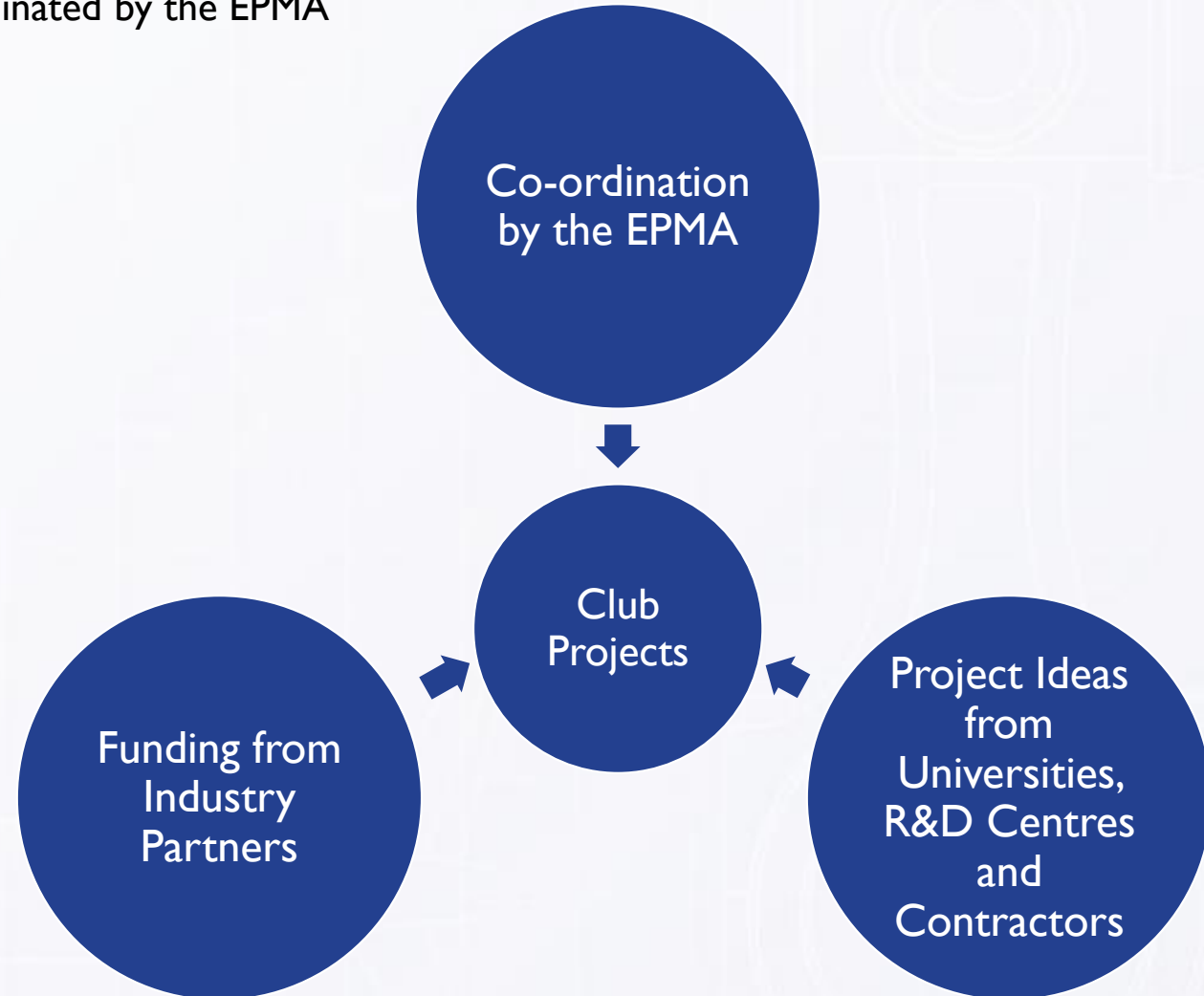
- Budget: Between €10k and €100k
- Time frame: Between 6 and 18 months
- 19 Projects so far: www.epma.com/projects
- €650k collected in total

Club Projects Webpage:
www.epma.com/projects



Club Project meeting participants

www.epma.com/projects



EPMA Club Projects 2019 www.epma.com/projects

- Additive Manufacturing
 - Environmental Health and Safety Issues in Laser-based Powder Bed Fusion
 - Quality Test for Laser Beam Powder Bed Fusion
- Hard Metal
 - Micro-mechanical testing: a quantitative method for measuring local mechanical properties in hardmetals
 - Ultrasonic Fatigue Testing of Hardmetals in the gicacycle regime
 - Simulation of Fatigue Crack Growth in Hardmetal at a Mesoscopic Scale
- HIP & AM: Combination of Additive Manufacturing and HIP
- Press & Sinter
 - High Temperature Sintering
 - Design for Sintering – Improving the reliability of the design procedure accounting for anisotropic dimensional changes

Synergies Activities: EU Funded Projects

Dissemination / Exploitation support:

- DIRA-GREEN (2011 – 2015)
- EFFIPRO (2013 – 2017)
- AM-Motion (2016 – 2018)
- Supreme (2017 – 2020)
- SAM (2019 – 2021)

Support/Participation in Members' Proposals

- Horizon 2020
- Marie Curie Initial Training Network
- EURAMET
- Knowledge Innovation Community (KIC)

www.epma.com/projects



Dira-Green Prototype



EFFIPRO Consortium



EU project – SUPREME

- SUPREME (“Sustainable and flexible powder metallurgy processes optimization by a holistic reduction of raw material resources and energy consumption”) is an H2020 funded project started in September 2017
- Coordinator: CEA (France). 17 partners (8 countries), 11 companies (6 SMEs).
- Optimizing powder metallurgy processes throughout the supply chain.
- 5 applications sectors: automotive, aeronautics, cutting tools, moulding tools and medical
- Involves: powder production, AM, MIM, diamond tools, HIP
- Duration: 3 years (presently M19)
- Total budget: 7.6 M€ (946 person.months)
- EPMA involved in dissemination (ca. 250k€, 30.5 pm)

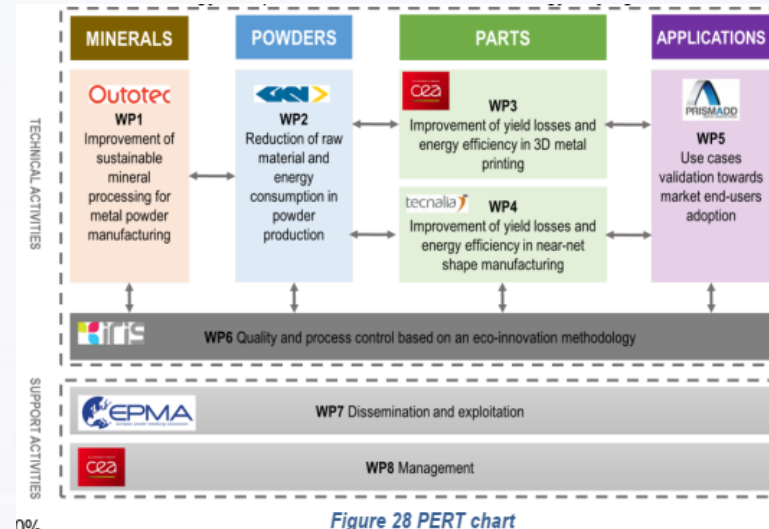


Figure 28 PERT chart

The screenshot shows the SUPREME project website. At the top, it says 'SUPREME' and 'Consortium'. Below this, there is a grid of logos for the project partners, organized in three columns. The partners listed are: CEA (Commissariat à l'Énergie Atomique et aux énergies alternatives, France), Outotec (Outotec Oyj, Finland), MBN Nanomaterialia (Italy), ASL (Atomising Systems Limited, United Kingdom), GKN (GKN Sinter Metals, Germany), IDONIAL (Fundación Idonial, Spain), IPC (INNOVATION INDUSTRIE COMPOSITES, France), TWI (TWI Ltd, United Kingdom), tecnalia (tecnalia, Spain), RENISHAW (Renishaw PLC, United Kingdom), RHP (RHP Technology GmbH, Austria), IRIS (Innovació i Recerca Industrial i Sostenible, Spain), MBA (MBA Incorporado SL, Spain), PRISMADO (Prismado, France), DELLAS (Dellas srl, Italy), FCA (Centro Ricerche Fiat, Italy), and EPMA (European Powder Metallurgy Association, Belgium). At the bottom, there is a small image of a powder metallurgy part and a note about funding from the European Union.

EU project – SAM

- Sectors Skills Strategy in Additive Manufacturing (SAM) is an Erasmus+ funded project that was started in January 2019
- Coordinator: EWF (Portugal). 16 partners.
- The aim is to deliver a shared vision and collaborative skills solutions capable to foster and support the growth, the innovation and competitiveness of the AM sector.
- Tasks include: assessment of current and future skills in AM, revising professional profiles, “Raise the Awareness” Campaign for AM, dissemination.
- Total ca. 16500 person days
- EPMA involved in all tasks (incl. dissemination), about 1000 pd, coordinating WP7 (‘Awareness Campaign’ – 200 pd)

RELATION BETWEEN WORK PACKAGES

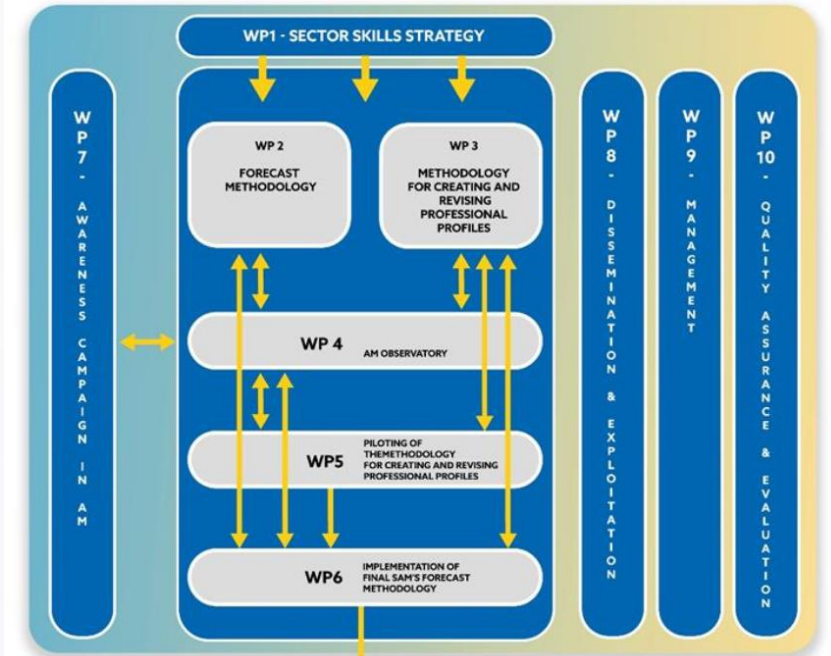


Figure 11 - SAM's Pert Chart



Representing: Involvement of the EPMA at European and International Levels

- Links at European and International Levels
- Inputs and Support for Members on Legislative Issues
- Work with External Bodies for the benefit of industry standardisation (e.g. ISO Standards)
- Represent the European PM Industry in environmental matters (e.g. REACH)



EPMA Lobbying Activities and Overview



The Lobbying Activities cover the **Environmental Health & Safety**, the **Energy and Climate Change** and the **Research and Development** areas at a European level.

