EMN for Advanced Manufacturing Open Stakeholder Meeting
- Welcome and introduction -

EMN 2nd Annual General meeting (AGM),
Hybrid meeting, hosted by NPL, Teddington, UK
10. October 2022, 12:30 – 16:30 BST (13:30 – 17:30 CEST)

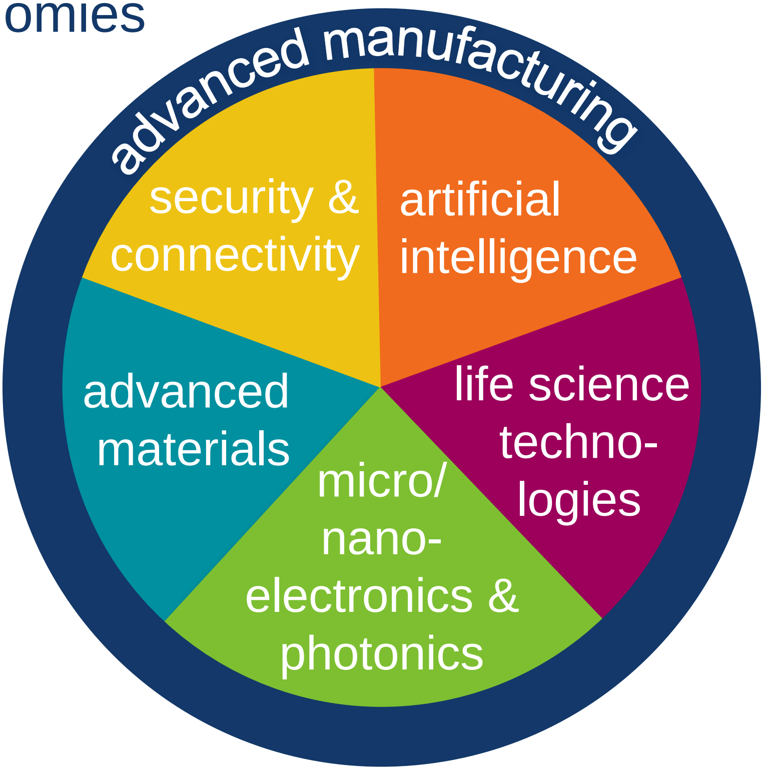
H. Bosse (PTB), EMN chair

ADVANCED
MANUFACTURING

Advanced Manufacturing

Advanced manufacturing (EC): one of six Key Enabling Technologies (KETs)

- Applications in multiple industries
  - full exploitation of KETs: creating advanced & sustainable economies
- European Technology Platform **MANU*Future***:
  - Vision 2030 strategy document (HLG, 12/2018):
- **Manufacturing:** backbone of European economy
- 2014: 2.1 million enterprises, 30 million people, 1 710 B€. However: European manufacturing has been losing ground
- In 2030, European manufacturing will be competitive at global level due to its high-performance and technological level, targeting **zero-defect, zero-delay, zero-surprise and zero-waste production processes**

