TECHNOLOGIES FOR A SOVEREIGN EUROPE

Chaired by:

Maurizio Gattiglio
CEO, Partner and Co-Founder of ARCA, Chairman of Manufuture

Ulla Engelmann
Head of Unit at DG GROW, European Commission

Stéphanie Mittelham
Manager Energy & Environment at Orgalim, Europe's Technology Industries

Sophie Muller
Director, R&T Collaborative Studies at Thales SA

Rene Penning de Vries
Chairman Supervisory Board PhotonDelta at PhotonDelta Foundation

Cecilia Warrol
Programme Director at Swedish Association of Engineering Industries (Teknikföretagen)

Ind Tech 2022

European Commission

Technologies for a Sovereign Europe – Transition Pathways

Ulla Engelmann
Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs
28 June, Grenoble

Main messages

- Industrial Strategy Update needed in May 2021 – even more important following war in Ukraine.
- The transition to green and digital is both a solution and challenge to European technological sovereignty
- Transition pathways for each industrial ecosystem are needed to make European industry green, digital and resilient.
- Technological solutions are a key building block of the pathways and include the whole R&I value chain from research to scale-up.
- We need to monitor and mitigate our urgent and strategic dependencies.

Why an Industrial Strategy Update?

- Lessons from the COVID-19 crisis:
  - Strengthening Single Market resilience
  - Analyse and address strategic dependencies
  - Accelerating the twin green and digital transitions

- Even more important after Russian invasion of Ukraine

Resilience of the Single Market

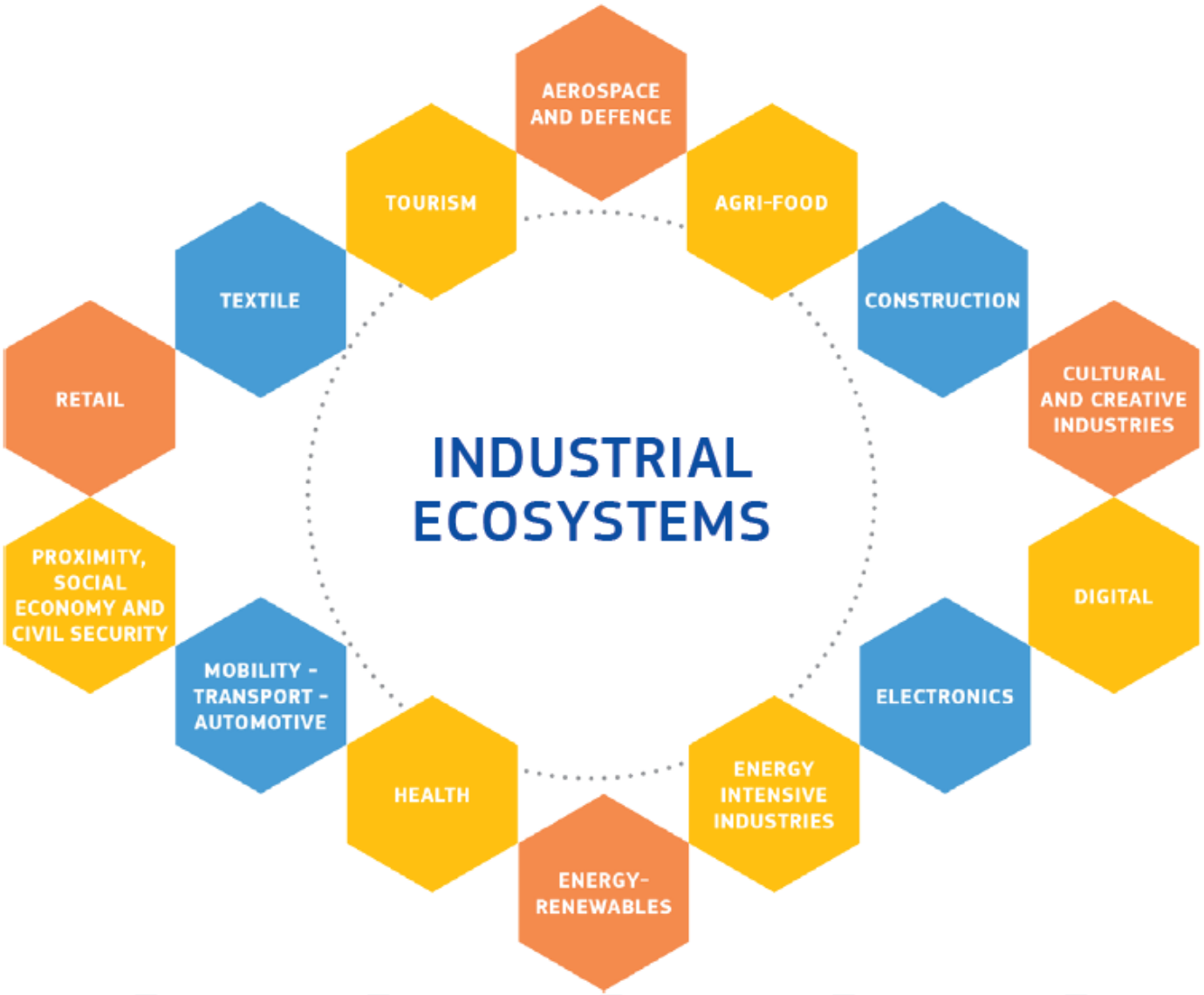
The Single Market is the EU's most important asset, offering certainty, scale and a global springboard for European companies. However, the COVID-19 pandemic has affected the opportunities offered by the Single Market. Businesses and citizens suffered from border closures, supply was disrupted and predictability was often lacking.

Single Market Emergency Instrument: to provide a structural solution to ensure the availability and free movement of persons, goods and services in the context of possible future crises

Deepening the Single Market: explore harmonisation of standards for key business services; as well as strengthening the digitalisation of market surveillance and other targeted measures for SMEs

Monitoring the Single Market: an annual analysis of the state of the Single Market, including across 14 industrial ecosystems.

14 Industrial Ecosystems in Europe

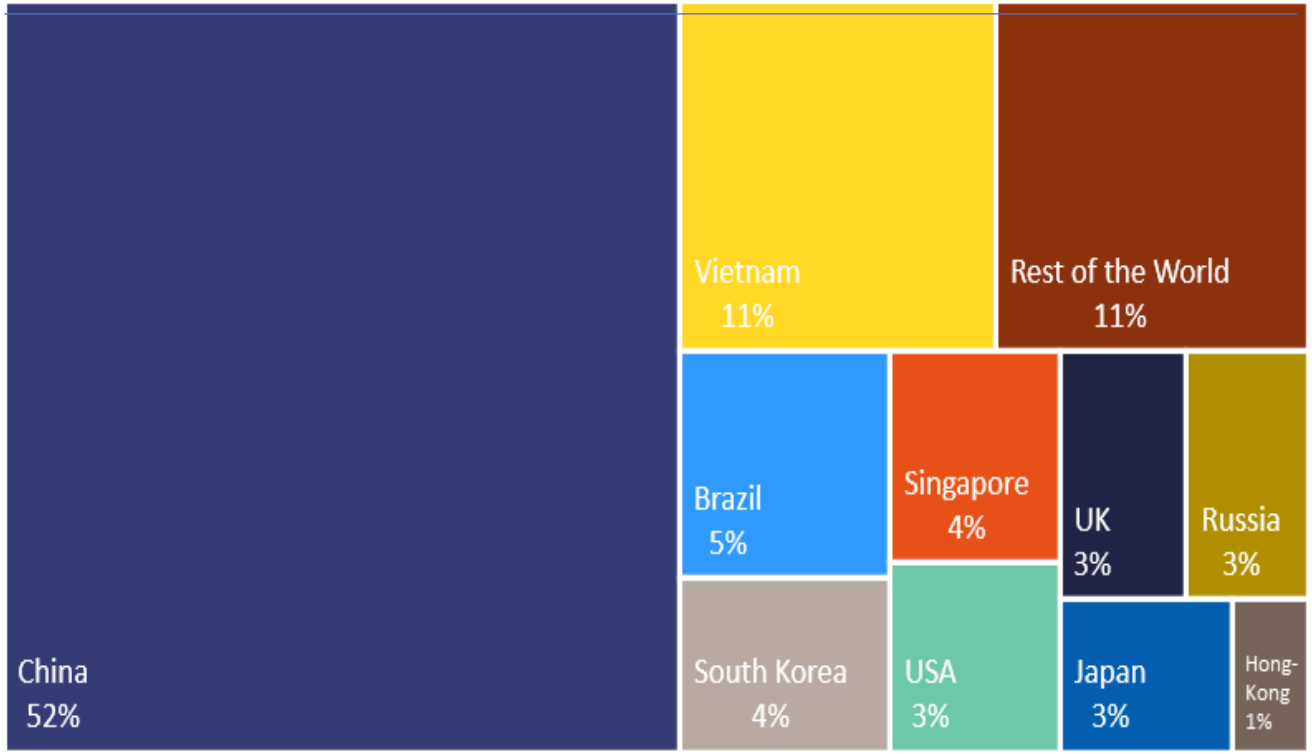


Strategic dependencies and capacities

6% of the value of all EU product imports are highly dependent on foreign suppliers

- Dependency: high concentration of imports and limited production in the EU
- "Bottom-up" screening: 137 out of 5200 products analysed show high EU dependency.
- 34 products are more vulnerable: with low potential for diversification and substitution (various raw materials and chemicals used in energy intensive industries and health)
- Origin of dependencies: More than 50% originates in China

Identified 137 dependencies by origin (% imports)



6 strategic areas where the EU has dependencies: raw materials, batteries, active pharmaceutical ingredients, hydrogen, semiconductors, cloud and edge technologies

EU strategic capacity: strong in some technologies, highly dependent for others

- Dependencies are not limited to products
- Strategic capacity in key technologies is essential to deliver on green/digital ambitions
- EU has strengths and weaknesses: highly competitive in some areas, highly dependent in others
- Can build on succesful examples (e.g. alliances)

Advanced manufacturing
>30% of new patents are generated in the EU

Batteries
EU catching up: #2 manufacturer of Li-ion batteries by 2024

Alliance

Semiconductors
No leading edge manufacturing in the EU

Hydrogen
Half of electrolyser manufacturers are in the EU incl. the larger ones

Alliance

Solar
EU position deteriorated: top-10 PV module manufacturers almost all in Asia

Cloud
Largest EU cloud provider holds <1% of European market

DG GROW Supply Chains Task Force

What it is

- Set up the day after the Russian military aggression against Ukraine
- Gathers GROW expertise on specific industrial ecosystems and horizontal issues linked to the war
- Provides regular updates with the most relevant news and impact analysis

Objectives

- Monitoring the impact of the war on supply chains, including the loss of inputs and the loss of market for European industries
- Steering the action to help European businesses, as well as Ukrainian economic actors and displaced population

Main sources of information

- European industry associations
- European cluster networks
- Enterprise Europe Network
- Member States' authorities
- EU Delegations in Ukraine and Russia
- Association of European businesses in Russia
- Ukrainian authorities
- Exchanges with other EU institutions

War in Ukraine: Impact on industrial ecosystems

TOURISM
- Loss of EU trade surplus with Russia
- Higher prices for transport
- Tourism in countries with many refugees perceived as unethical
- Despite a drop immediately after the aggression, now improving

CONSTUCTION
- Lack of plywood and steel
- Price spikes lead to project postponements
- Shortage of workforce from Ukraine
- Loss of market for furniture industry

ELECTRONICS
- Lack of noble gases input
- Production of semiconductors affected
- Alternative sourcing is limited
- Russia prohibited export of electrical equipment

MACHINERY
- New and continued supply shortages (e.g., steel, chips) and skyrocketing prices
- National barriers to diversify supply chains
- Loss of significant EU export market for agricultural machinery
- Long-term export bans and sanctions dual-use goods

MOBILITY
- Loss of market for vehicles
- Lack of carbon black and synthetic rubber for tyres
- Disruptions of vehicle production
- Lack of software as production was largely outsourced to Ukraine

AGRI-FOOD
- Loss of market for products like wine and chocolate
- Lack of sunflower oil, lecithin and other inputs
- Fertilisers price increase
- Animal feed deficit