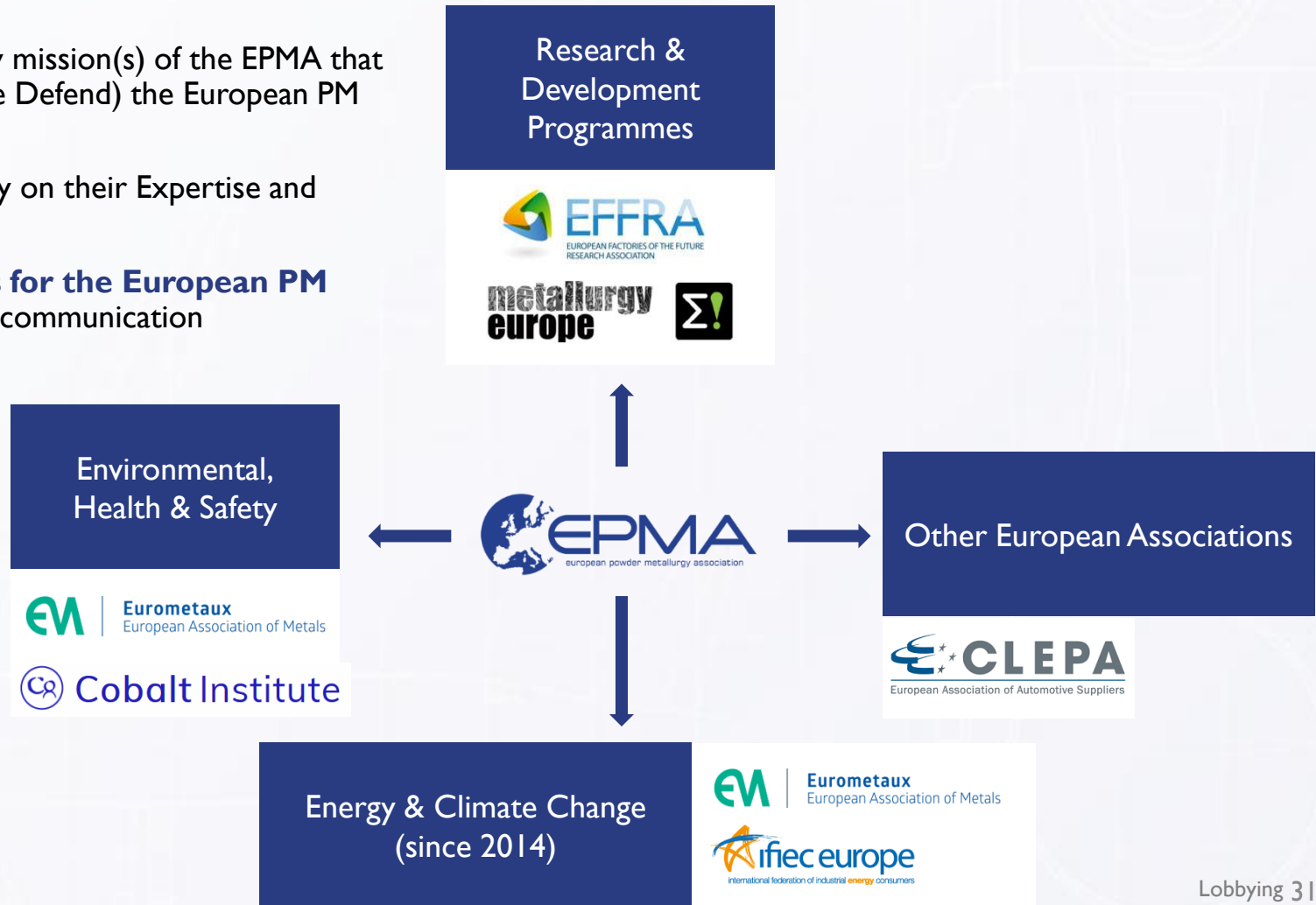
The EPMA lobbying activities intend to fulfil the key mission(s) of the EPMA that are to Represent, Promote, Develop (and sometime Defend) the European PM Industry outside the PM community

Therefore we have joined other Associations to rely on their Expertise and Network

- **EPMA "Vision 2025 Future Developments for the European PM Industry" Roadmap:** Useful tool for external communication

- **Developing new Standards:**

The EPMA liaises between the ISO committee and the PM community



Overview of the Status and Trends in the European PM Industry

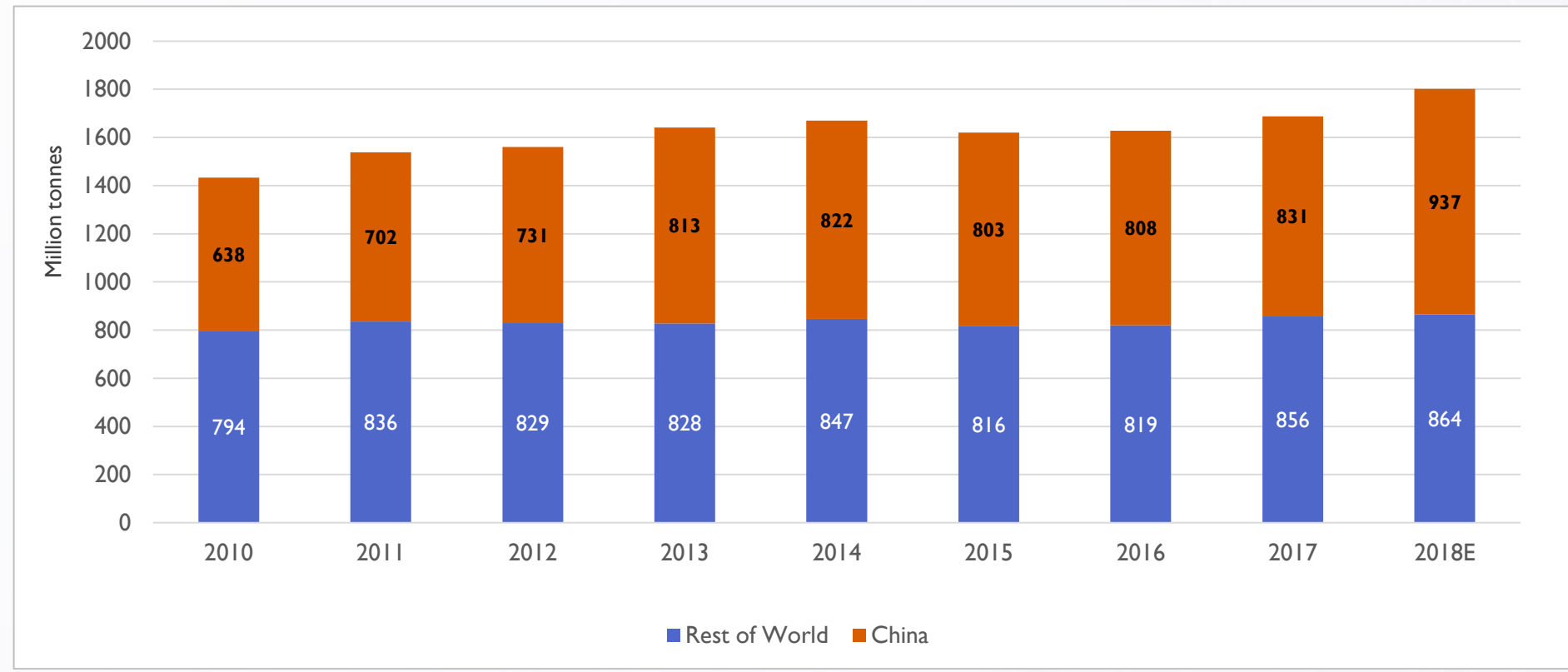
A global continued growth, even a little bit reduced



Source: imf.org

New historical annual record for global carbon steel production

- Global carbon steel production up, driven in particular by China (+6.6%) and India (+4.9%)