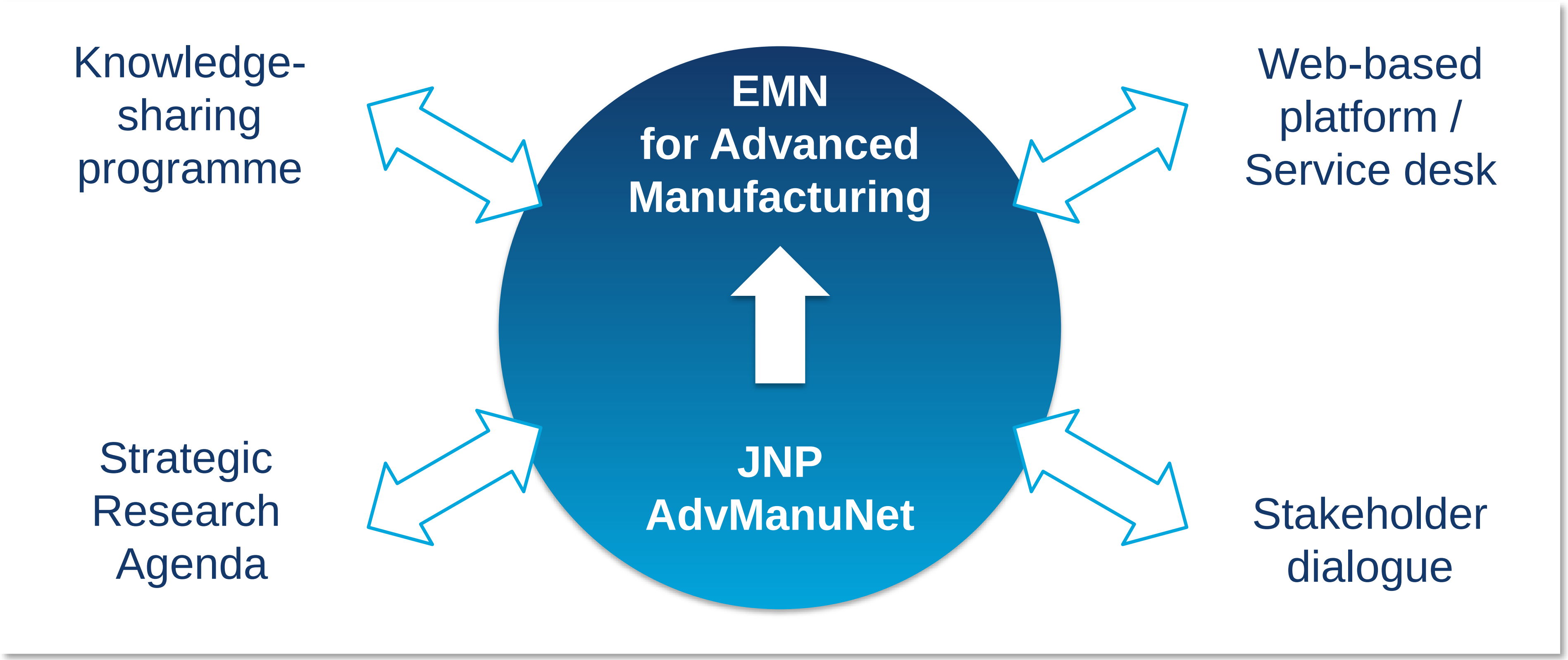


prioritised KETs in the Horizon Europe programme 2021-2027 (EC)

NO mentioning of Metrology nor Measurement, but Quality
=> Awareness and „Translation“ needed!