ENERGY-INTENSIVE INDUSTRIES
- Lack of metallurgic raw materials
- Steel prices are reaching record levels.
- Lack of inputs for the chemicals industry
- Loss of export market of Specialties Chemicals

Accelerating the transition to green, digital and resilience

Lessons learned

- Different **needs and challenges across ecosystems** for successful green and digital transformations
- **Acceleration** in digital and green transitions over last year; vulnerabilities, **investment gaps**
- To support **business case** for the transition and predictability, industry needs:
  - a coherent &stable **regulatory framework;**
  - access to **capacities** and infrastructure (including digital ones)
  - access to **finance**;
  - access to **raw materials** and **decarbonised energy**, and **the right skills**

Updated Industrial Strategy

- **Ecosystem analysis** of challenges faced by 14 industrial ecosystems and of transformative initiatives for twin transitions and boosting resilience
- Co-creating **transition pathways**

We will be supporting the business case through a **combination of actions**, including:

- investments & capacities building: **Recovery and Resilience Facility, Multi country projects**
- innovation: **Horizon Programme**
- **regulatory framework**: 'fit for 55', Carbon Border Adjustment Mechanism, eco-design measures, sustainable products initiative; green investment and green finance;
- raw materials: European Raw Materials Alliance
- digital: data & data spaces
- access to abundant, affordable and **decarbonised electricity**
- **skills**

The Industrial Forum

For the most relevant ecosystems and together with other relevant stakeholders, the Forum will:

1. support the development of transition pathways
2. support the analysis of strategic dependencies.
3. promote best practices and solutions across ecosystems
4. identify cross-border and cross-ecosystem investment needs and cooperation opportunities.
5. Establish best practices for advanced manufacturing

Composition

***55** members*

Member States authorities

Industrial associations, NGOs, trade unions, research and technology organisations, representatives of the financial/investment sector, associations of regions or of regional development agencies

European Bank for Reconstruction and Development

European Investment Bank The EU bank

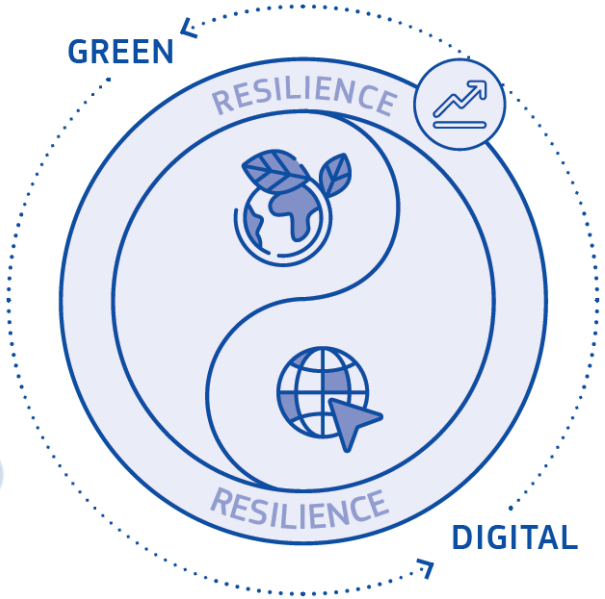
***2** observers*

European Committee of the Regions

Comité économique et social européen
European Economic and Social Committee

Dialogue with a wider range of stakeholders

Transition Pathways



Regulation and Public Governance

R&I, Techniques and Technological Solutions

Skills

Sustainable Competitiveness

Social Dimension

Infrastructure

Investments and Funding

The technological building block of the transition

R&I, Techniques and Technological Solutions

Green and Digital Transition

What are the **R&I** (including technology and prototyping) unmet needs in realising the twin transition of the ecosystem? What **existing solutions** could already help to achieve the twin transition of the ecosystem?	Provide actions to meet the identified needs. Include actions identified in the **Common Industrial Technology Roadmaps**. Use the Horizon Europe Results Platform to identify existing solutions.	Are there barriers to the **technology transfer** from research institutions to industry?	Provide actions that can overcome the barriers.	Which barriers exist to **widespread adoption** of new green and digital technologies, techniques and processes in the ecosystem in the Single Market? Are there specific barriers for SMEs?	Provide actions that can overcome the barriers.	What techniques or changes to **business models** could accelerate the twin transition of the ecosystem?	Provide actions to identify and promote such techniques and business models.

Resilience

What events could put at risk the development or adoption of technology necessary for the resilience of the ecosystem?	Provide actions that can prepare the ecosystem or improve the adaptability for such disruptions.	Are there **value chains** e.g. for key technologies that are **vulnerable to major disruptions**? Are they of critical or non-critical nature?	Provide actions to potentially alleviate critical vulnerabilities.

ERA Common Industrial Technology Roadmaps

Low-Carbon technologies

Especially relevant for:

- Energy Intensive Industries

Circular technologies

- Especially relevant for:
- Energy Intensive Industries
- Textiles
- Construction

But both might be relevant for more manufacturing industries especially when it comes to business models

Thank you!

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orgalim | EUROPE'S TECHNOLOGY INDUSTRIES

Views and concrete examples from Europe's Technology Industries

Stéphanie Mittelham
Orgalim, Europe's Technology Industries
Manager Energy & Environment
28 June 2022 in Grenoble

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Introduction to Orgalim

Orgalim at a glance

Who we are

Mechanical Engineering

Metal Technology

Electrical Engineering, Electronics, ICT

Our purpose

We are shaping a future that's good

What we do

Orgalim is the foremost voice of Europe's technology industries at the EU level, working with policymakers to strengthen their sectors' growth and global leadership, maximise their contribution to Europe's economy and society and foster a new relationship of trust between businesses and citizens

What we represent

Annual turnover
2,480
billion EUR

Direct employment
10.97
million people

Annual exports
664
billion EUR

Our industries comprise of
770,000
companies
the vast majority of which are SMEs and microbusinesses

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Orgalim Membership

49 Member Associations, 8 Corporate Members, 22 Countries

National Associations

Austria
FMTI

Belgium
AGORIA

Croatia
Croatian Chamber of Economy
HUP

Denmark
DI

Finland
Technology Industries of Finland

France
FIEEC
FIM

Germany
VDMA
WSM
ZVEI

Great Britain
BEAMA
GAMBICA

Hungary
MAGEOSZ

Ireland
Ibec

Italy
ANIE
ANIMA

Latvia
MASOC

Lithuania
LINPRA

Luxembourg
FEDIL Metal

The Netherlands
FME
METAALUNIE

Norway
Norsk Industri

Portugal
AIMMAP

Slovenia
GZS-CCIS

Spain
SERCOBE

Switzerland
SWISSMEM

Sweden
TEKNIKFÖRETAGEN

Associate members

Turkey
MAKFED

Sector Associations

AFECOR
AQUA
CECAPI
CECE
CEIR
CEMA
CEMEP
CEO
C.E.F.A.C.D.
EFCEM
EGMF
EUNITED
EURALARM
EUROPACABLE
EUROPUMP
FARECOGAZ
FEM
FEPA
PNEUROP
T&D Europe

New – Orgalim for Corporates

AMAZON
EATON
FASTEMS
PEPPERL+FUCHS
PHOENIX CONTACT
SCHNEIDER ELECTRIC
SIEMENS
TEXAS INSTRUMENTS

Orgalim key messages on Research, Development & Innovation

Orgalim key messages on Research, Development & Innovation

1. Want to be sovereign? Invest more in R&D!

- **The problem:** Competition in technology development, innovation and markets is global. Based on the World Bank's latest data, the EU's R&D intensity is less than 2.2% of GDP compared to 2.8% in the US, and in 2018 China has for the first time overtaken the EU. Furthermore, in the ranking of the top 2,500 businesses investing in R&D, European companies have lost ground (17%) compared to companies based in China (20%) and the US (30%)
- **The objective:** Since the 2000s the EU has been setting for itself the objective to raise the overall R&D investment to 3% of GDP. After 20 years failing to do so, the twin digital and green transitions should be the final lever to get there
- **How to get there:**
  - ✓ The role of enabling technologies in the twin transitions should be recognised in the EU taxonomy
  - ✓ Fix time-consuming administrative processes
  - ✓ Cooperation between government and private venture capital
  - ✓ The right mix of grants, loans and equity instruments would better support R&D throughout all innovation phases
  - ✓ Invest in technology infrastructures (TI) for piloting, testing, validation of products and processes (some innovative European start-ups have to go out of the EU to find TIs)
  - ✓ Develop further public-private partnerships also at EU level (eg: Made in Europe)
  - ✓ EU research programmes (eg Horizon Europe) should have adequate funding geared towards the industrial competitiveness
  - ✓ Develop appropriate criteria to monitor R&D intensity in Europe

Orgalim key messages on Research, Development & Innovation

2. Europe has a scale up problem

- **The problem:** Europe is excellent in research but businesses face important funding gaps when they try to bring their innovations to the market. In Europe there are a lot of excellent ideas, but they also need the right funding and framework conditions to be brought into the market.
- **The objective: Europe's R&D ecosystem must be more efficient in scaling up innovative ideas**. Some of the scientific ideas that can help Europe achieve its twin transition objectives are already there, but are missing the tools, the workforce and the funding to be adopted in the market at large scale. Our green objectives will not be achieved if our excellent ideas remain stuck in some lab.
- **How to get there:**
  - ✓ Focus investments on scale-up activities and medium-to-high Technology Readiness Levels (TRLs)
  - ✓ Invest in research and technology infrastructures
  - ✓ The right mix of grants, loans and equity instruments would better support R&D throughout all innovation phases, accompanying businesses from the inception of their innovations to marketing at global scale
  - ✓ Support for the digitalisation of public services along with simplification of processes and better coordination across the administrative sector would make implementation of large-scale projects easier

Orgalim key messages on Research, Development & Innovation

3. Sovereignty is ok, but international collaboration remains key

- The European RDI community will remain excellent only if open to the world. Orgalim is in favour of the UK and Switzerland participating in the Horizon Europe programme
- It is crucial that Europe works towards strengthening the resilience of its industrial ecosystems, including on strategic supply chains (like Chips), but it shouldn't go down the protectionist path
- Global supply chains and markets are an essential asset for Europe's technology industries

4. Europe needs to address the shortage of skilled workforce

- The problem: Our Economics & Statistics report (Autumn 2021) testifies a "massive lack of skilled labour" which after the pandemic has added another brake on growth of our industries.
- The solution, at least in the medium-long term:
  - ✓ More collaboration between businesses and universities
  - ✓ Design education and training systems able to respond to new market and society needs

5. Invest in what we do best to keep our competitive edge: advanced manufacturing

Useful links

- Economics & Statistics Report - Autumn 2021 | Orgalim
- R&D and Innovation: Orgalim position on how to incentivise private investment in Europe | Orgalim
- R&D and Innovation: Orgalim contribution to the call for evidence for a new EU Innovation Agenda | Orgalim
- R&D and Innovation: Putting innovation at the heart of the twin transitions and the EU recovery | Orgalim

Orgalim key messages on standards

Europe's Technology Industries are key contributors to standardisation

Orgalim - Europe's technology industries - represents key voluntary contributors both to the European standardisation system and to international standardisation

> 90%

of the funding for this activity comes from the private sector

Our members are also major users of harmonised standards and as such are highly dependent on an effective and harmonised European standardisation system that supports the Single Market, European competitiveness and innovation.