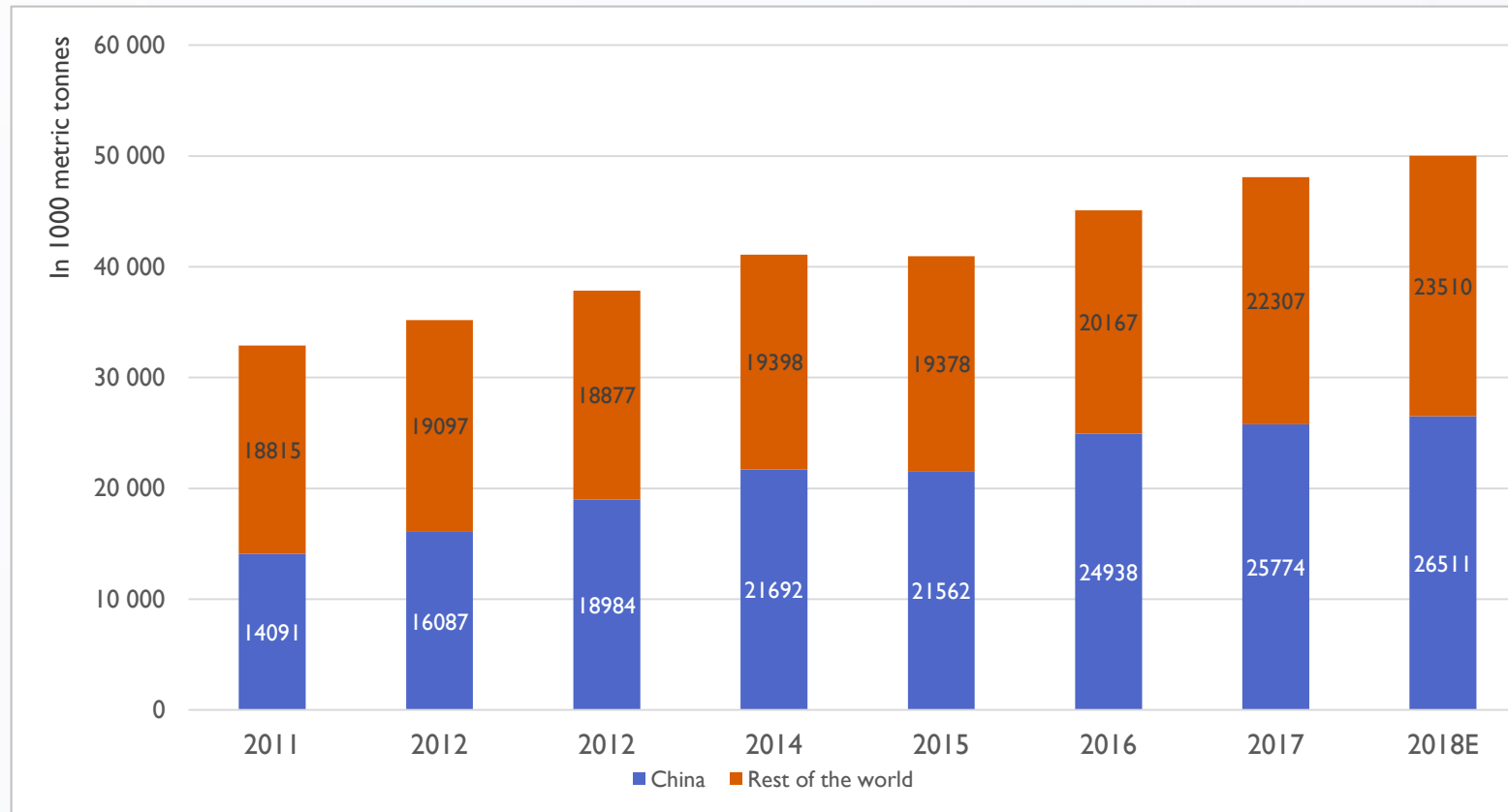


Source: Worldsteel Association and Eramet

Another year of growth in global stainless steel production,

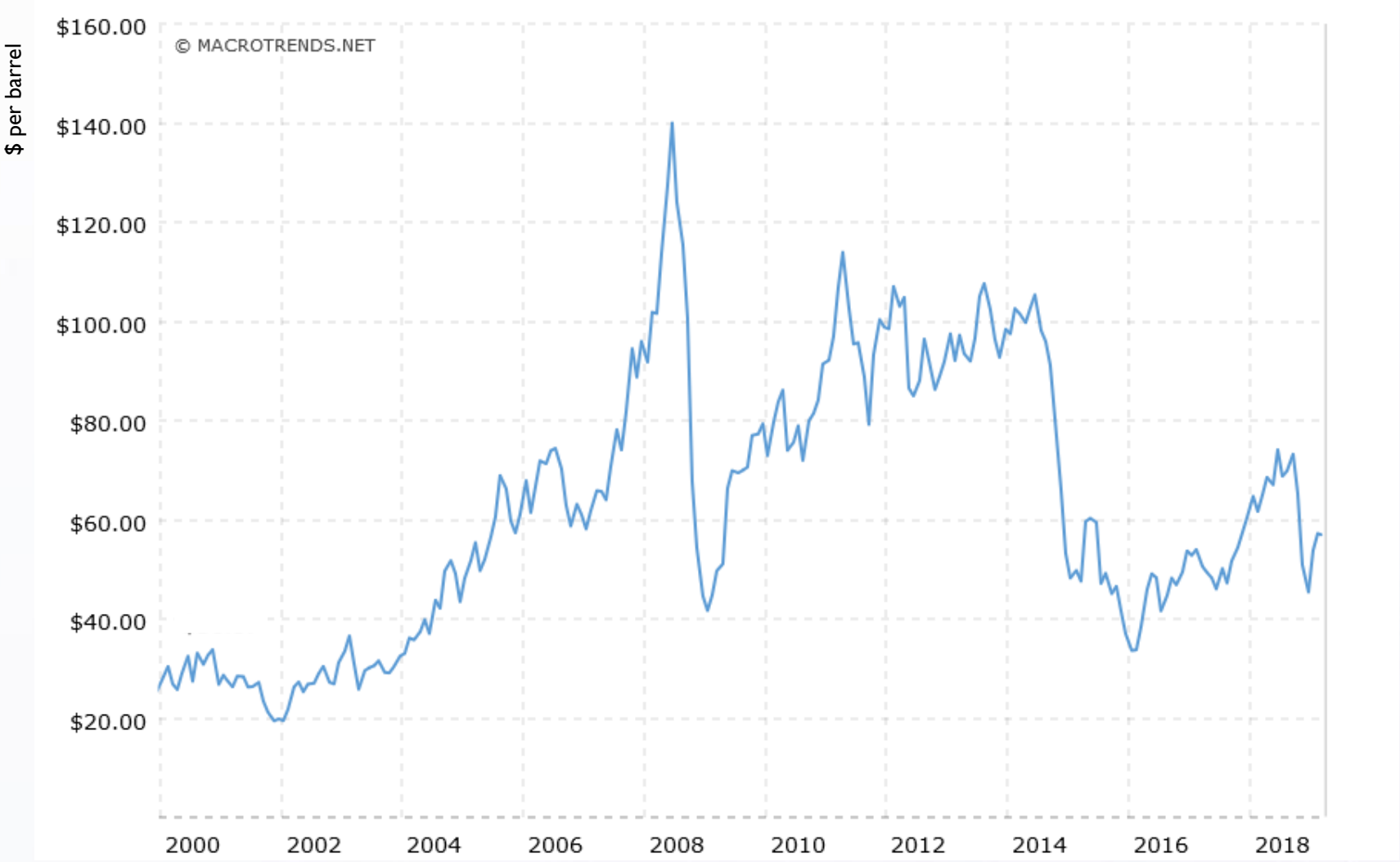


- Global stainless steel production up in 2018:



Source: ISSF and Eramet

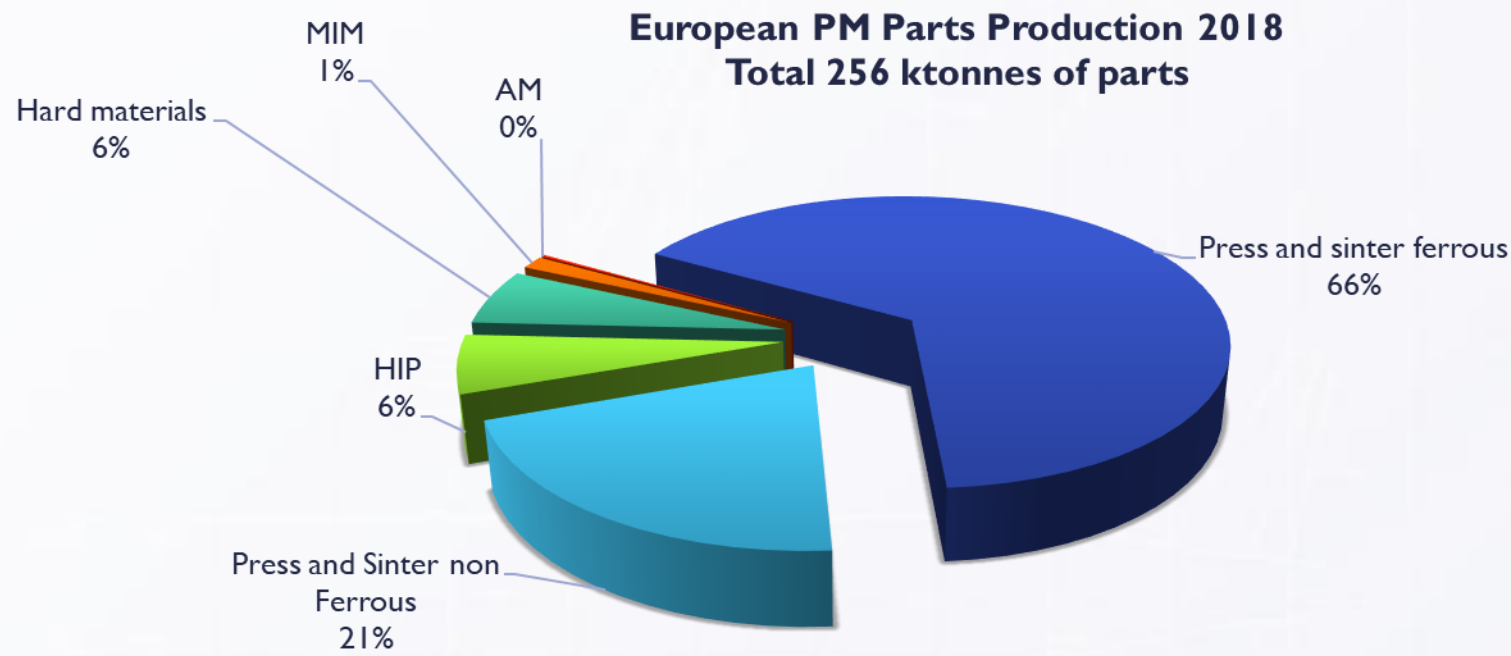
Energy: Crude Oil Prices uncertainty



Source: macrotrends.net

EU powder production: Growth rate lower in 2018

- Powder production increased by less than 1 % in mass in 2018 compared to 2017 at #270kt
- Part production stable at #256kt