Objectives

JNP: Funded project within EMPIR to accelerate process of establishing EMN

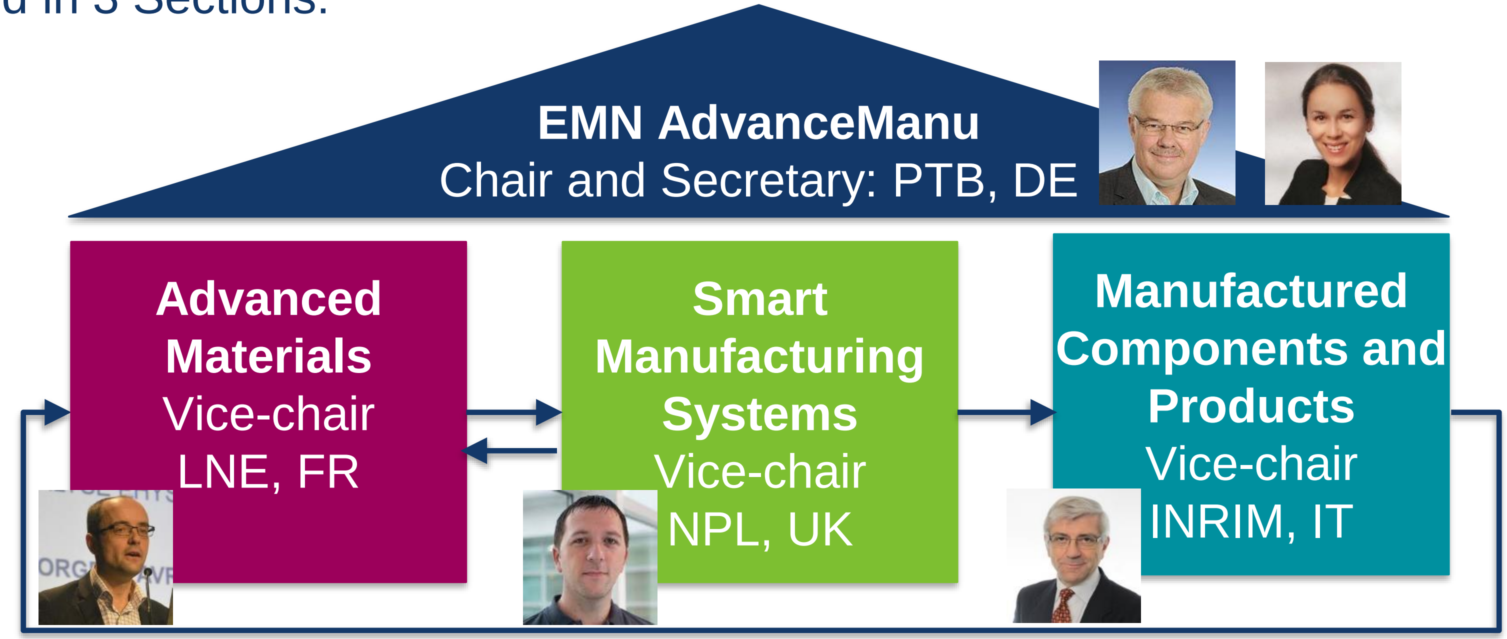


EMN: Sustainable network operated by national metrology institutes

EMN for Advanced Manufacturing

- EMN for Advanced Manufacturing formally established in September 2021 (18 NMIs/DIs as members)
- EMN Partner-Organisations: ETP Manu*Future*, EFFRA/Made in Europe, NanoFabNet, euspen
- Stakeholder Council (SC): Zeiss, Renishaw, Siemens, Vestas, ST, DTU, CERN, BfR, BASF, Rolls-Royce, ...
- EMN organized in 3 Sections:

SC convenor:
Dr. Imkamp, Zeiss



EMN AdvanceManu
Chair and Secretary: PTB, DE

Design for manufacture and recyclability

Advanced Materials
Vice-chair
LNE, FR

Smart Manufacturing Systems
Vice-chair
NPL, UK

Manufactured Components and Products
Vice-chair
INRIM, IT

Recycling

- Stakeholder-Dialogue: Larger companies & SME, Industry org., Networks, Univ., R&D-Institutes)
- Strategic Research Agenda (SRA) for Metrology for AdvanceManu