Standardisation priorities for industry

- **Focus for our industries is operational:**
  - ✓ Ensure fast approval of harmonised standards, for the proper functioning internal market and ensuring alignment between European standards and international standards

- **Transparent decision making:**
  - ✓ Standardisation is an industry driven process requirements imposed by the Commission regarding process and decision making procedures need to be agreed in consultation with stakeholders and provided in clear and transparent guidelines

- **Technical quality requires diversity in expertise:**
  - ✓ Standardisation work at the technical level requires input from a broad range of industry experts to ensure that the technological solutions are reached through a process of consensus and are indeed relevant to the end users in the market this requires a bottom-up approach

- **Interoperability and international competitiveness**:
  - ✓ Technological solutions need to be interoperable to reach the widest market share, particularly digital technologies have no boarders

Useful links

- Joint statement on standardisation strategy (March 2022)
- Orgalim welcome statement on the Standardisation Strategy (February 2022)
- Orgalim contribution to the Standardisation Strategy roadmap (September 2021)
- Joint industry recommendations on harmonised standardisation (July 2021)

Brussels, 6 April 2022

Joint industry statement – Feedback on the Standardisation Strategy

Orgalim comments on the EU Standardisation Strategy

2 February 2022

POSITION PAPER

Brussels, 26 July 2021

Orgalim contribution to the Standardisation Strategy Roadmap

6 July 2021

Joint Industry recommendations for effective Harmonised Standardisation

Orgalim key messages on the proposed Ecodesign for Sustainable Products Regulation (ESPR)

Sustainable products package adopted by the European Commission on 30 March 2022

Complementary sectoral rules
on construction and other product categories (e.g. batteries, chemicals, packaging)

Ecodesign Working Plan 2022-2024
- Higher energy efficiency and circularity for energy-related products
- New rules for consumer electronics (smartphones, tablets, solar panels)

Strategy for Sustainable and Circular Textiles
- Binding eco-design requirements, incl. durability, reparability, and recycled fibre content
- Stop microplastics pollution
- Tackle fast fashion, textile waste, and the destruction of unsold products
- Accurate green claims
- Sustainable global value chains

Ecodesign for Sustainable Products Regulation
- Performance and information requirements for greener products
- Tackle the destruction of unsold goods
- Waste prevention and reduction
- Mandatory criteria for green public procurement
- Digital Product Passport and new labelling rules
- Stronger market surveillance

Support for circular business models
- European circular business hub
- Guidance to businesses

New rules to empower consumers for the green transition
- Protection against greenwashing and the deliberate planning or design of products with limited lifespans
- Information on product durability and reparability

Global action
- Corporate sustainability due diligence
- Global sustainable consumption and production forum

Key product aspects under the proposed new Ecodesign for Sustainable Products Regulation (ESPR)

- Durability
- Reliability
- Reusability
- Upgradability
- Repairability
- Possibility of maintenance and refurbishment
- Presence of substances of concern

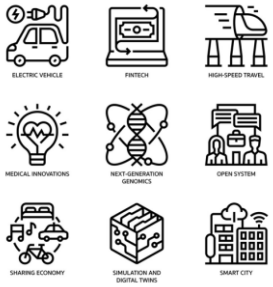
- Energy use or energy efficiency
- Resource use or resource efficiency
- Recycled content
- Possibility of remanufacturing and recycling
- Possibility of recovery of materials
- Environmental impacts, including carbon and environmental footprint
- Expected generation of waste materials

Increased focus on product information

e.g. Digital Product Passport; labels

Digital Product Passport under the ESPR

Tracking of **raw materials extraction/production**, supporting due diligence efforts



Enable **manufacturers** to create products **digital twins**, embedding all the information required

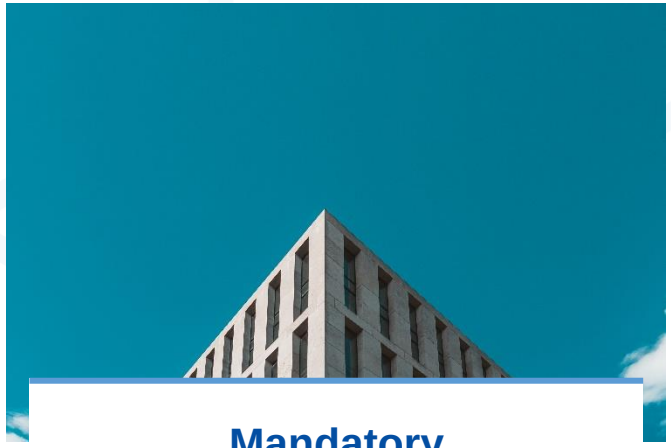
Tracking the life story of a product, enabling services related to its **remanufacturing**, **reparability, re-use/re-sale/second-life, recyclability**, new business models

Benefit **market surveillance authorities and customs authorities**, by making available information they would need to carry out their tasks

Make available to **public authorities and policy makers** reliable information. Enable to link **incentives** to **sustainability performance**

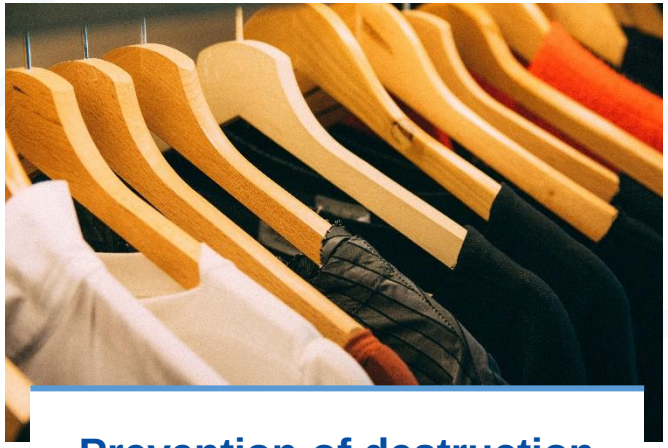
Allow **citizens** to have access to **relevant and verified information** related to the characteristics of the products they own or are considering to buy/rent (e.g. using apps able to read the identifier

Other tools provided by ESPR



Mandatory Green Public Procurement

ESPR will enable mandatory GPP criteria to be set in delegated acts for public contracting authorities



Prevention of destruction of unsold consumer goods

Transparency requirements for those choosing to discard unsold goods, and possibility to ban their destruction for relevant product groups.

Market surveillance and customs controls

Reinforcing controls on regulated products, including market surveillance implementing plans, possible targets on checks, support to common projects and investments

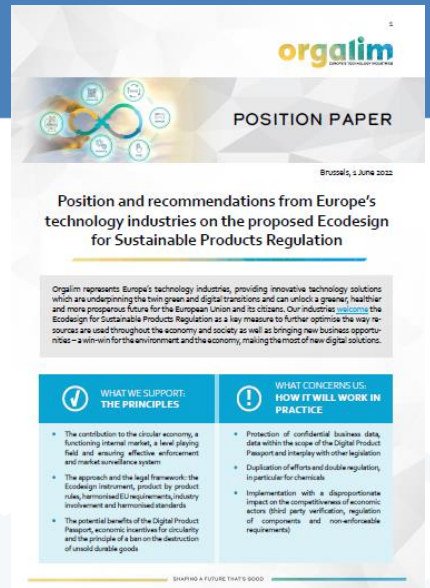
Orgalim welcomes the proposed new Ecodesign for Sustainable Products Regulation

Orgalim represents Europe's technology industries, providing innovative technology solutions which are underpinning the twin green and digital transitions and can unlock a greener, healthier and more prosperous future for the European Union and its citizens. Our industries welcome the Ecodesign for Sustainable Products Regulation as a key measure to further optimise the way resources are used throughout the economy and society as well as bringing new business opportunities – a win-win for the environment and the economy, making the most of new digital solutions.

What we support: the principles

WHAT WE SUPPORT: THE PRINCIPLES

- The contribution to the circular economy, a functioning internal market, a level playing field and ensuring effective enforcement and market surveillance system
- The approach and the legal framework: the Ecodesign instrument, product by product rules, harmonised EU requirements, industry involvement and harmonised standards
- The potential benefits of the Digital Product Passport, economic incentives for circularity and the principle of a ban on the destruction of unsold durable goods



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POSITION PAPER

Brussels, 1 June 2022

Position and recommendations from Europe's technology industries on the proposed Ecodesign for Sustainable Products Regulation

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WHAT CONCERNS US: HOW IT WILL WORK IN PRACTICE

- Protection of confidential business data, data within the scope of the Digital Product Passport and interplay with other legislation
- Duplication of efforts and double regulation, in particular for chemicals
- Implementation with a disproportionate impact on the competitiveness of economic actors (third party verification, regulation of components and non-enforceable requirements)

SHAPING A FUTURE THAT'S GOOD

What concerns us: how it will work in practice

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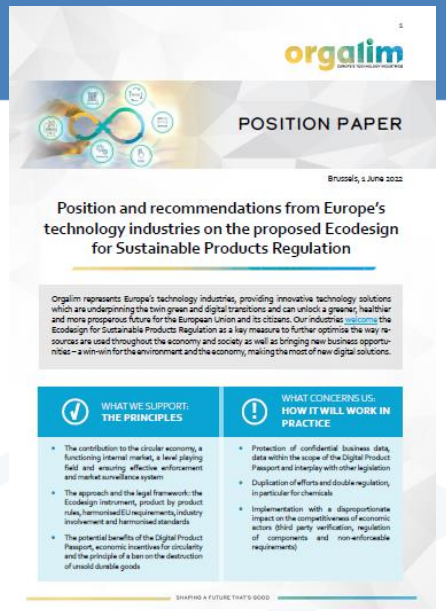

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SHAPING A FUTURE THAT'S GOOD

Orgalim Position & Recommendations on EPSR, 1 June 2022

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SHAPING A FUTURE THAT'S GOOD

What we support: the principles

Contribution to the circular economy, a functioning internal market, a level playing field and ensuring effective enforcement

Contribution to the circular economy, a functioning internal market and a level playing field

Orgalim supports the objective of the Ecodesign for Sustainable Products Regulation (ESPR), which is to establish a framework to improve the environmental sustainability of products and to ensure free movement in the internal market by setting ecodesign requirements that products must fulfil to be placed on the market or put into service. To secure the functioning of the internal market, requirements must be harmonised at EU level.

We are very concerned about different national provisions and mandatory requirements on products not aligned with the proposed new EU requirements. Our industries see the operation of the internal market as absolutely central for the circular economy to function. We also support that the new rules will apply both to products manufactured in the EU and those produced outside the EU and placed or put into service on the internal market, forcing importers to comply with European standards. This is crucial for fair competition and a level playing field. We support a Regulation instead of a Directive because the Regulation will ensure that the obligations will be implemented at the same time, and in the same way, in all EU Member States.

We recommend: Member States should avoid developing national measures on sustainable products that impair the functioning of the internal market.

Ensuring effective enforcement and market surveillance system

Ensuring effective enforcement through the market surveillance system will be of the utmost importance for the success of the ESPR, providing good and fair opportunities for manufacturers and constituting the most effective regime to reach sustainability objectives as well as a level playing field. However, requesting product information will not help if an adequate working capacity is not allocated by Member States. Increased focus on enforcement with more uniform requirements for the Member States will support a level playing field.

We recommend: Member States should be supported in implementing enforcement and surveillance activities when more products are regulated.

The approach and legal framework

Ecodesign instrument

We support the Ecodesign instrument which has already delivered for EU consumers, industry and the planet by taking into account all aspects of the life cycle of the product, and setting measurable and enforceable requirements based on the proportionality principle.

SHAPING A FUTURE THAT'S GOOD

What concerns us: how it will work in practice

Protection of confidential business data, data within the scope of DPP and interplay with other legislation

Protection of trade secrets and Intellectual Property Rights (IPR)

Our industries are very concerned about the protection of trade secrets and Intellectual Property Rights (IPR). We acknowledge that there is a balancing act between creating transparency and use of the data in the DPP on the one hand, and protecting companies' rights and trade secrets on the other hand. Confidential business data, IPRs and trade secrets of companies must not be served on a freely available silver plate to their competitors.

We strongly recommend:

- The confidentiality related to protectable trade secrets must be respected and the protection of IPRs, data exposing IPR and trade secrets must be protected or facilitating product piracy should not be listed in the ESPR Delegated Acts, and the Regulation should exclude this type of data from its scope. If IPR and trade secrets are not excluded from the scope, then high standards of cybersecurity and confidentiality will need to be in place.
- What information should be made available to market surveillance authorities without request must be clarified and these measures must respect confidentiality related to protectable trade secrets, IPRs, security laws and for export control legislations (including dual use).

Data within the scope of DPP and the interplay with other legislation

Our industries are also concerned about the data that will be within the scope of the DPP, the interplay with other legislation and other issues listed below.

We strongly recommend:

- New DPPs must be introduced only after an impact assessment and cost/benefit analysis have been conducted to ensure that the new requirements will be proportionate and will contribute to the circular economy.
- Consistency and coherency with other legislation must be ensured e.g. documentation requirements need to be aligned with the provisions / rights on data access of the Data Act.
- Information requirements should be limited to the essential requirements of stakeholders over the lifetime of a product. It is crucial that information collected will add value for the different actors in the value chain.
- "Use-data" in the text of the ESPR Regulation should be defined and product-specific Delegated Acts should clarify which data will be covered in the DPP, who can access data, who owns the data and the responsibilities of each market operator (e.g. who has the obligation to store information on the DPP, the entity placing on the market or the manufacturer, what are the obligations of users/third parties?)