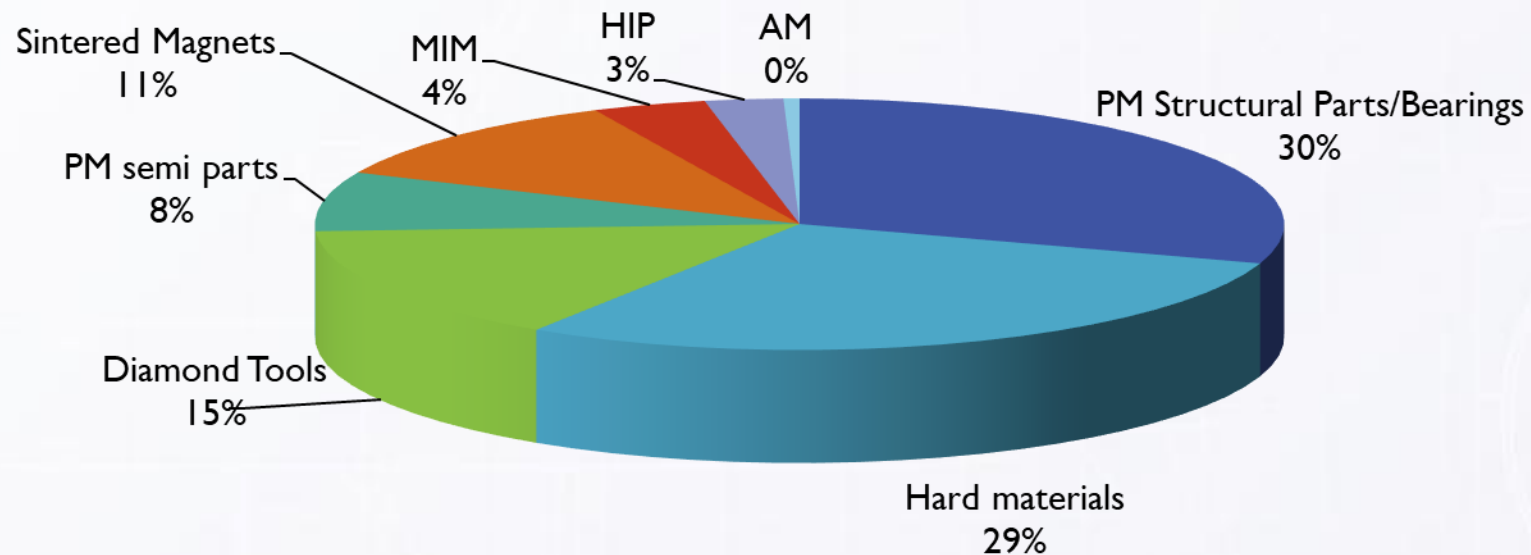


EU parts production: Growth rate lower in 2018



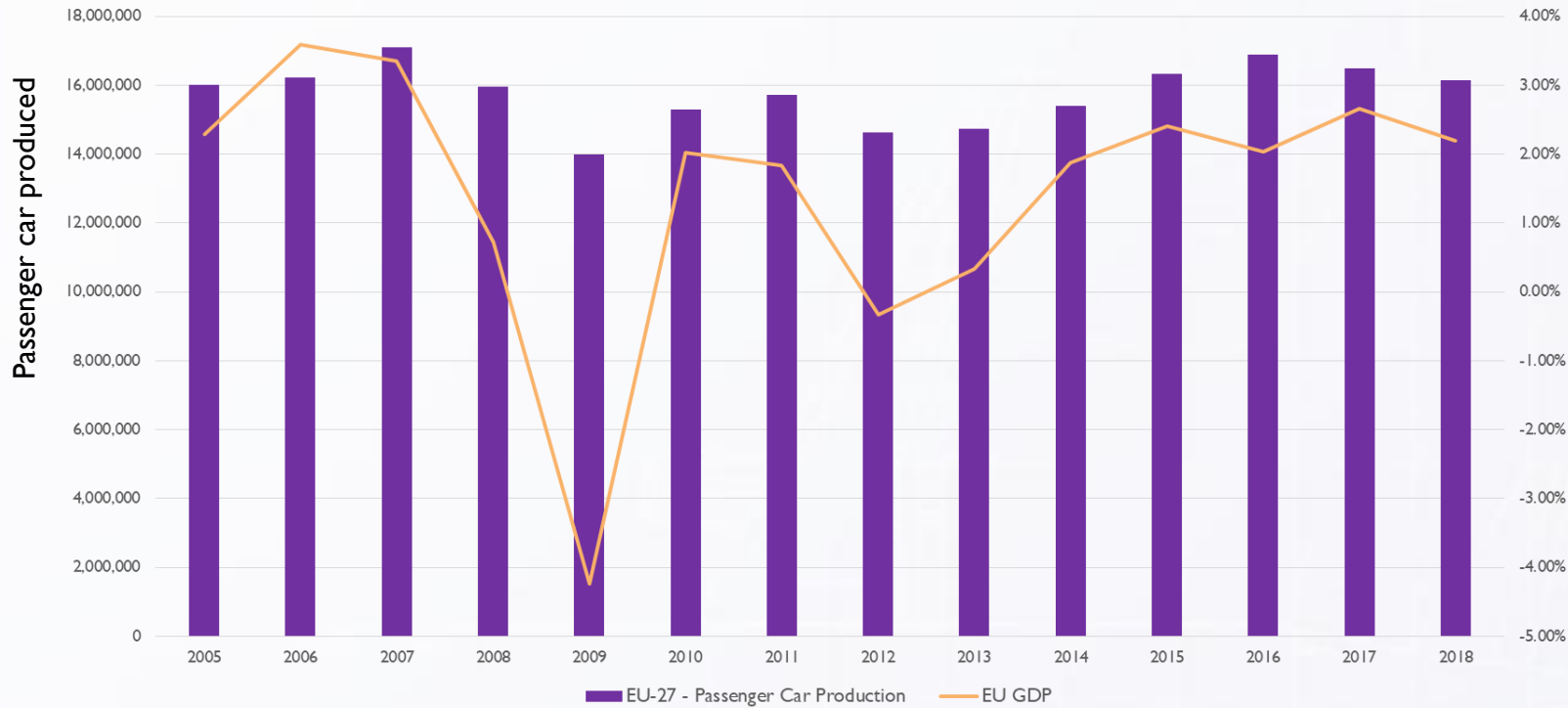
- Part production increased by less than 2% in turnover (more than 6% in 2017 vs 2016)

European PM Production 2018 by Value
Total €12 Billion



EU Automotive Sector at sustained robust level but...

- More than 8 kg of PM parts in automotive



Courtesy GKN Sinter Metals



Courtesy Ames

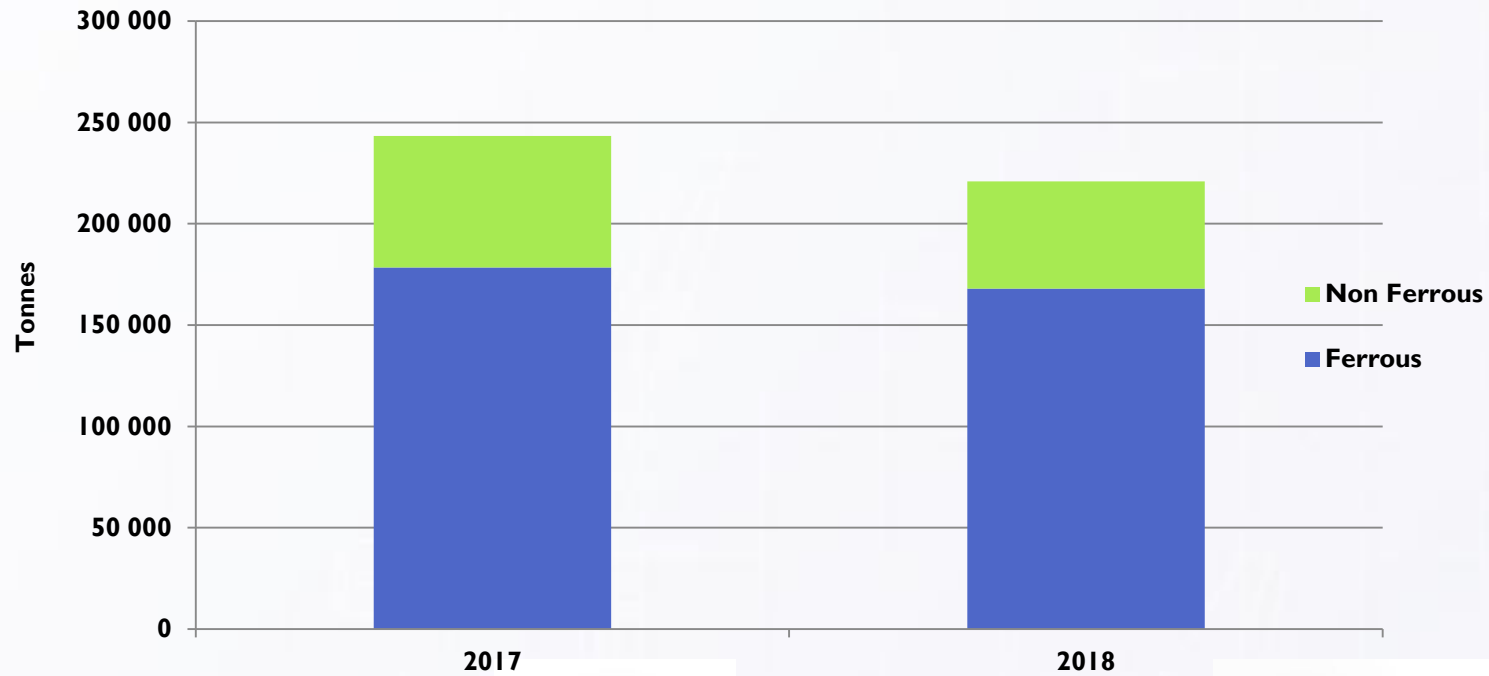


Courtesy TUfast Racing Team

Source: oica.net

PM EU Automotive Sector slow down end 2018

European Press & Sinter parts
2017-2018 (tonnes)



Stackpole International

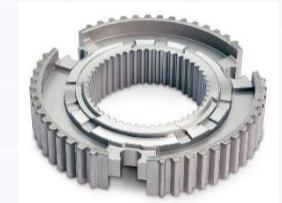
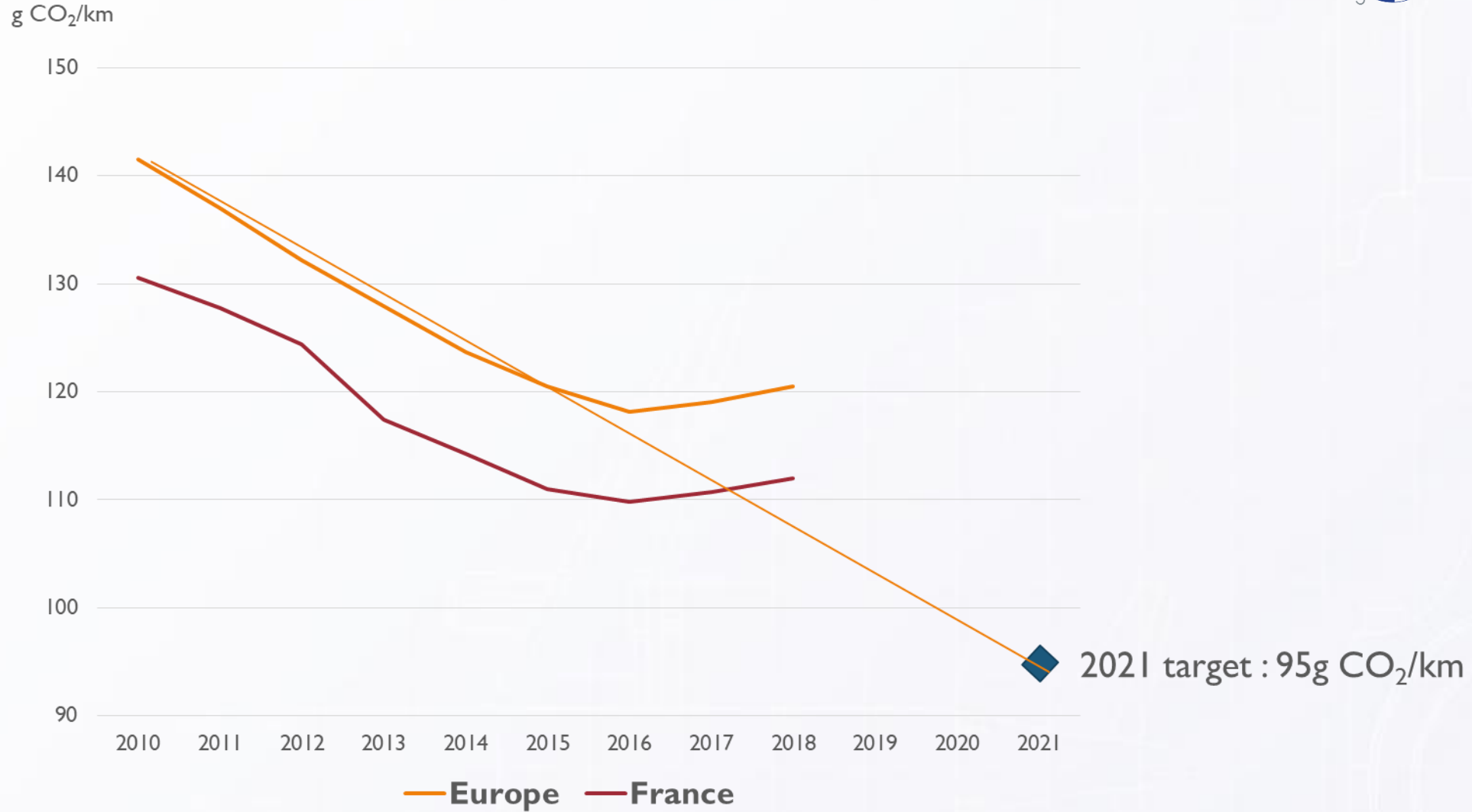


Image courtesy of PMG Fussen



Schunk Sintermetalltechnik GmbH

New emissions regulation is a reality (I)