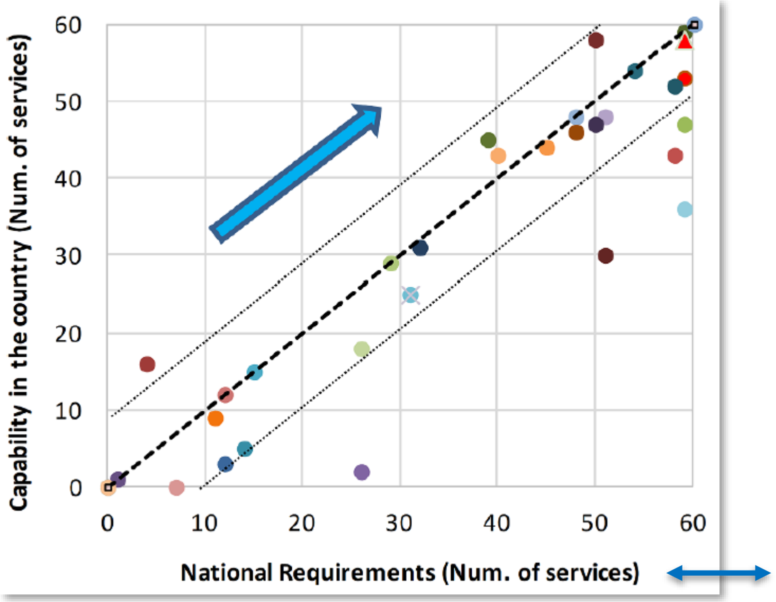
⇨ 1st Draft by end of 2022

⇨ In 1/2023 will be an EPM call on Metrology for Industry

Achievements: Definition, Analysis, KIS, Perspective

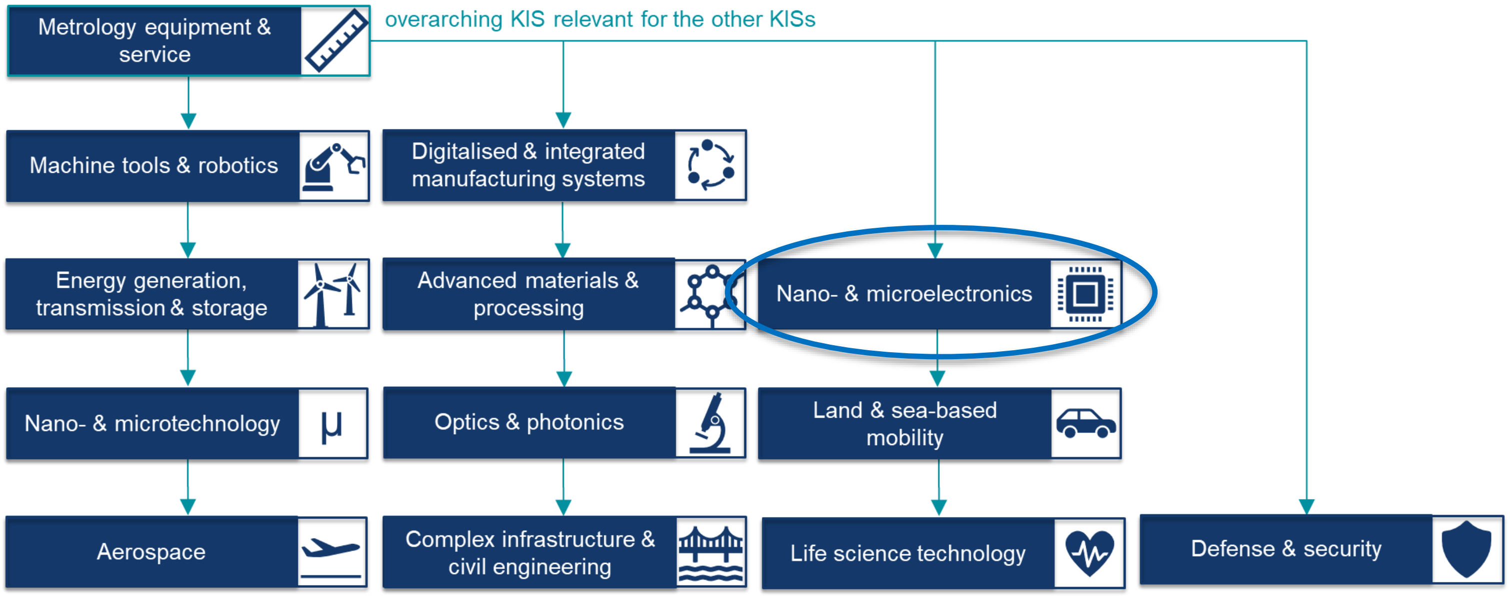
1) Definition of Advanced Manufacturing (based on CIRP):
“Branch of manufacturing that exploits evolving or emerging knowledge, technologies, methods and capabilities to make and/or provide new or substantially enhanced goods or services, or improve production efficiency or productivity, while ensuring environmental and societal sustainability.”