*Such as for example IEC 62474 EDS Material declaration – Part 1: General requirements, draft Recommendation ITU-T L.GDSPP "Requirements for a global digital sustainable product passport to achieve a circular economy.

SHAPING A FUTURE THAT'S GOOD

Orgalim Policy Exchange webinar on ESPR & DPP 1 June 2022

400+ participants attended our event

The recording of the webinar, an article summarizing our event, the slides and a Q&A document are available on Orgalim website here

Agenda for today's Policy Exchange

10:30 - 10:35	Welcome, introduction, and opening remarks by the moderator **Stéphanie Mittelham**, Manager Energy and Environment, Orgalim, Europe's Technology Industries.
10:35 - 10:40	Online polls
10:40 - 11:00	**Keynote from Michele Galatola**, Policy Officer, DG GROW, European Commission
11:00 - 11:05	Online polls
11:05 - 11:25	**Statements & questions from Orgalim and ECOS,** and response from the Commission – **Louise Bünemann**, Chair of Orgalim Environmental Sustainability Working Group and Head of EU Environmental Policy at the Confederation of Danish Industries – **Margaux Le Gallou**, Programme Manager, ECOS, the Environmental Coalition on Standards
11:25 - 11:35	**Presentation of Finnish Pilot Project on DPP by Jussi Mäkinen**, Director EU Regulation, Technology Industries of Finland and reaction from the Commission
11:35 - 11:57	**Q&A session** between panellists
11:57 - 12:00	**Closing remarks**

Examples of concrete case studies illustrating how the technology industries contribute to supporting the transition

Examples of Orgalim concrete case studies

Examples of Orgalim concrete case studies

Schneider Electric: Why digital technologies are key to circularity

Preventing failure, extending durability, and making the lifetime of assets much more efficient is a crucial part of creating a more circular economy. This Technology in Action case study highlights the key role digital technologies play in helping industry become more circular.

It describes how global energy management and automation specialist **Schneider Electric** deploys its technology solutions and digitalisation to help French food giant Danone extend the life of its plant, saving materials, carbon emissions and energy consumption as a result.

Examples of Orgalim concrete case studies

Legrand: Driving circularity in the electrical industry

Creating more circularity in electrical and digital building infrastructures is a complex challenge which needs to be tackled systematically. This Technology in Action case study delves into how French company **Legrand** is doing just that, making real progress in closing not just one but several loops, and setting targets and incentives along the way.

It highlights practical ecodesign issues in an industry where safety and durability are paramount, and demonstrates the tremendous potential of enabling technologies and digitalisation to drive the energy efficiency of buildings.

Examples of Orgalim concrete case studies

Cristel: Delivering quality with a lifetime guarantee and reparability

Metals represent the highest share of waste currently exported outside of the EU. Much of this is large, industrial scale waste, but metal waste occurs in many sectors. This Technology in Action case study looks at how one French SME is reducing metal waste in a way that is a win-win both for the company and for the local economy in which it operates.

In the spotlight: premium cookware maker **Cristel**, which has developed an innovative process and service model enabling it to re-finish customers' non-stick pans whenever necessary, saving tonnes of metal and CO_2 emissions, while preserving jobs and sourcing locally.

Examples of Orgalim concrete case studies

CMD Gears: Making things last longer on a large scale

The steel industry is among the most energy intensive industries in Europe so there is an urgent need for circular economy strategies to use less steel, use it for longer and re-use it as much as possible. This Technology in Action case study examines how **CMD Gears** does just that, by custom-designing and maintaining the large-scale gears it makes to help customers maximise the life and usefulness of their plant.

The experience of this French company underlines how service models can create the incentive to continuously improve resource efficiency and highlights the key role of digitalisation in enabling predictive maintenance and reducing downtime.

Orgalim examples of enabling technologies supporting the green transition

CLIMATE MITIGATION

SMART BUILDING MANAGEMENT

What Is It?

A platform using a collaborative Internet of Things (IoT) to enable a scalable, secure, and global architecture to make buildings of all types more efficient.

Did You Know?

Large buildings with a smart building management solution can increase operational energy efficiency up to 30%, as well as improve their engineering efficiency and cyber security.

See example here: *EcoStruxure Buildings*

4

Examples of Orgalim concrete case studies on enabling technologies

CLIMATE MITIGATION

HIGH, MEDIUM, & LOW VOLTAGE ELECTRICAL CABLES

What Is It?

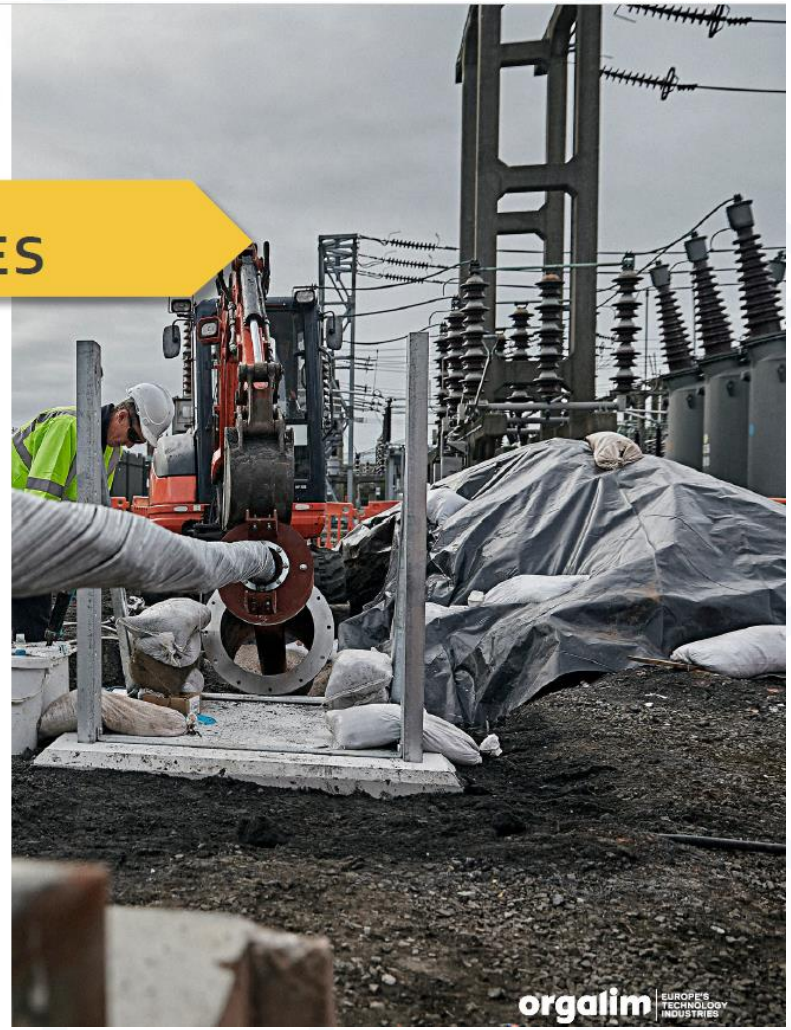
Energy cables of different sizes are necessary for a modern energy grid. They enable the connection of renewable energy sources, the interconnection between countries and the electrification of transport and smart buildings.

Did You Know?

In order to succeed with Europe's decarbonization goals, electrification is essential. Over 44,000 km of new cables must be installed to enable the grid to handle the increased usage of renewable energy.

See example here: *Energy Infrastructure*

6



Examples of Orgalim concrete case studies on enabling technologies

CLIMATE MITIGATION

VARIABLE SPEED DRIVES

What Is It?

A device used to control the speed of an electrical motor by changing the frequency and voltage of power supplied to the motor. This is for example useful in slow operations that use too much energy.

Did You Know?

Variable Speed Drives can reduce up to 40% of energy consumption when applied to an electrical motor. That means that the CO_2 footprint are reduced significantly and the motor's lifetime is extended.

See example here: *What is a Variable Frequency Drive?*

Examples of Orgalim concrete case studies on enabling technologies

WATER PRESERVATION

SIMPLIFIED HYDROPONICS

What Is It?

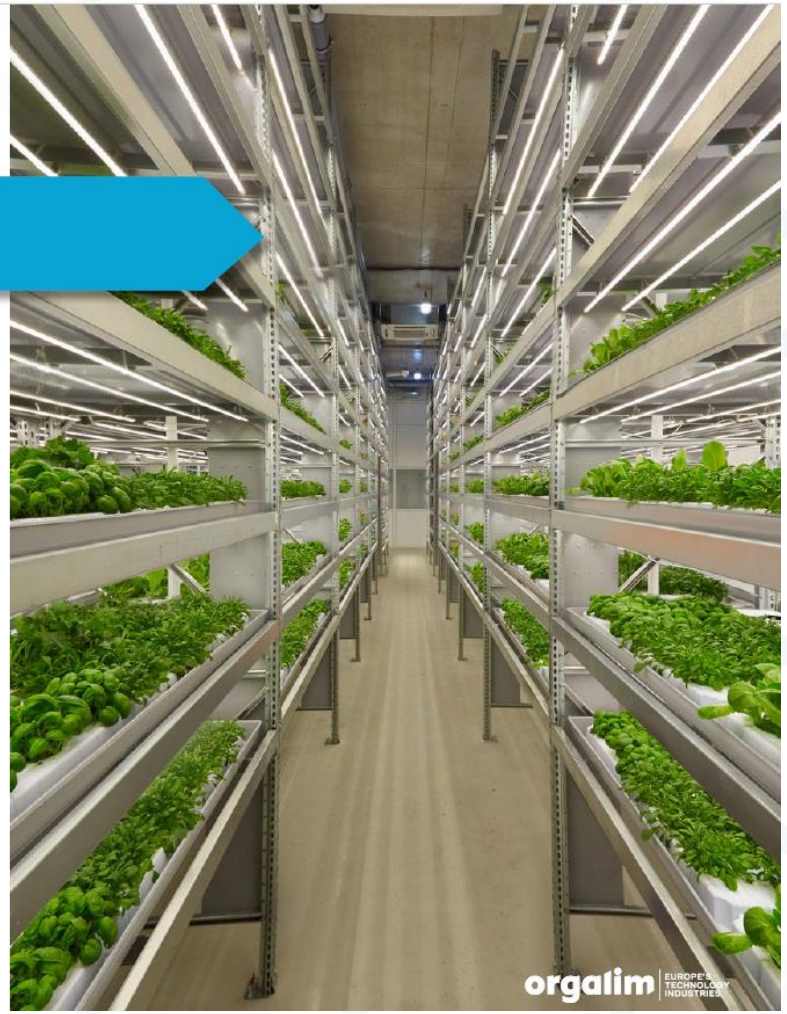
Hydroponics is a method of growing plants without soil; instead, nutrients are provided via a water-based system.

Did You Know?

Hydroponics reduces water use for crops by 90% compared to conventional soil-based systems, thus dramatically improving the sustainability of farming.

See example here: *Growing Solutions*

8



Examples of Orgalim concrete case studies on enabling technologies

WATER PRESERVATION

ADVANCED WATER LEAK DETECTION

What Is It?

A system that monitors water infrastructure. By combining real-time data and historical data, it can detect, prevent and mitigate leaks.

Did You Know?

Advanced leak detection combines real-time network intelligence and historical metrics to detect leaks faster, thus helping decrease water leak occurrences by 15%.

See example here: *Digitisation of Water Network Management*

Examples of Orgalim concrete case studies on enabling technologies

WATER PRESERVATION

WATER TREATMENT PLANT 4.0

What Is It?

A water treatment plant 4.0 uses the latest technology to control, monitor and simulate every step of the process in order to optimize energy consumption.

Did You Know?

By installing and implementing a state-of-the-art energy management system, Canal Isabel II is able to save 15% in total energy consumption and reduce CO_2 by 10%.