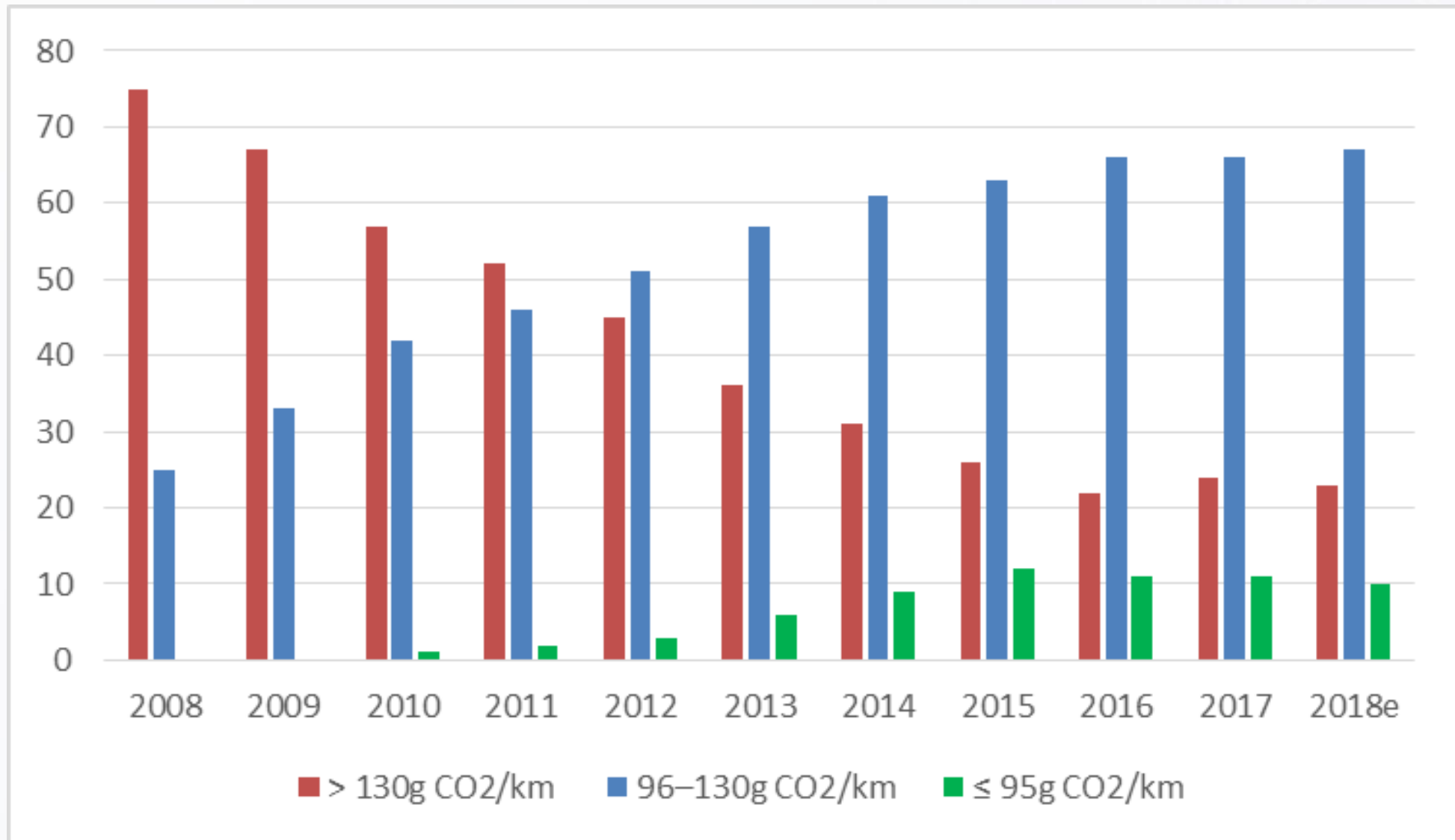


Source: CCFA

Europe = EU 22 (without Bulgaria, Croatia, Romania, Czech Republic, Malta and Cyprus) + Switzerland and Norway.

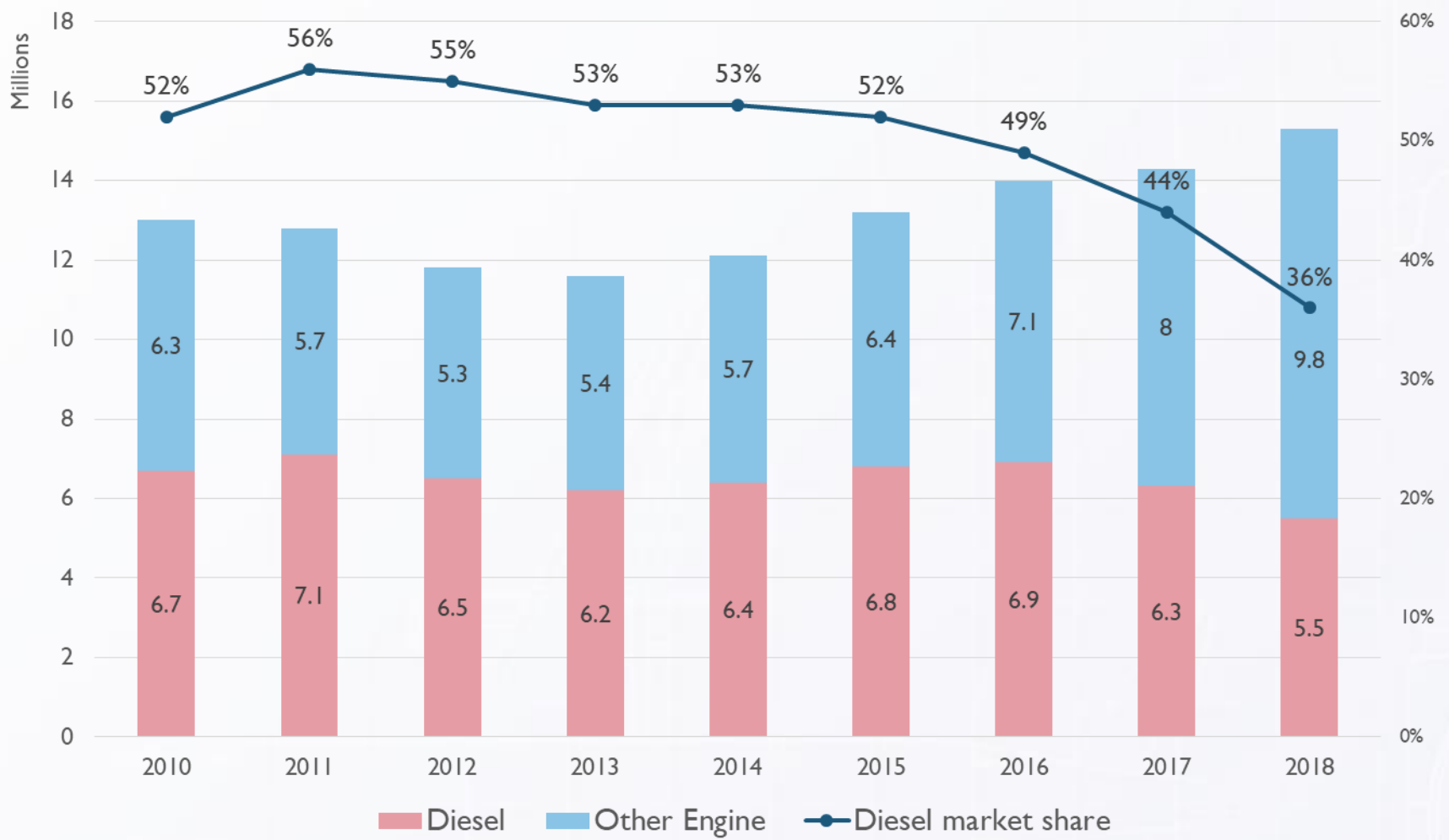
New emissions regulation is a reality (2)

In million units,
% Share



Source: acea.be

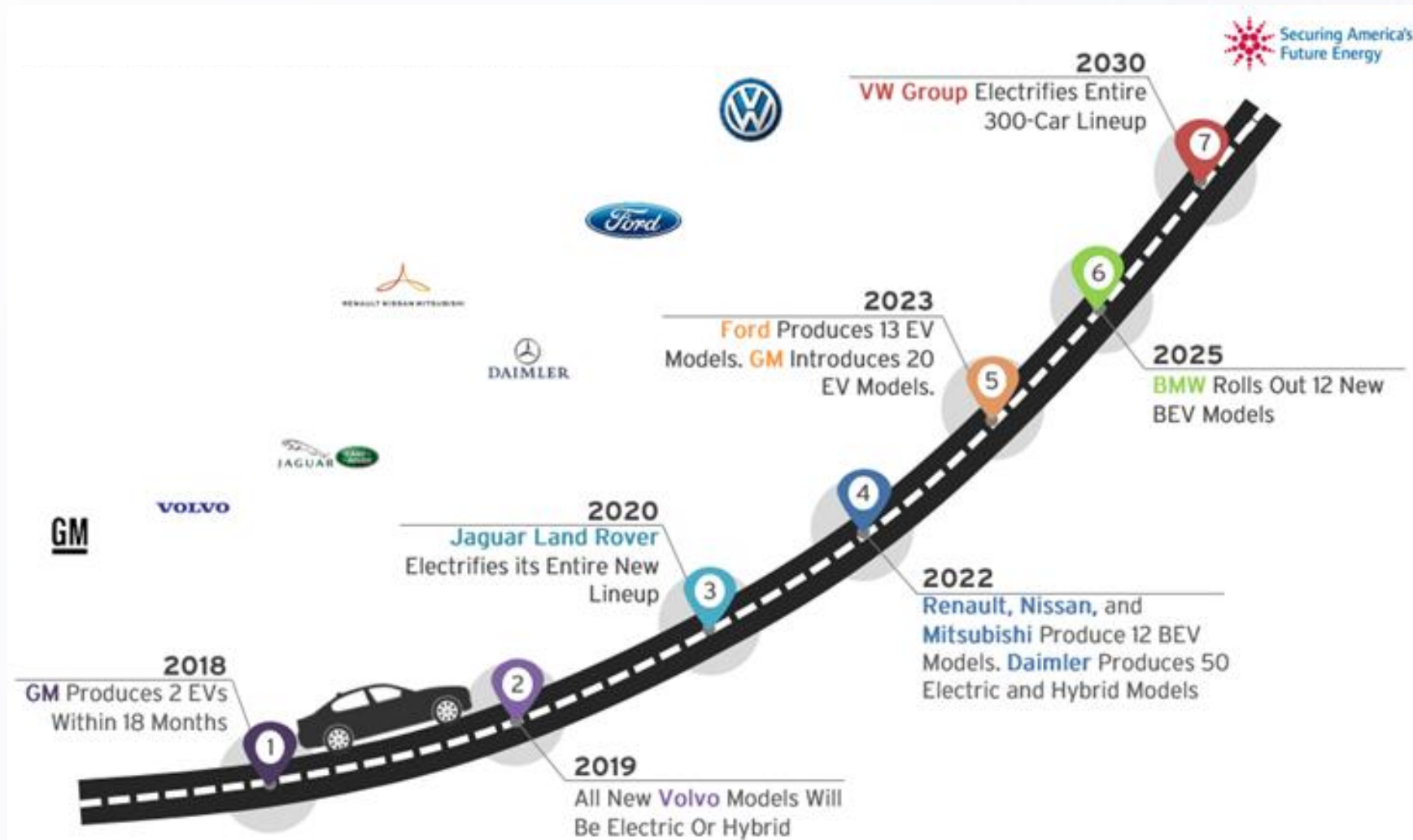
...Diesel market share is quickly going down