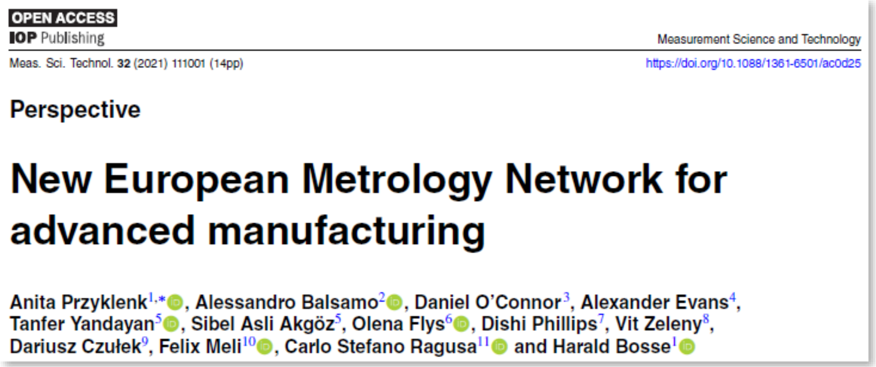
2) Measurement demands and capabilities
(Analysis from questionnaire used in TC-L)



According to DimVIM:
Classification scheme for length services

3) Identified Key Industry Sectors: KIS (based on EU 20 industrial sectors)




OPEN ACCESS
IOP Publishing
Measurement Science and Technology

Meas. Sci. Technol. **32** (2021) 111001 (14pp)
https://doi.org/10.1088/1361-6501/ac0d25

Perspective

New European Metrology Network for advanced manufacturing

Anita Przyklenk[1,*], Alessandro Balsamo[2], Daniel O’Connor[3], Alexander Evans[4], Tanfer Yandayan[5], Sibel Asli Akgöz[5], Olena Flys[6], Dishi Phillips[7], Vit Zeleny[8], Dariusz Czułek[9], Felix Meli[10], Carlo Stefano Ragusa[11] and Harald Bosse[1]

Time	Item	Speaker
13:00	Welcome and introduction	Harald Bosse, Acting EMN Chair
13:15	EURAMET and the role of EMNs	Jörn Stenger, EURAMET Chairperson
13:30	Keynote: Challenges and trends in advanced manufacturing - also related to metrology	Hans Hansen, DTU, CIRP president
14:10	Overview of EMN partner organisations: - ETP Manu*Future* - EFFRA and Made in Europe Partnership - NanoFabNet - euspen	Maurizio Gattiglio Željko Pazin Steffi Friedrichs Dishi Phillips
15:00	Break	
15:15	Keynote: Assuring manufacturing quality in the Industry 4.0 environment	Thomas Engel, Siemens
15:45	Keynote: The role of shop floor metrology and process data as critical enablers for smart manufacturing	Paul Maxted, Renishaw
16:15	EURAMET activities related to EMN Advanced Manufacturing: - EMN MATHMET - TC-IM WG M4D	Markus Bär, PTB Daniel Hutzschenreuter, PTB & Sascha Eichstädt, PTB
16:30	Forum discussion on metrology needs for advanced manufacturing	All
17:30	**End of the meeting**	

EURAMET

CIRP: International Academy for Production Engineering

KIS: Micro & Nanotechnology

EMN Advanced Manufacturing Stakeholder Meeting 2021

11 OCTOBER 2021

Open online event

EUROPEAN METROLOGY NETWORKS

EURAMET

KIS: Digitalized & Integrated Manufacturing Systems

KIS: Metrology Equipment, Machine Tools and Robotics

1st Annual General Meeting of [EMN for Advanced Manufacturing](#) took place on 12 October 2021 including 1st meeting of stakeholder council

EMN for Advanced Manufacturing: Open Consultation

Open consultation on Metrology for Semiconductor Technologies

Friday, 8 July 2022 - 10:00 to 12:30 CEST; online event.