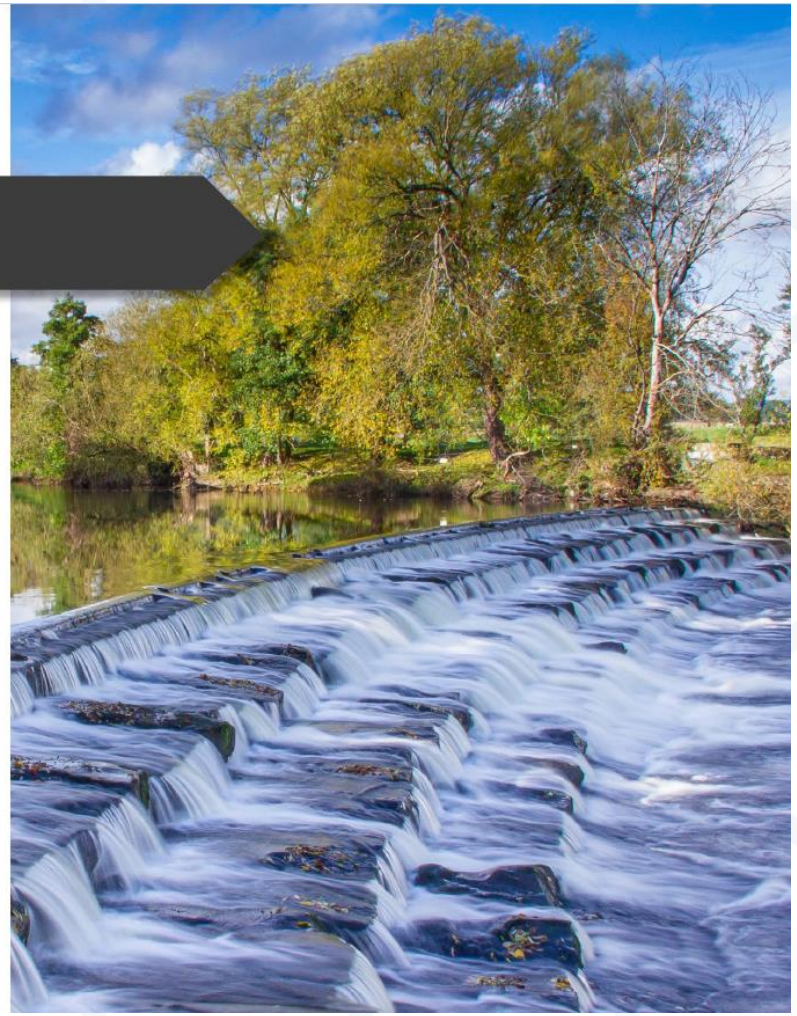
See example here: *Treatment Plant 4.0*

10

Examples of Orgalim concrete case studies on enabling technologies

POLLUTION PREVENTION

ADVANCED AI & BLOCKAGE PREDICTORS



What Is It?

A monitoring system that uses real time data from sewer overflows, manholes and an advanced AI system to identify abnormal behaviour in waste water.

Did You Know?

Using advanced AI combined with real time rainfall data, detection and reaction to potential waterway pollution issues are 3-4 times more effective.

See example here: *AI Pollution Prevention System*

Thank you for your attention!

For more information, please do not hesitate to contact me!

Stéphanie Mittelham, Orgalim Manager Energy & Environment

stephanie.mittelham@orgalim.eu

orgalim | EUROPE'S TECHNOLOGY INDUSTRIES

Ind Tech 2022

THALES
Building a future we can all trust

Sovereignty?
What does it mean for Thales?
How does the company concretely manage the concept in domains like digital and semi-conductors?

Session 6 “Technologies for a Sovereign Europe"

Sophie MULLER, PhD
Director, R&T Collaborative Studies
Thales SA
28/06/2022, Grenoble

Agenda

- Thales at a Glance
- What is Sovereignty for Thales?
- How to manage ?
  - Examples in Digital, Semi-conductors,...

Thales's Missions

Our Customers have Big Ambitions: Make the World go Round

Sensing
& data gathering

Data transmission
& storage

Data processing
& decision making

From the Bottom of the Oceans… …to the Depths of Space & Cyberspace

We help customers master decisive moments by providing the right information at the right moment

Thales: A R&D Powerhouse with a Responsibility engagement

Over **80,500** employees

70 Countries Global presence

1 bn € Self-funded R&D*

* Does not include externally financed R&D

Sales in 2020 **17 bn €**

THALES

Building a future we can all trust

Corporate Responsibility: A strategic Choice, Key to Business Performance

Embedded in every business process and day to day work

- Code of Ethics and dedicated organisation.
- Robust policies and internal control.
- Focus on employee training, awareness and ownership.

- Group-wide environmental, social and governance programms.
- Promoting responsible dialogue with all stakeholders.

- Driving industry-wide initiatives (corruption prevention, best practices).

THE GLOBAL COMPACT WE SUPPORT — Member of Global Compact since 2003. Thales has achieved Global Compact Advanced level.

CDP DISCLOSURE INSIGHT ACTION — Carbon Disclosure Project. Thales ranked CDP « Leadership A/A- »

Dow Jones Sustainability Indexes — Thales has been ranked in the top 3, in the Defense/Aerospace sector by the Dow Jones Sustainability Indices (DJSI) Europe and World, for the last 3 years.

Key Digital Technologies

Albert Fert
Scientific director of the CNRS/Thales joint physics unit and winner of the **2007 Nobel prize in physics.**

8 times winner 2012, 2013, 2015, 2016, 2017, 2018, 2019, **2020**

Clarivate Analytics — TOP 100 GLOBAL INNOVATORS

Expertise in a uniquely broad range of technical domains, from science to systems, applied across businesses.

An extensive intellectual property portfolio of 20,500 patents.

What is Sovereignty? What formulation for Thales?

Sovereignty for Thales (**Patrice Caine, Netexplo Observatory interview, June 7th 2022**):

« Not Autarky... but Autonomy. It means we can **master our Destiny**. We consider ourselves as sovereigns insofar no others can decide nor influence our strategic choices »

From Thales's Missions point of view, this is particularly crucial in 2 domains, which are linked: Digital and Semi-conductors.

What actions to support sovereignty in Thales ?

=> 5 key points we consider as particularly important :

- Capacity of Analysis and Foresight
- Strength of R&D
- Relations with players
- Vigilance on value-chains
- Talents

key points to support sovereignty in Thales (1)

Capacity of Analysis and Foresight

- To avoid unadequacy in strategic positioning, lack of preparation and fragility or situation of dependance.
- At Thales, we devote significant efforts to perform analyses, scrutinize evolutions so as to be able to anticipate the future, making sure we will not miss any important turn.

⇒ Example of semi-conductors and current shortage

key points to support sovereignty in Thales (2)

Strength of R&D

- In Digital, Thales' ambition is to become one of the global leaders in technologies like Cybersecurity, AI or connectivity. We manage so as to get a critical size towards this goal.
- This capability of autonomous research is compatible with a collaborative approach in R&D, also called « Open Innovation ».
- This is a way to grow up key domains of excellence (ex: Tubes for Space).

key points to support sovereignty in Thales (3)

Relationships with players and standards,

ie Topics of mutual or inter « dependance »

- **In Digital :**

In Thales, we make sure to establish fair and balanced relationships with major digital players.

⇒ Agreements with companies as Microsoft and Google : We bring technological bricks such as on cybersecurity => we are both supplier and customer.

- **In Semi-Conductors** :

Mutualization, complementarity schemes, standards...some examples:

  - JVs, Capital sharing, Fab and Fabless...
  - Open Standard with Open Source HW (RISC V)

key points to support sovereignty in Thales (4)

Value Chains

In Thales, we are of course vigilant about the whole value chains, both on the technologies we produce ourselves and the one we purchase.

key points to support sovereignty in Thales (5)

Talents

Thales strongly invests in the **recruitment** and **reinforcement of competencies**, in a context of growing competition.

About semi-conductors : How to face the current shortage ? (1)

What problems do we meet? What is it about?

- **A problem of Supply and demand in a situation of shortage:**

The question is about how will the scarce ressources be allocated ?

...we fear unfair competition (prices, preferences...) - Will it be a **regulation mechanism (preferred)** or « de facto » a monopolistic situation ?...

...And about regulations ?

Case of Vaccines/COVID19: Actions of EU (market frame, regulation) have favoured better conditions for Europe (price, homogeneous distribution) and avoided a mess...

To regulate in case of shortage, 3 methods :

- Prohibition, Rationing, Taxation => This last (approach generally gives rise to technical progresses..

- **High complexity of the value-chains:**

Very complex In the case of semi-conductors (more than vaccines... !). It is like a lace...

Today the attention is more focused on the large-scale investments on which we are dependent.

- **Several types of disturbances:**

Geopolitical situations, **Climatic** perturbations or **accidents** (fire, accident applying on concentrated industrial areas (cf Fukushima)...), **Regulations** (REACH...)

And, of course, there is also the **economical question** (prices, conditions...).

When **we cumulate the risks**, it becomes complicated...

About semi-conductors : How to face the current shortage ? (2)

How to avoid being dependant? How to tackle the problem? How to protect ourselves?

Several possibilities (or a mix) can be considered:

- Creation of interdependant links,
- Open standards
- Multi source approach,
- Reduction of specific parts
- Domains of excellence
- And...a little bit of autarky!

Conclusion

Sovereignty means **staying Vigilant !**

...and then no total free exchange at global level, economically more effective when everything goes round but lying on a total confidence postulat that is not established...and today even less than yesterday !

This is why Thales wants so much to support a trustable world

THALES
Building a future we can all trust

Thank you!