Source: acea.be

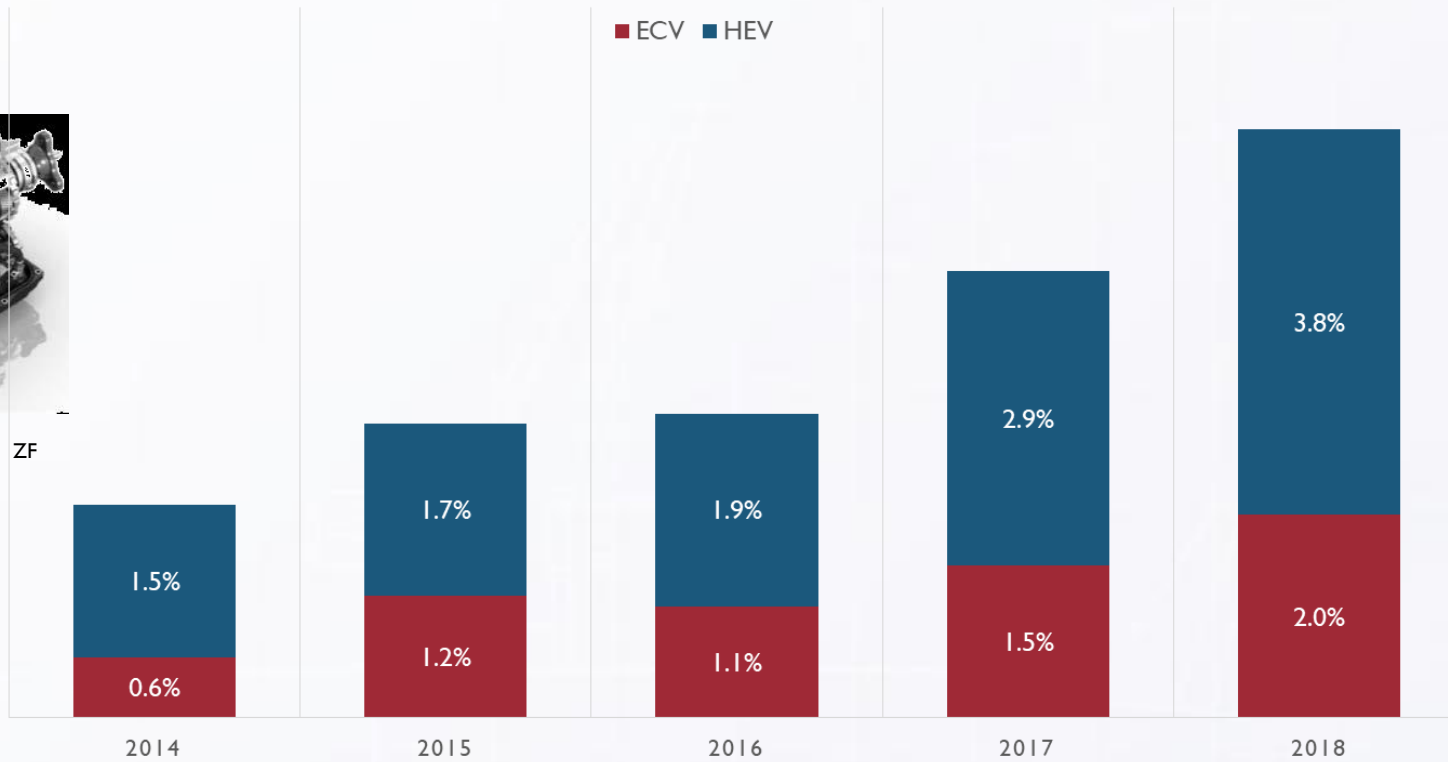
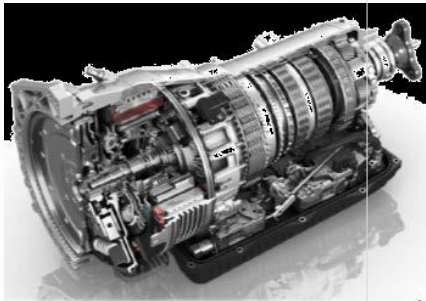
Europe = Western Europe, including Iceland from 2015

Car manufacturers commit to all-electric Future

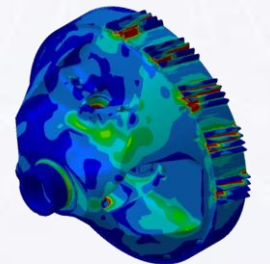


Electrification of cars: a game changer for industry and for PM

- ... with some opportunities



Höganäs

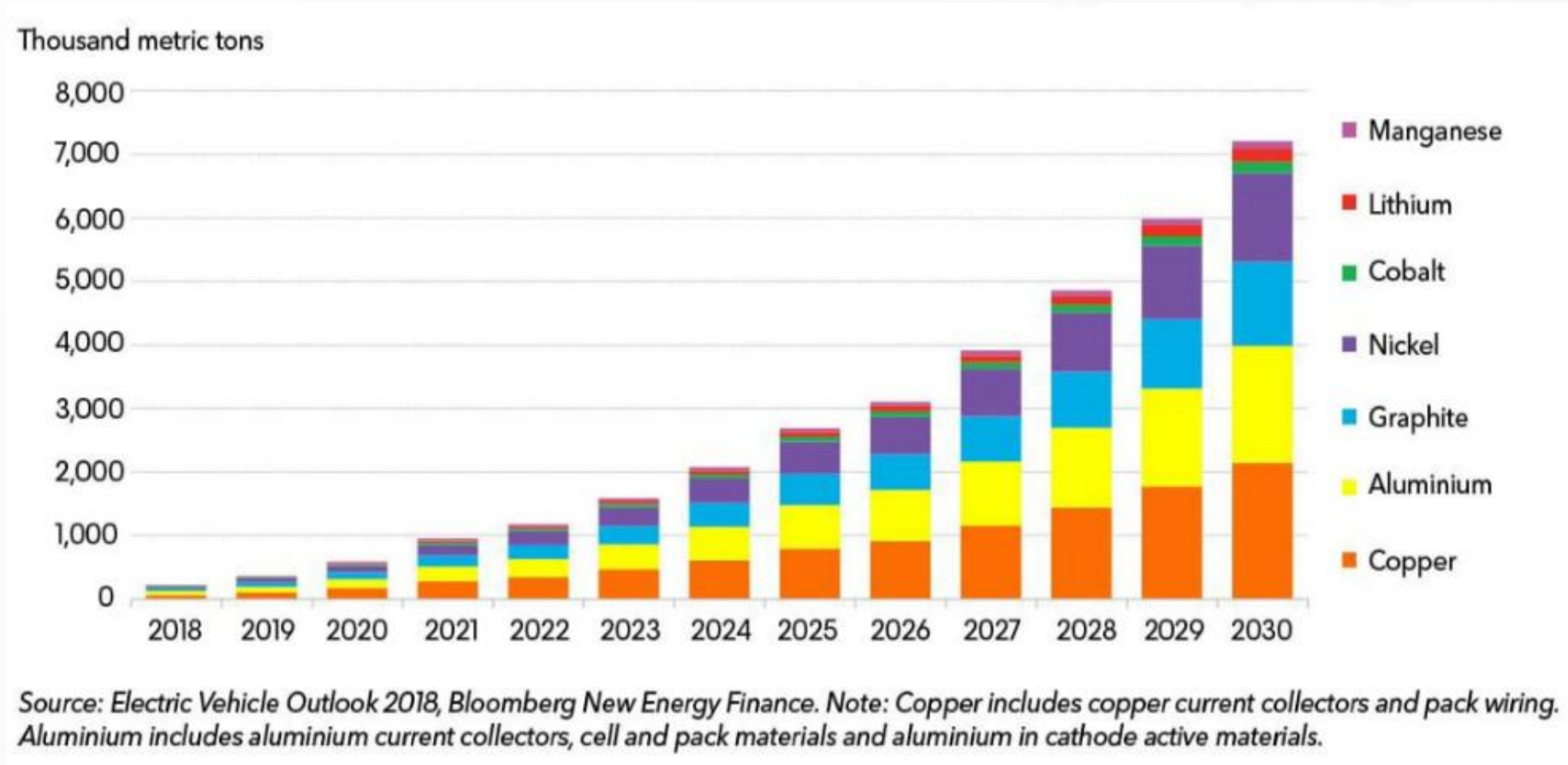


GKN driveline

Source: acea.be

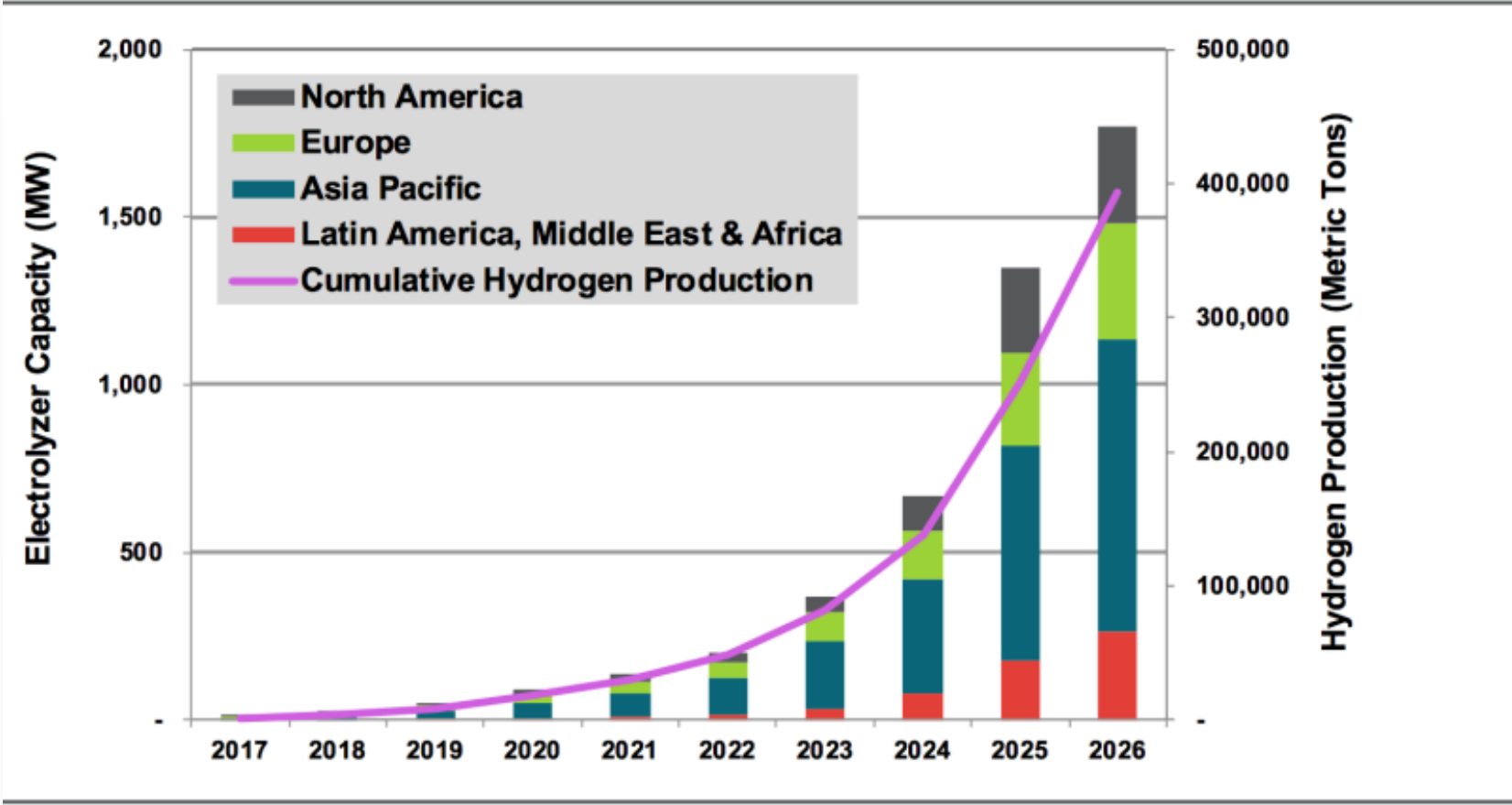
ECV: Electrically-chargeable vehicles
HEV Hybrid Electric Vehicles

EVs: a game changer for metal demand ...