About the event

With the European Chips Act the EU aims to strengthen its semiconductor ecosystem, increasing its resilience, ensuring supply and reducing external dependencies. Achieving this will require a thriving semiconductor sector in Europe, where the full value chain has the necessary tools, skills, and technological capabilities to meet its essential requirements.

These include the research, development, manufacturing, and packaging of advanced semiconductor devices, and the design and manufacturing of pioneering microprocessing equipment, as well as fit-for-purpose metrology for advanced nano- and microscale manufacturing.

EVENT INFORMATION

DATE
2022-07-08 to 2022-07-08

LOCATION
Online Event

CATEGORIES
European Partnership on Metrology , EMN Advanced Manufacturing

Share the Event

DOCUMENTS

AGENDA(S)
Agenda and Speakers Consultation Metrology Semiconductor Technologies 2022 07 08 (upload: 2022-07-08)

PRESENTATION(S)
01 EURAMET Maguelonne Chambon (upload: 2022-07-11)
02 EMN Advanced Manufacturing Harald Bosse (upload: 2022-07-13)
03 KDT Yves Gigase (upload: 2022-07-08)
04 ASML Wim Coene (upload: 2022-07-12)
05 Zeiss Kathrin Aziz Lange (upload: 2022-07-18)
06 IMEC Paul van der Heide (upload: 2022-07-18)
07 STMicroelectronics Delphine Le Cunff (upload: 2022-07-18)

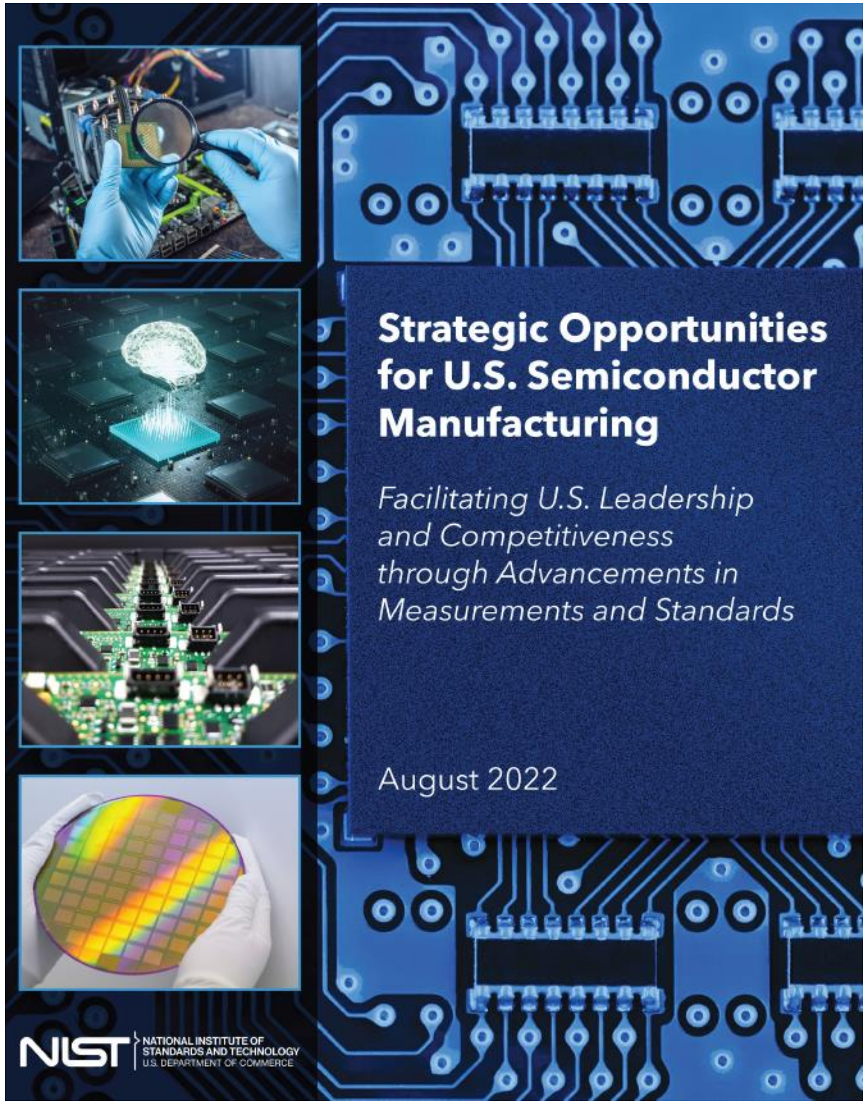
Metrology needs for next decade – in support of EU Chips Act