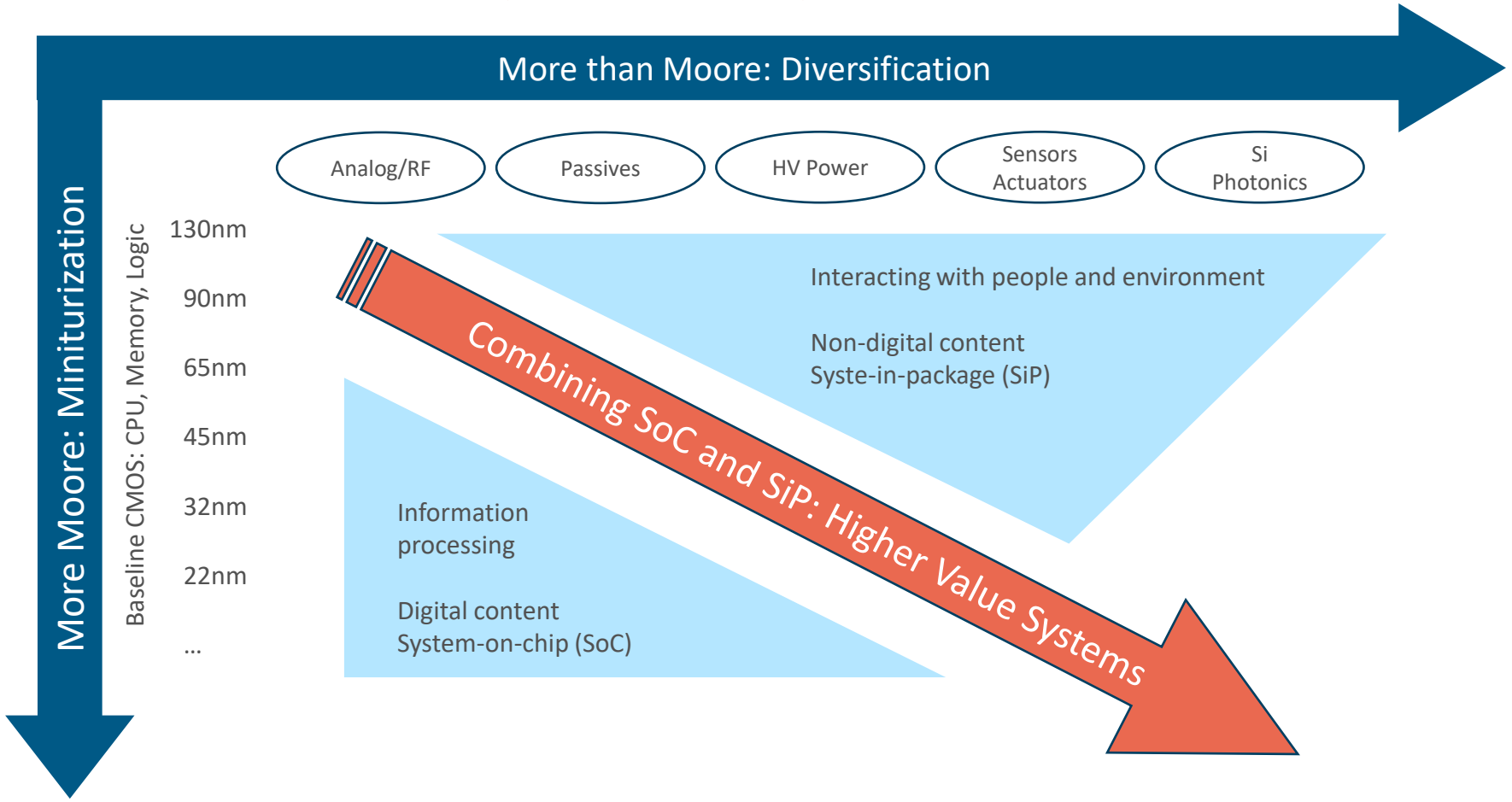
Juli 2022

Integrated Photonics: a new semiconductor opportunity

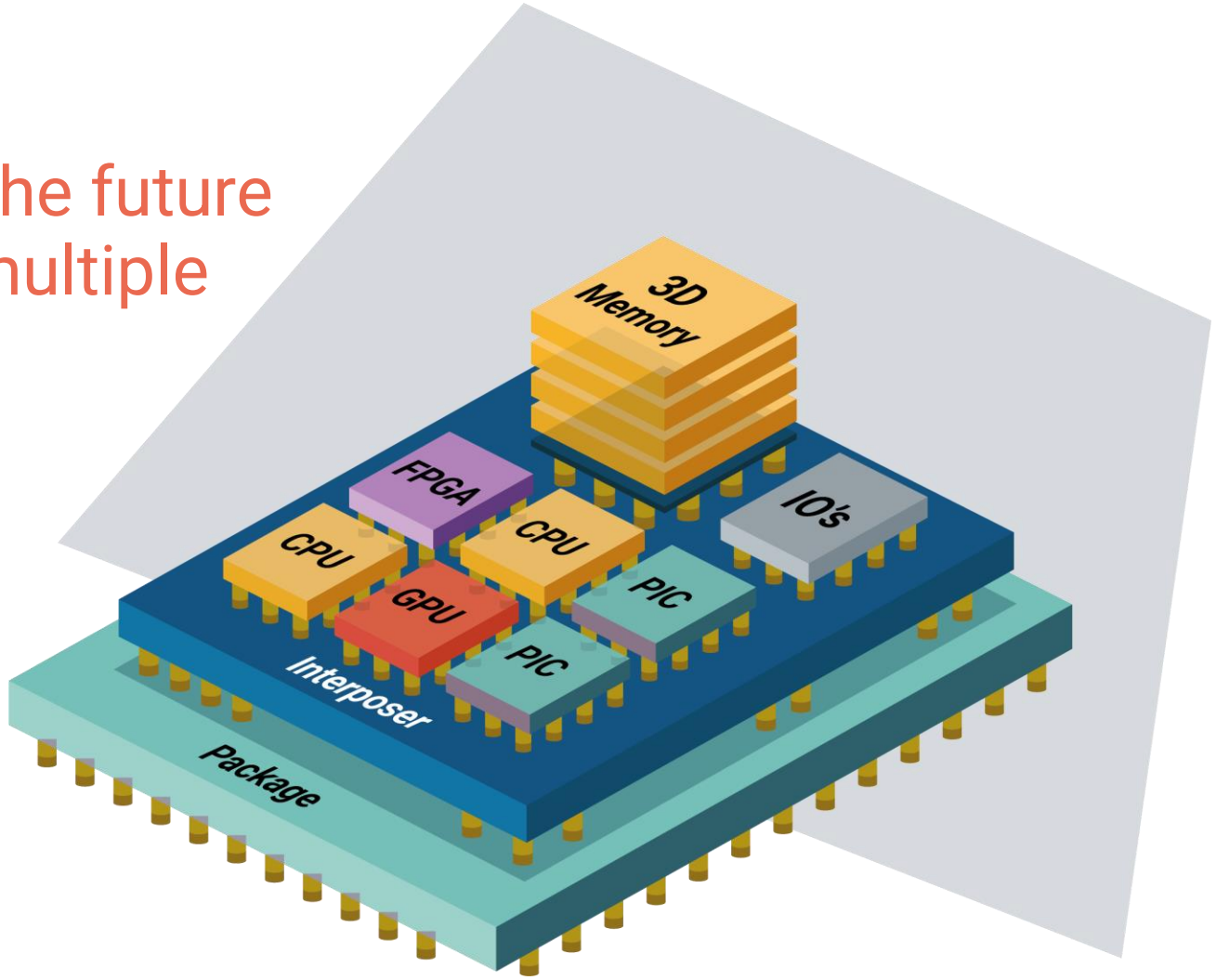
René Penning de Vries
Chairman of the Supervisory Board

PhotonDelta
Gateway to Integrated Photonics

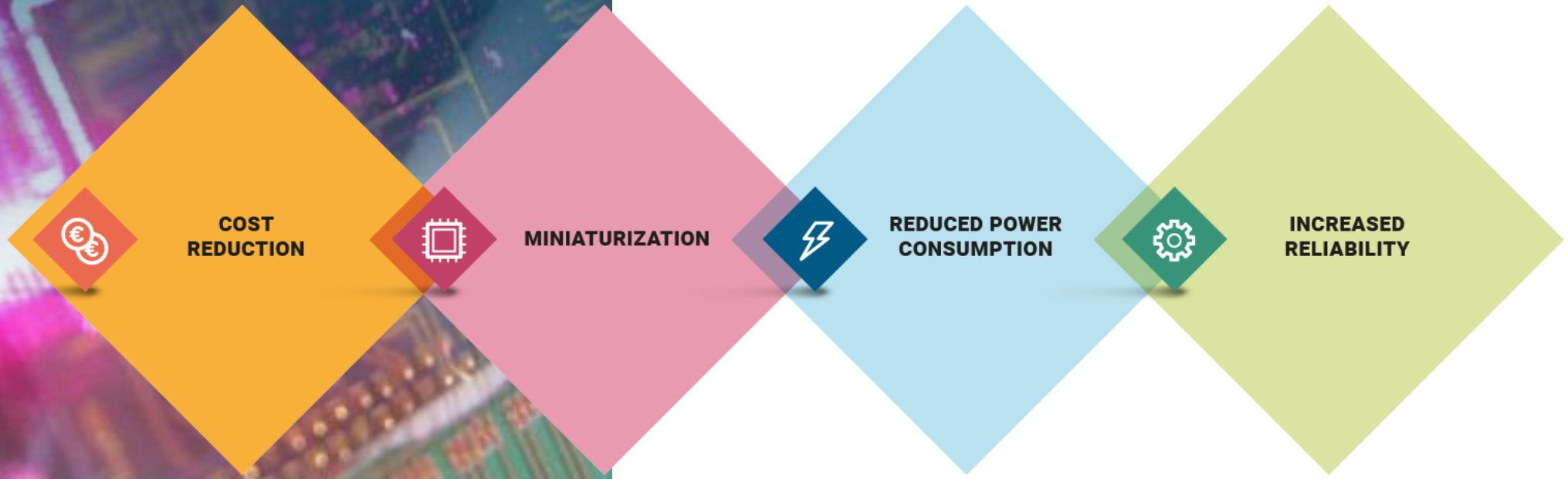
The paradigm of (More than) Moore's law is breaking….



Heterogeneous integration: The system of the future will consist of multiple technologies



PIC’s =
Photonic Integrated Circuit



PIC’s benefit from semiconductor mnfg expertise

Opening the door to new applications and markets

Communication	Sensing	Computing
Now	Emerging	Future

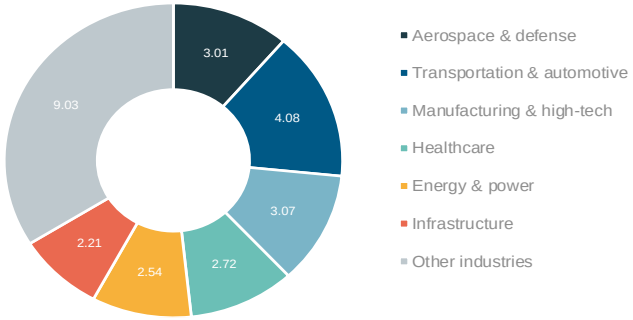
Datacom and 5G+

Continuum-of-Care
Food and Agriculture
Infrastructure & Transportation

AI, Neuromorphic
Quantum

Application markets are growing at significant CAGR

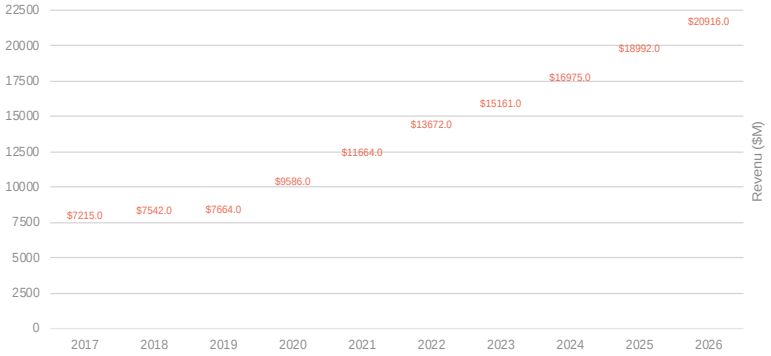
Sensing market in 2025: 26.6$ Bn



Source: 2020 Mordor intelligence

Application markets are growing at significant CAGR

Optical transceivers market increases with 11% CAGR to 21$ Bn in 2026



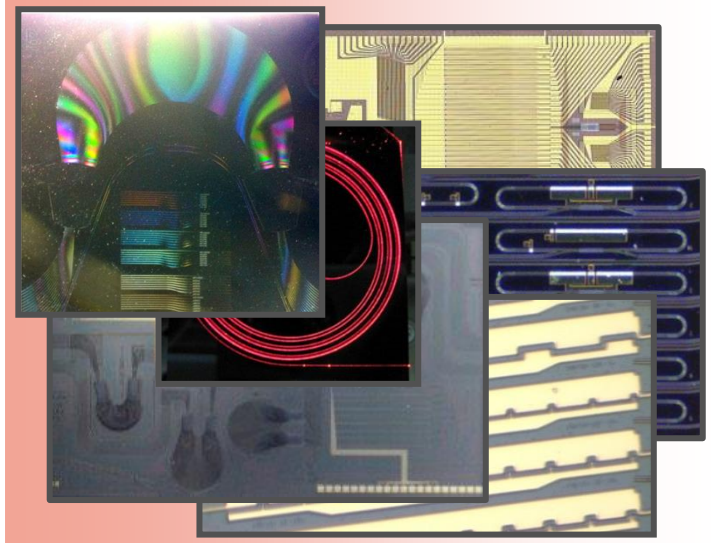
Application markets are growing at significant CAGR

LiDAR market increases with 17% CAGR to 5,7 $Bn in 2026

Combined market
In 2026 60B$

PIC's facilitate Quantum Technology Applications….

our expertise in PICs



narrow-linewidth lasers <<100 kHz
modulators and photodiodes >10 GHz
delay lines > 10 ns
notch filters < 10 MHz
multiplexers < 0.5 dB loss
optical nonlinearities

applications in QT

- ❑ quantum random number generators
- ❑ single-photon (de)multiplexers
- ❑ optical frequency combs
- ❑ quantum key distribution
- ❑ optical interposers...