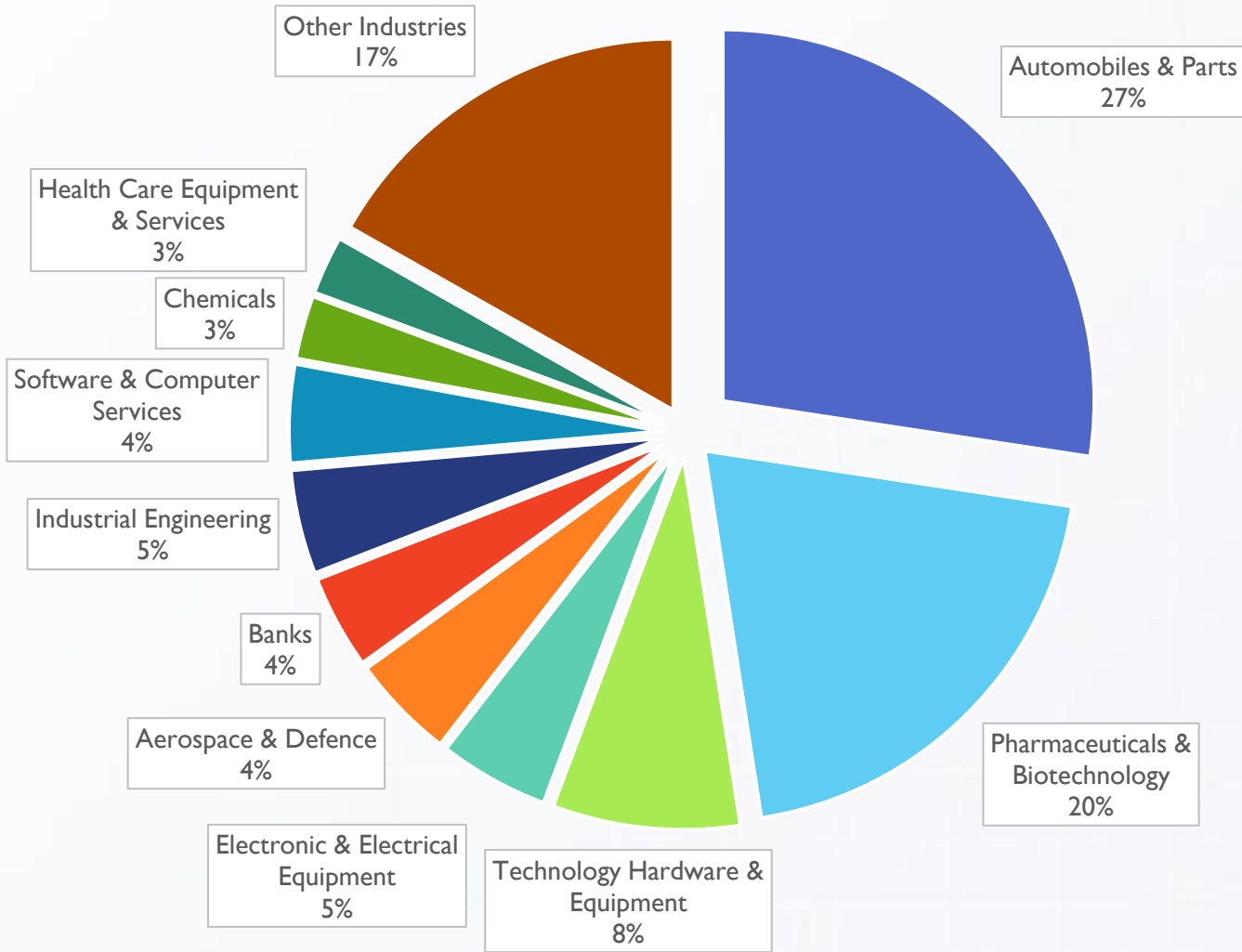
... in parallel to hydrogen

Annual Installed P2G Capacity and Cumulative Hydrogen Production by Region, World Markets: 2017-2026



(Source: Navigant Research)

Automotive is by far the 1st sector for R&D in EU



Industry	Billion €
Automobiles & Parts	53.8
Pharmaceuticals & Biotechnology	39.6
Technology Hardware & Equipment	16.0
Electronic & Electrical Equipment	9.4
Aerospace & Defence	8.9
Banks	8.0
Industrial Engineering	8.9
Software & Computer Services	8.4
Chemicals	5.4
Health Care Equipment & Services	5.0
Other Industries	33.0

Source: acea.be

Aerospace: robust perspectives

Traffic doubles every 15 Years

and has proven to be resilient to external shocks

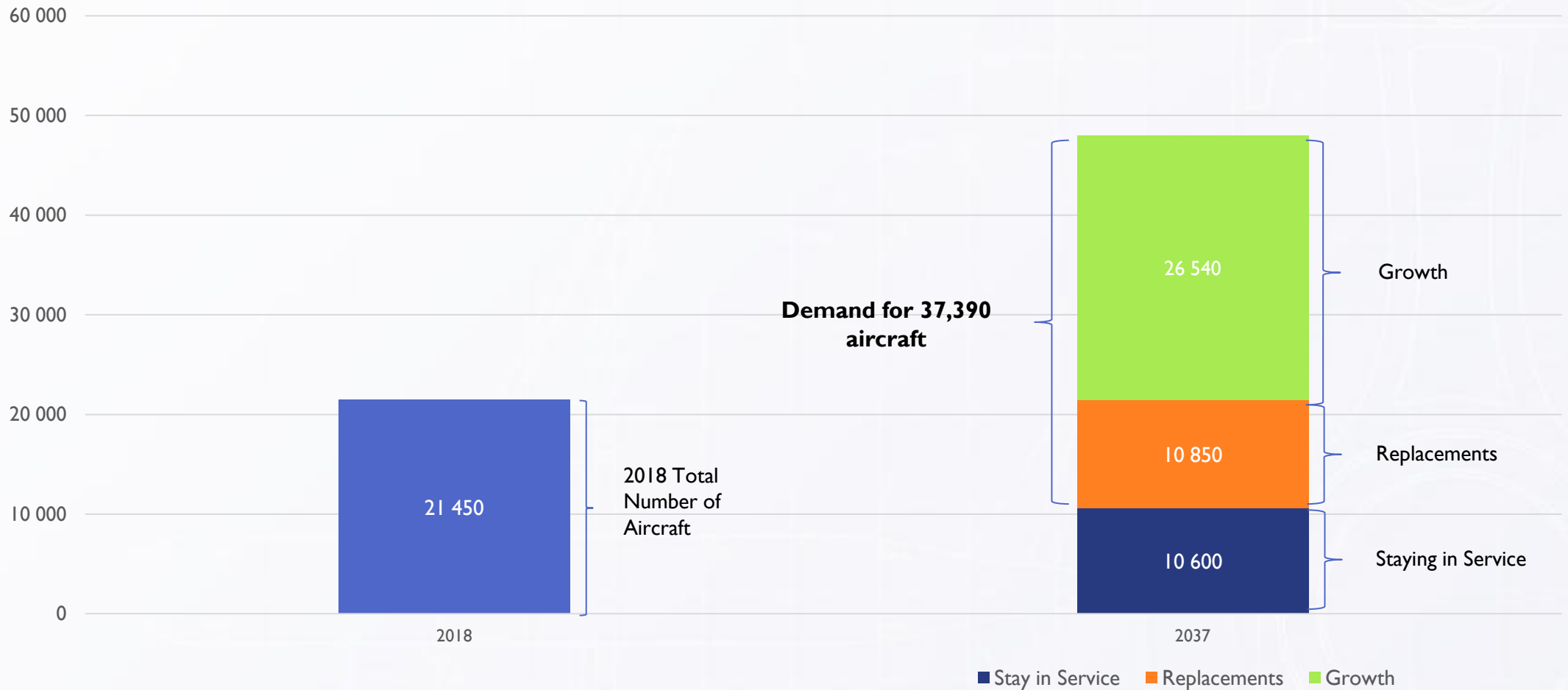


World annual traffic (trillion RPKs)