M. Chambon, LNE: EURAMET Vice-Chair (EMPIR)
H. Bosse, PTB: EMN AdvanceManu Chair

Y. Gigase: **KDT Partnership**, Head of Programmes

W. Coene, **ASML**, Director of Research
K. Aziz-Lange, **Zeiss**, Head of Head of Coating & Surface Roughness Metrology
P. van der Heide, **IMEC**, Director of MCA
D. LeCunff, **ST**, Deputy Head of PTC

NIST report: Strategic opportunities for U.S. Semiconductor Manufacturing (published on Sep, 1, 2022)



Strategic Opportunities for U.S. Semiconductor Manufacturing

Facilitating U.S. Leadership and Competitiveness through Advancements in Measurements and Standards

August 2022

NIST NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY U.S. DEPARTMENT OF COMMERCE

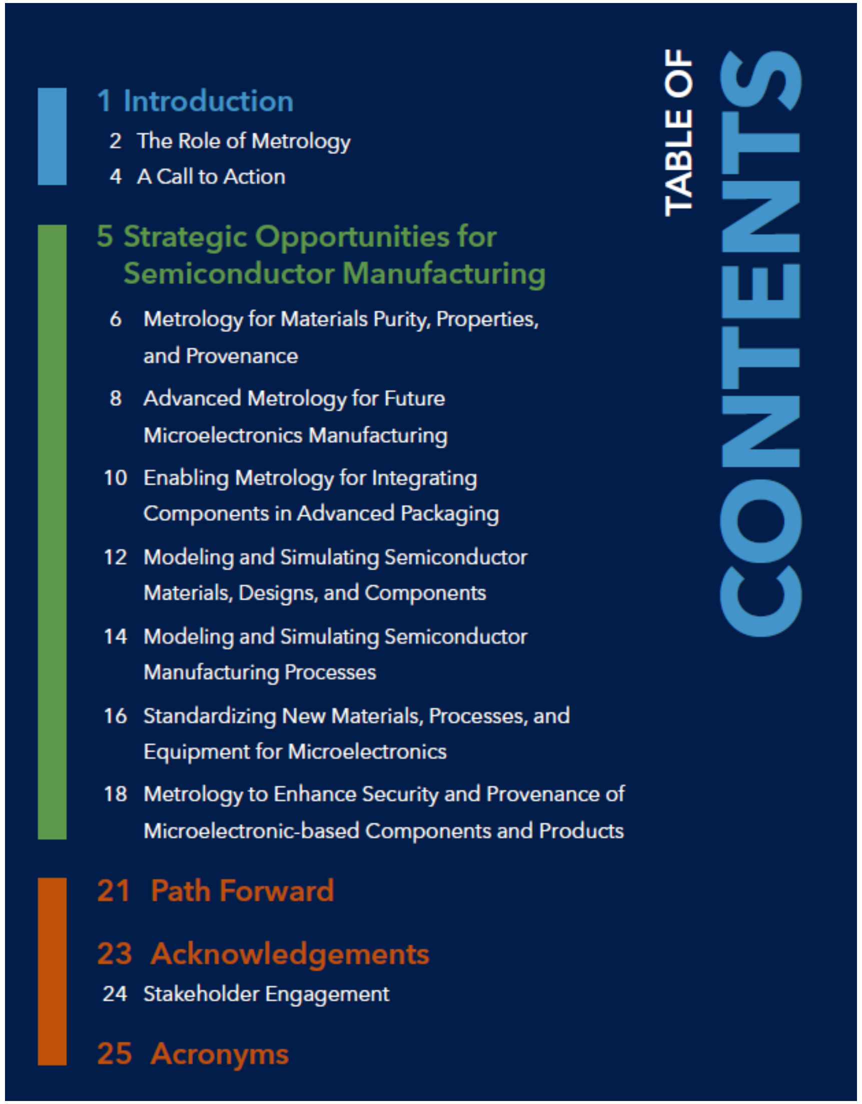


TABLE OF CONTENTS

EMN for Advanced Manufacturing: October 2022 meetings @ NPL (hybrid)

Open Stakeholder Meeting: Oct 10, afternoon
- Focus on **Advanced Materials**

Time BST	Topic	Speaker
12h30	Welcome and introduction	Harald Bosse, PTB, DE EMN Chair
12h45	EURAMET and the role of EMNs	Jörn Stenger, PTB, DE EURAMET Chair
13h00	Introduction of the draft SRA	Daniel O’Connor, NPL, UK, EMN Vice-chair
13h15 incl. 5’ Q&A	Keynote 1 Perspective of the “Materials 2030 Initiative”	Lars Montelius, INL, PT
13h45 incl. 5’ Q&A	Keynote 2 Sustainability and decarbonisation of aerospace and the metrology challenges	Neil Glover, Rolls Royce, UK
14h15 incl. 5’ Q&A	Overview of the APMP TCMM activities	Lingling Ren, NIM, CN APMP TCMM convenor
14h30	**Break**	
14h45 incl. 5’ Q&A	Keynote 3 OECD WPMN Steering Group on Advanced Materials - Actions underway and possible areas for cooperation	Kathrin Schwirn, UBA, DE