that are

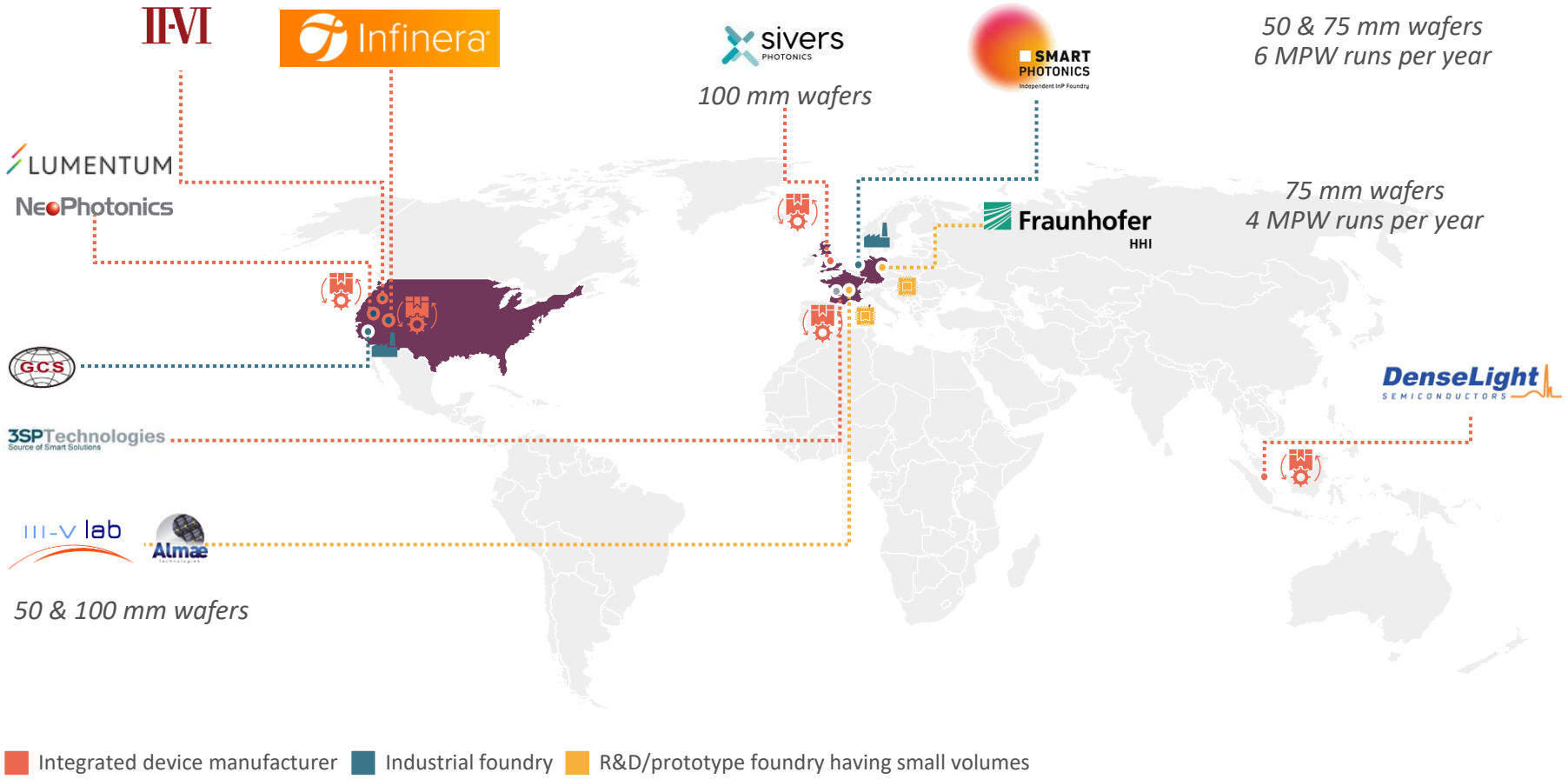
- ❑ low C-SWaP
- ❑ telecom compatible
- ❑ space compatible

Using mature design, fabrication and packaging technologies, we can scale up and bring quantum photonic systems out of the lab

But, what about the supply chain? Strategic Autonomy?

Majority of the InP PIC production is through integrated device manufacturers

InP PIC foundries worldwide



- Majority of the InP PIC production is currently through integrated device manufacturers (IDM) such as Lumentum and Infinera
- These IDM manufacture relatively simple PICs with 2 or 3 components
- Within Europe, HHI and III-V labs offers open access foundries for pilot/prototype production line

1) O-band refers to the wavelength range 1260–1360 nm, C-band refers to the wavelength range 1530–1565 nm and L-band refers to the wavelength range 1575–1610 nm

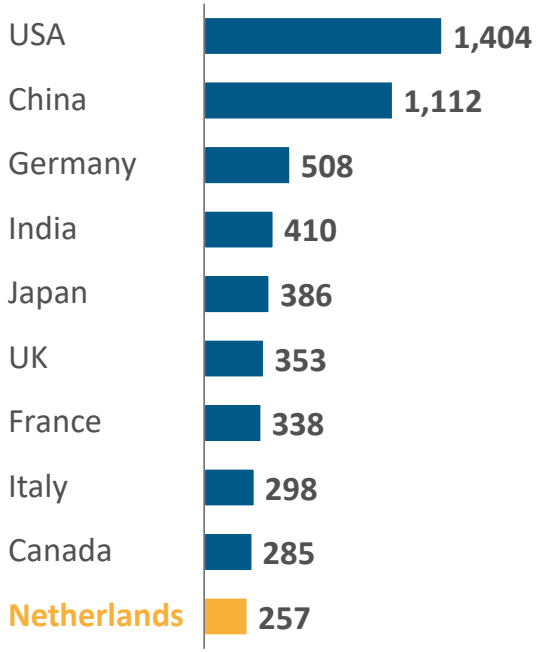
Source: Company websites, Jeppix roadmap 2021-2025, Roland Berger

Europe has strong knowledge position in integrated photonics

Research position of the Netherlands, 2017-2021

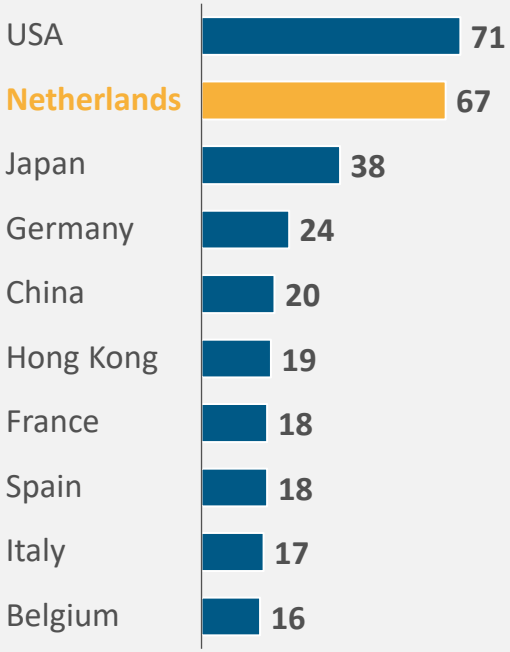
Publications on PIC

Photonic Integrated Circuits (PICs)

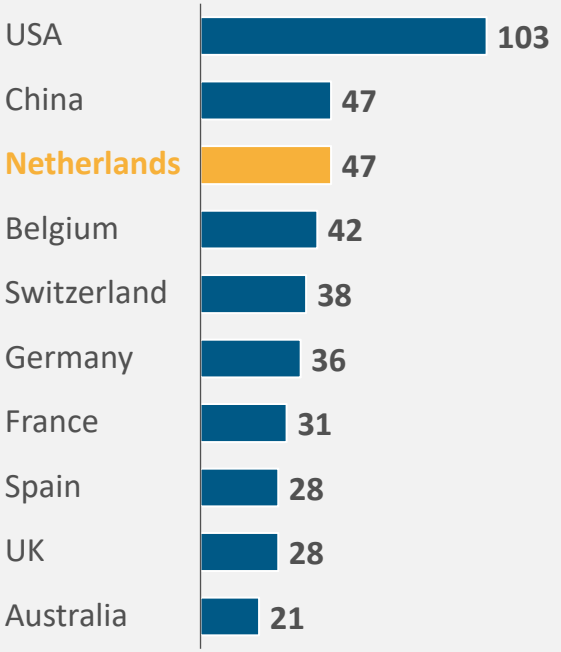


Publications on different platforms within PICs

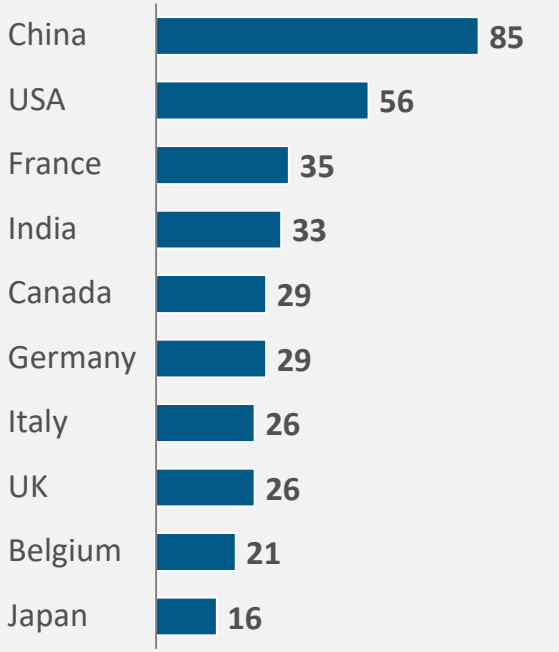
Indium Phosphide[1)]



Silicon Nitride[1)]



Silicon on Insulator[1)]



1) As keyword within 'photonic integrated circuits' (PICs)