Source: ICAO, Airbus GMF 2018

The world fleet will more than double over the next 20 years



Source: airbus.com

High demand of PM parts in EU for aerospace

- Opportunity for AM, MIM and HIP business



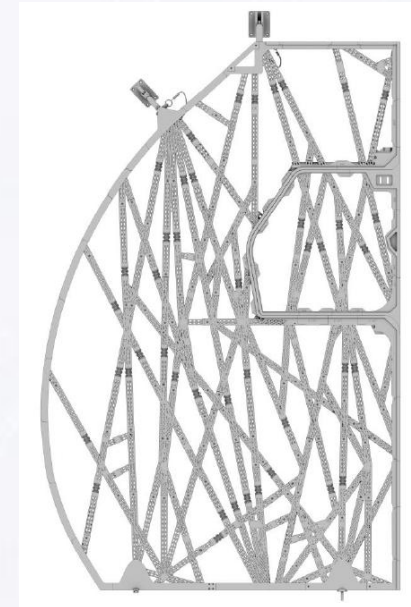
Courtesy Aubert & Duval



Courtesy Lufthansa Technik AG



Courtesy STELIA Aerospace



Courtesy Airbus

A solid Hard Metals sector in EU

- A long EU tradition
- An innovative sector

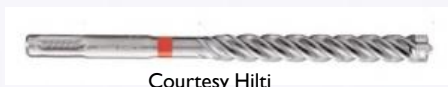
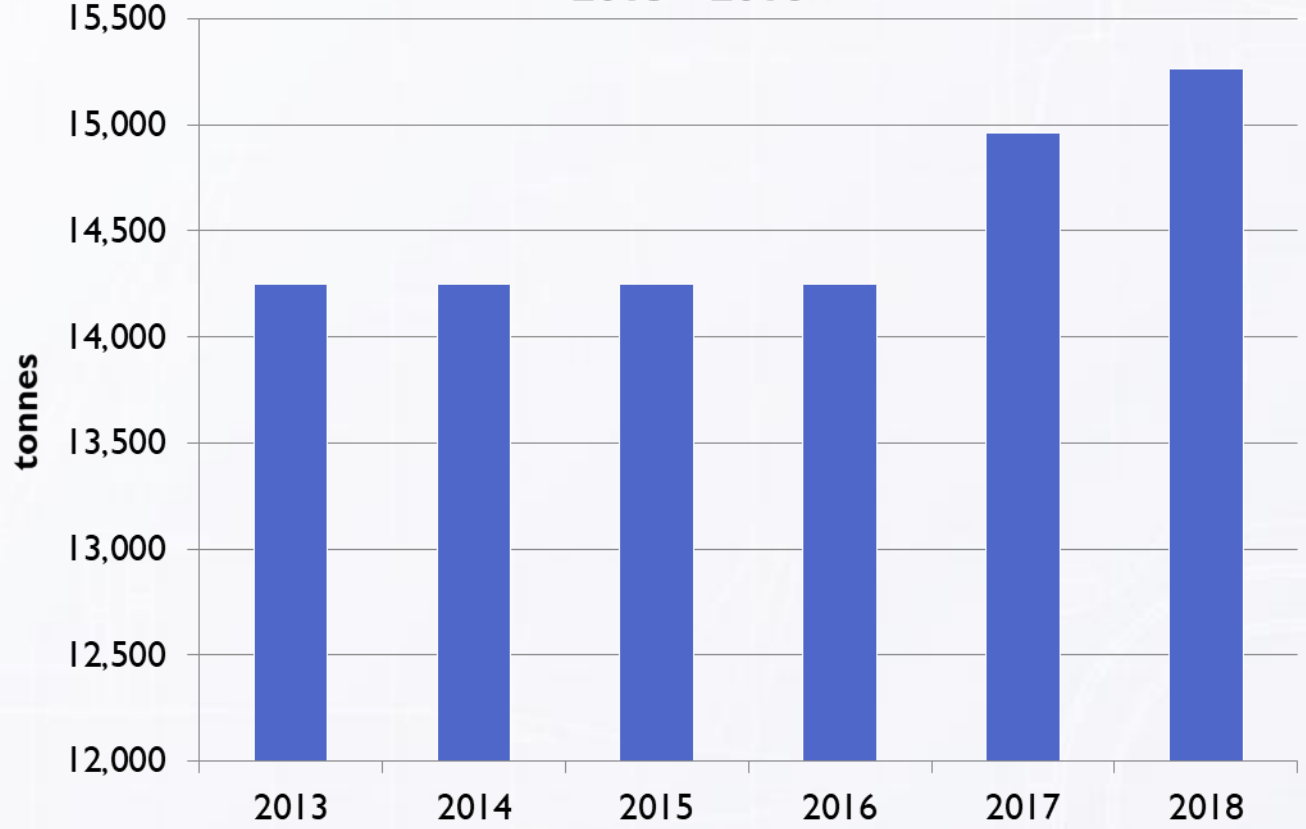


Courtesy Sandvik



Courtesy Iscar

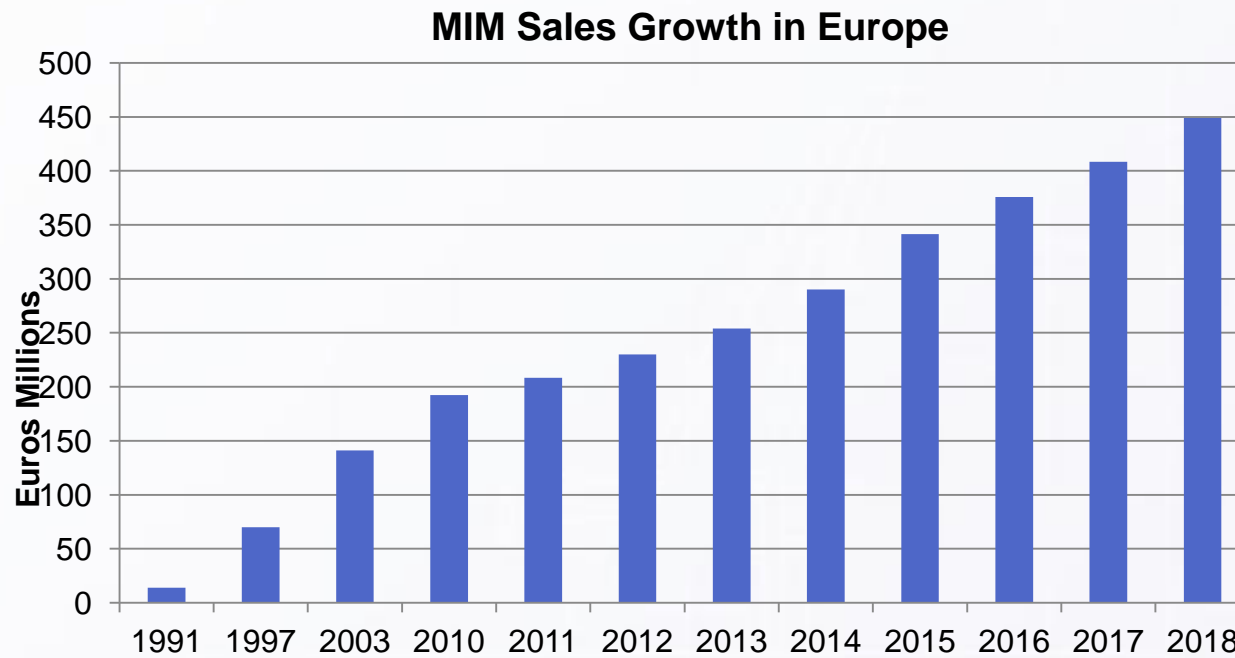
Estimated Hard Materials Production in Europe 2013 - 2018



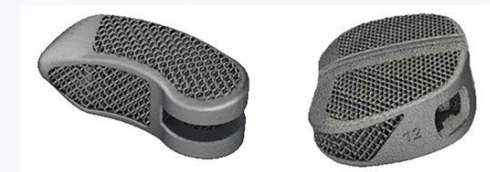
Courtesy Hilti

Medical sector calling for special PM parts

- Opportunities for MIM and AM business



Courtesy NHS Wales



Courtesy EIT



Courtesy MPP



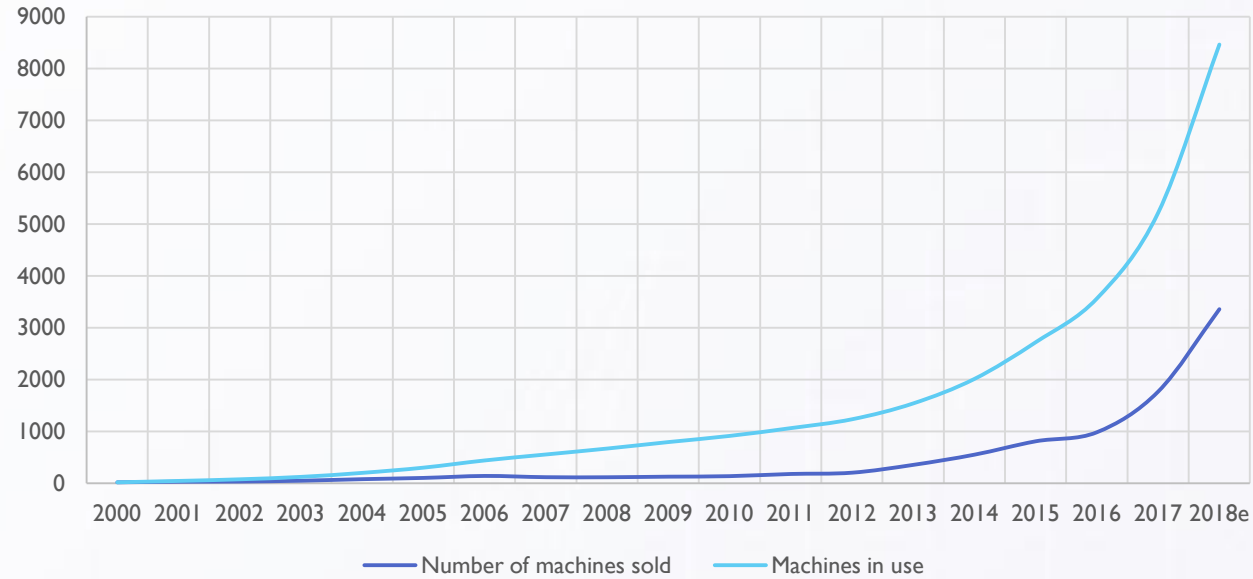
Courtesy Mimecrisa



Courtesy MIMEST

Additive Manufacturing

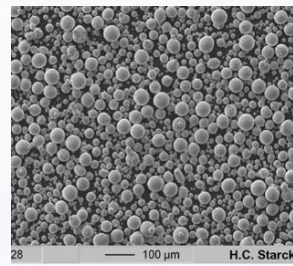
AM number of machines



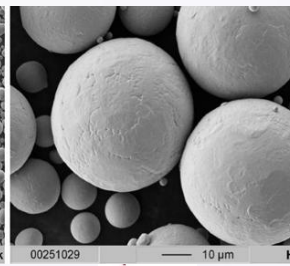
Source: EPMA Market Research



Courtesy Digital Metal



Courtesy H.C. Starck
Tantalum and Niobium GmbH



PIPAME



Courtesy Arcam



Courtesy BEGO Medical

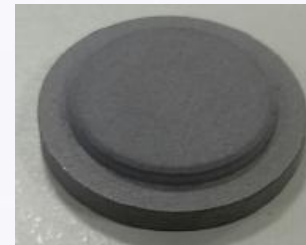
New sector emerging in EU: PM Functional materials

- Powder inside
 - Energy storage: electric battery, hydrogen storage
 - High efficiency motors
 - Heat transfer / heat recovery
 - Amorphous parts

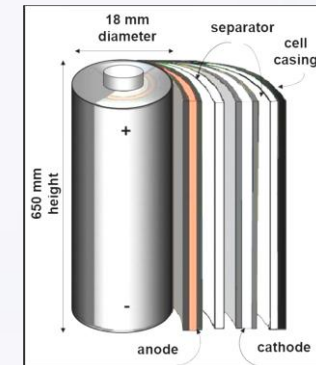


Amorphous AM spring
Exmet

SMC Stator Component Design
Höganäs



Partner: Sintex Höganäs



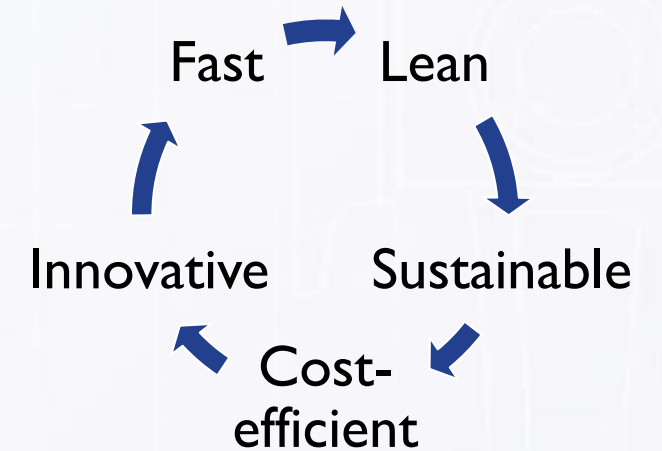
Aalen University

PM is fast moving

- Emergence of Mega trends: EV emission
- Emergence of new technologies: AM, Function materials
- → Innovation is called to be a key success factor



PM has a great development potential, let's work together!



Thank you for your time

Dr Lionel Aboussouan Executive Director

la@epma.com | www.epma.com | +44 (0)1743 24 88 99 | +33 (0)344 58 15 24

Registered Office Blue Tower, 326 Avenue Louise, B-1050, Brussels, Belgium

UK Office: 1st Floor, Haughmond View, Sitka Drive, Shrewsbury Business Park, Shrewsbury, Shropshire, SY2 6LG United Kingdom

French Office: 1 Avenue du general de Gaulle. F-60500 Chantilly, France