15:15 incl. 5’ Q&A	Keynote 4 UK Battery Manufacturing - the challenge of transitioning from research to gigafactory	John Poli UKBIC, UK
15:45	Forum for discussion on metrology needs for advanced manufacturing	Moderation: EMN officials
16h30	**End of the meeting**	

Stakeholder Council meeting: Oct. 10, morning
- SC members, EMN officials & EMN mentor only

EMN 2nd Annual General Meeting: Oct. 11, morning
- EMN members, EURAMET secretariat
- with strategic input from SC members

Open Stakeholder Workshop: Oct 11, afternoon
12:30 – 16:00 BST, (13:30 – 17:00 CEST)
- Presentation of EPM calls 2023
- Presentation of EMN AdvanceManu draft SRA
- Discussion of draft SRA
  - Cross cutting and KIS related challenges

- Offer forum for further preparation of PRTs

Acknowledgement

Thanks to all colleagues who provided input for this presentation,
in particular those from JNP AdvManuNet and EMN for Advanced Manufacturing

=> *https://www.euramet.org/european-metrology-networks/advanced-manufacturing/*
=> ***advancemanu@euramet.org***

Thank you for your attention!

Mock-up of EMN website

European Metrology Network
For Advanced Manufacturing

High-level coordination of the metrology community in advanced manufacturing to foster the impact of metrology developments on industrial application in Europe.

ADVANCED
MANUFACTURING

The project JNP 19NET01 AdvManuNet has received funding from the EMPIR programme co-financed by the Participating States and from the European Union’s Horizon 2020 research and innovation programme.

The EMPIR initiative is co-funded by the European Union's Horizon 2020 research and innovation programme and the EMPIR Participating States