Source: Desk research, Roland Berger

Strong Dutch & European support to create world-class capability

2018

National Photonics Agenda
€240M

2022

National Growth Fund proposal
€1,1B

2022

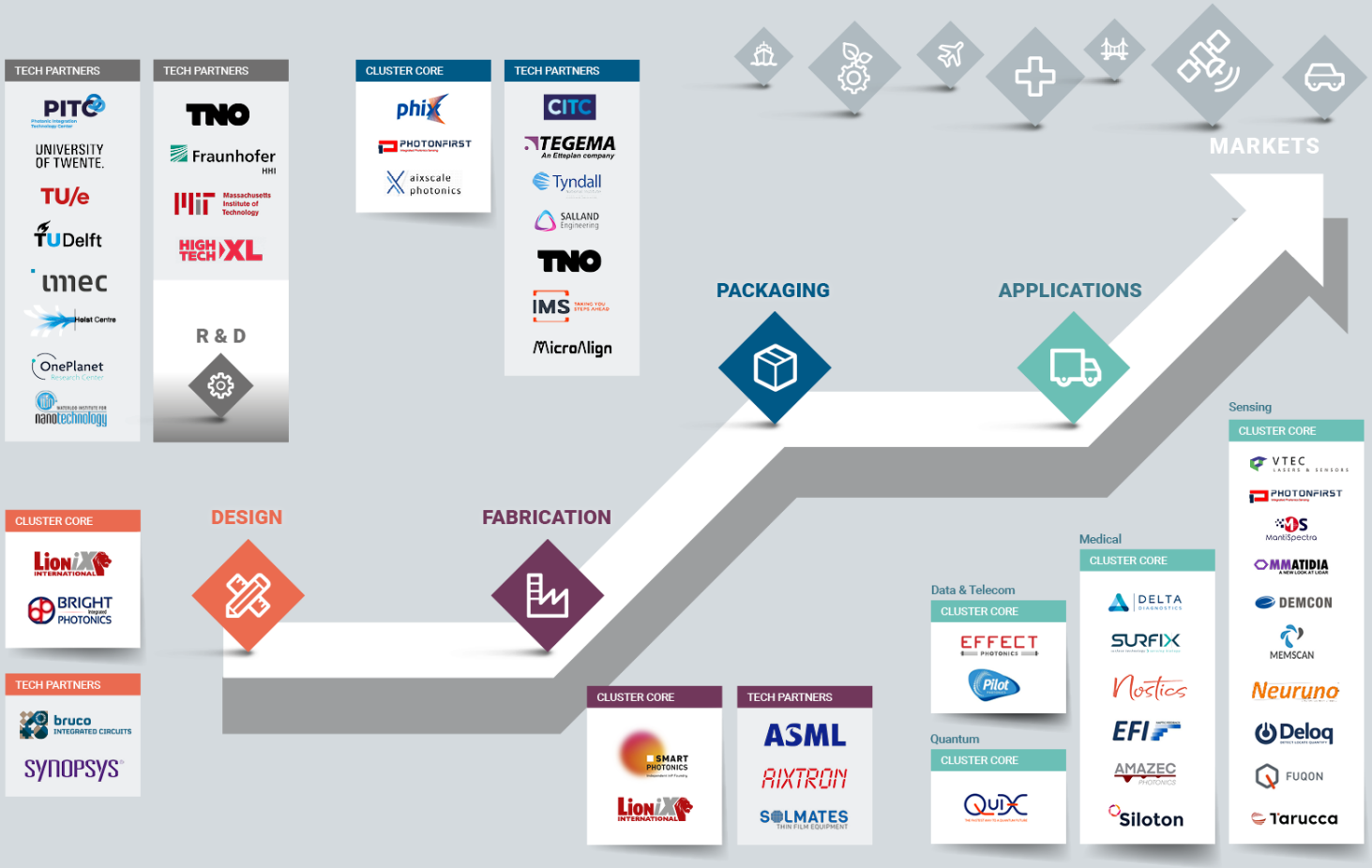
EU Chips Act
€43B

IPCEI
€60M

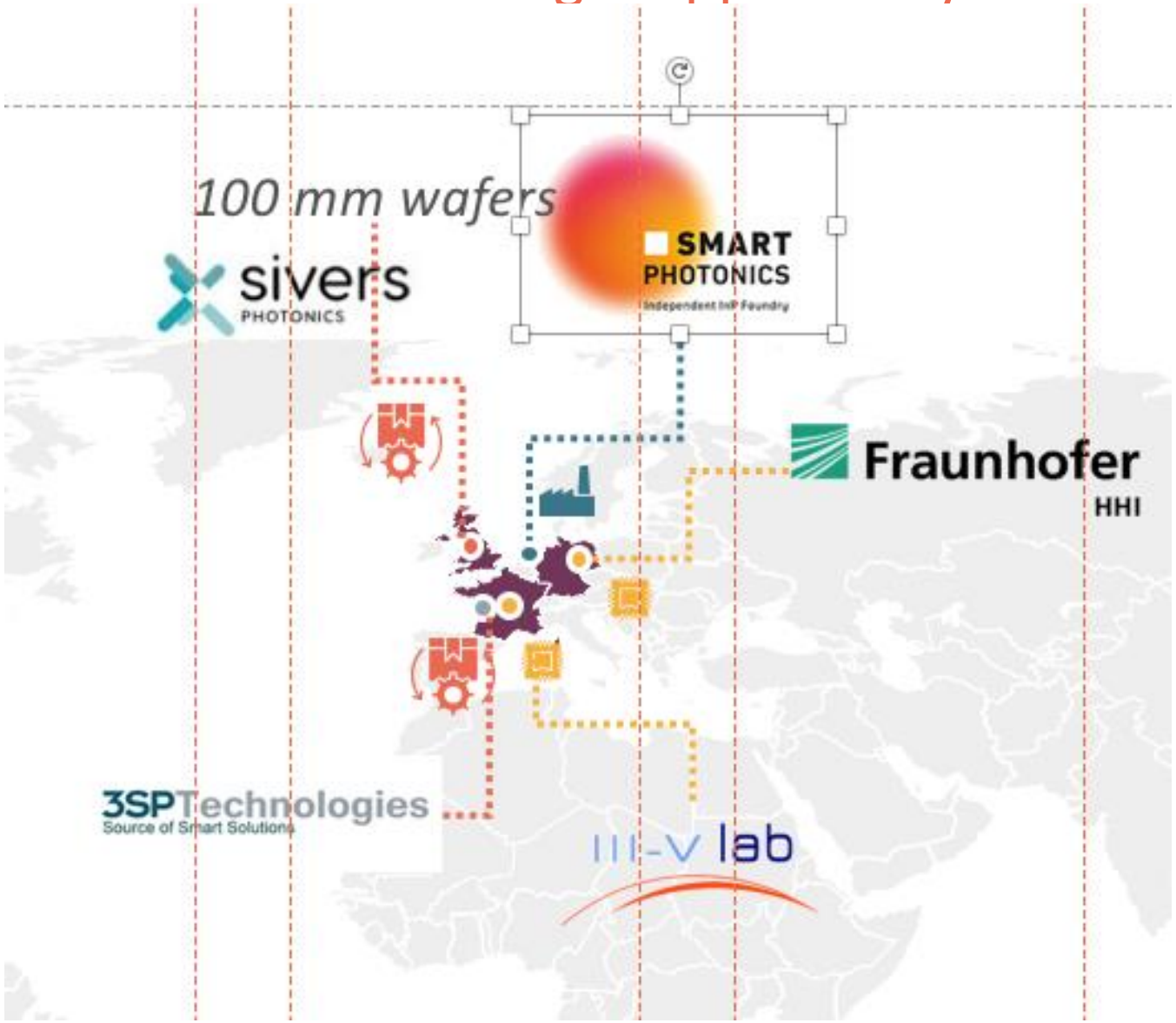
PhotonDelta is an ecosystem for integrated photonics

- Supply-chain
- Research
- Financing
- Market
- Human capital

We design, develop and manufacture innovative solutions with PIC technology



Integrated Photonics offers a Strategic Opportunity for Europe



Wrap up:

1. Heterogeneous integration of best in breed components is new paradigm
2. Europe has pole position in the arising photonics industry
3. Strategic autonomy requires scale-up of ambitions

4. Are we ready????

Ind Tech 2022

Teknikföretagen

Technologies for a Sovereign Europe

Cecilia Warrol, MSc., MBA
Programme Director and Senior Specialist
2022-06-28

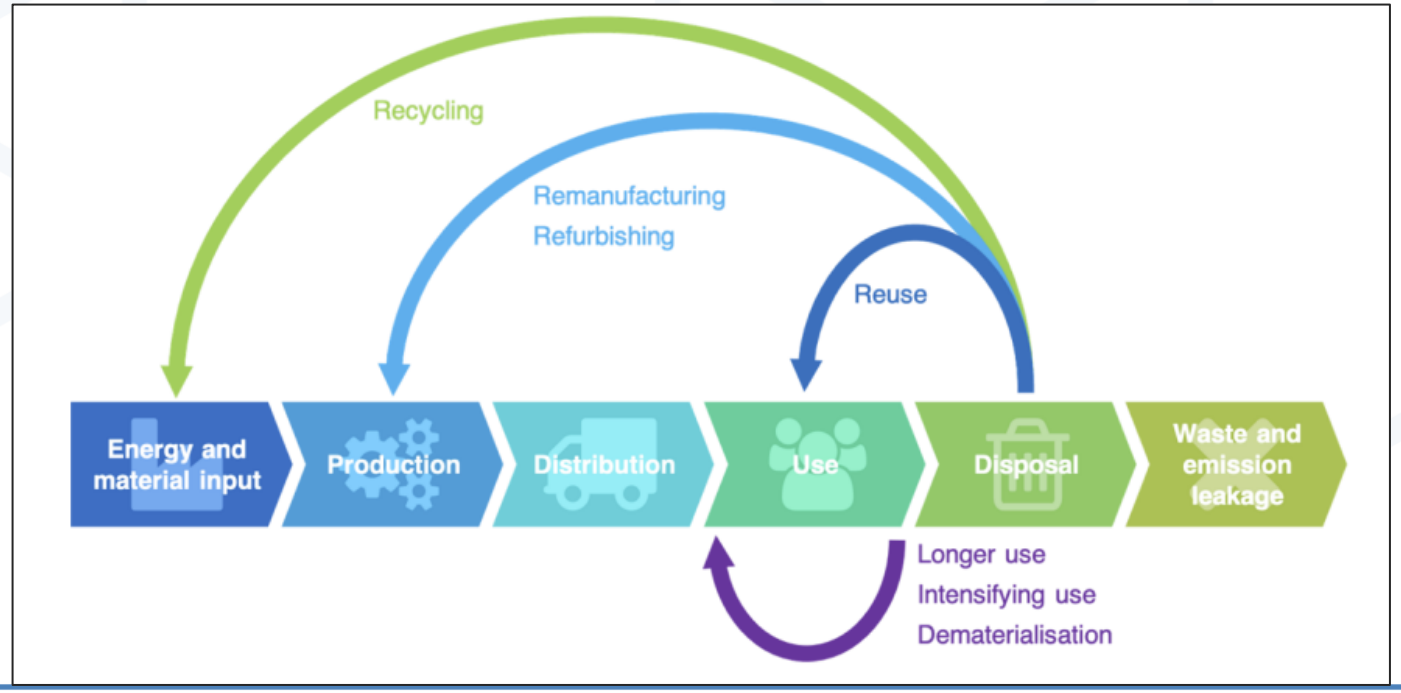
Cecilia Warrol: short bio

- Senior specialist, Manufacturing R&I
- Programme Director Produktion2030
- Chair EIT Manufacturing
- EFFRA, Manufuture
- Sweden: Regional platforms for manufacturing technlogies and digital transformation
- Connected, collaborator, networker
- Passion for manufacturing!

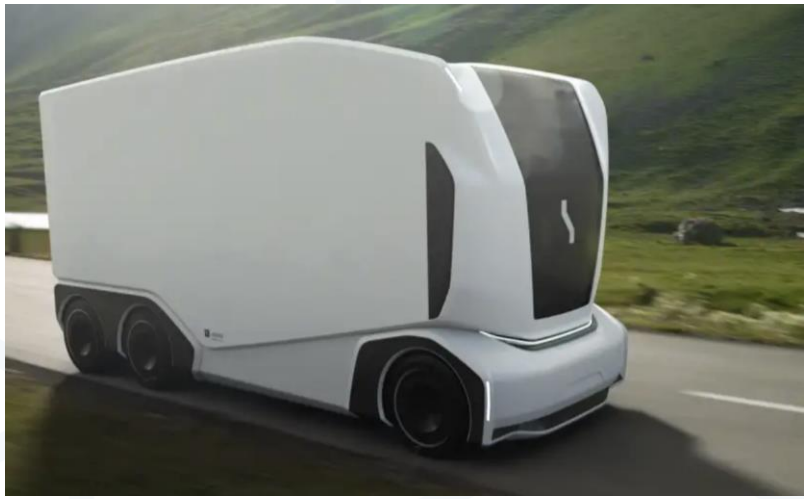
Industry in transformation

New Industry Challenges…

- Extreme flexibility and customised products
- Human-machine collaboration
- Data, digitalisation and connectivity
- Resource efficiency and increased circularity of materials and components
- Energy efficiency accross products, services and production systems
- Electrification and batteries
- Skills and talent

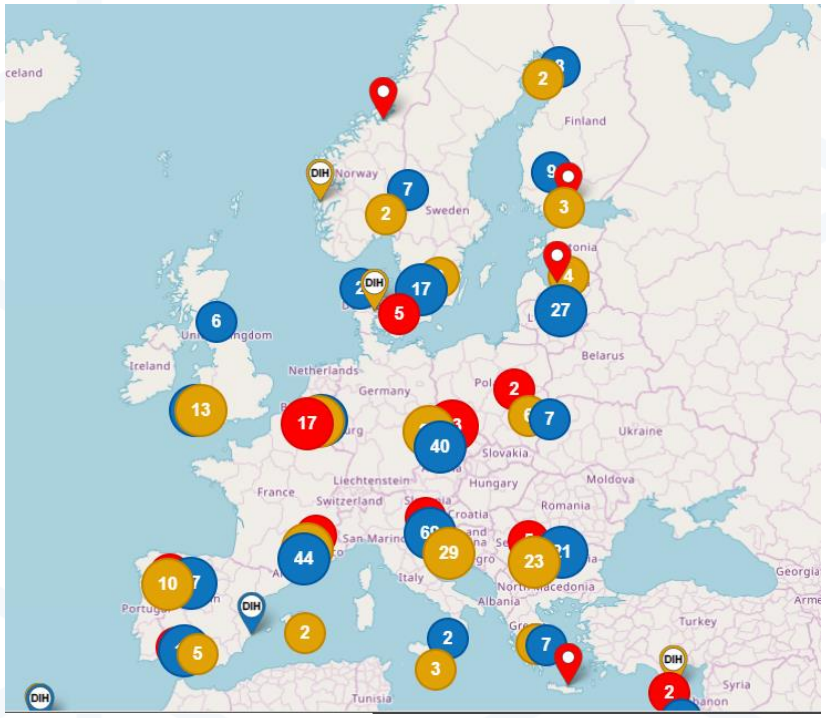


Progress and innovations



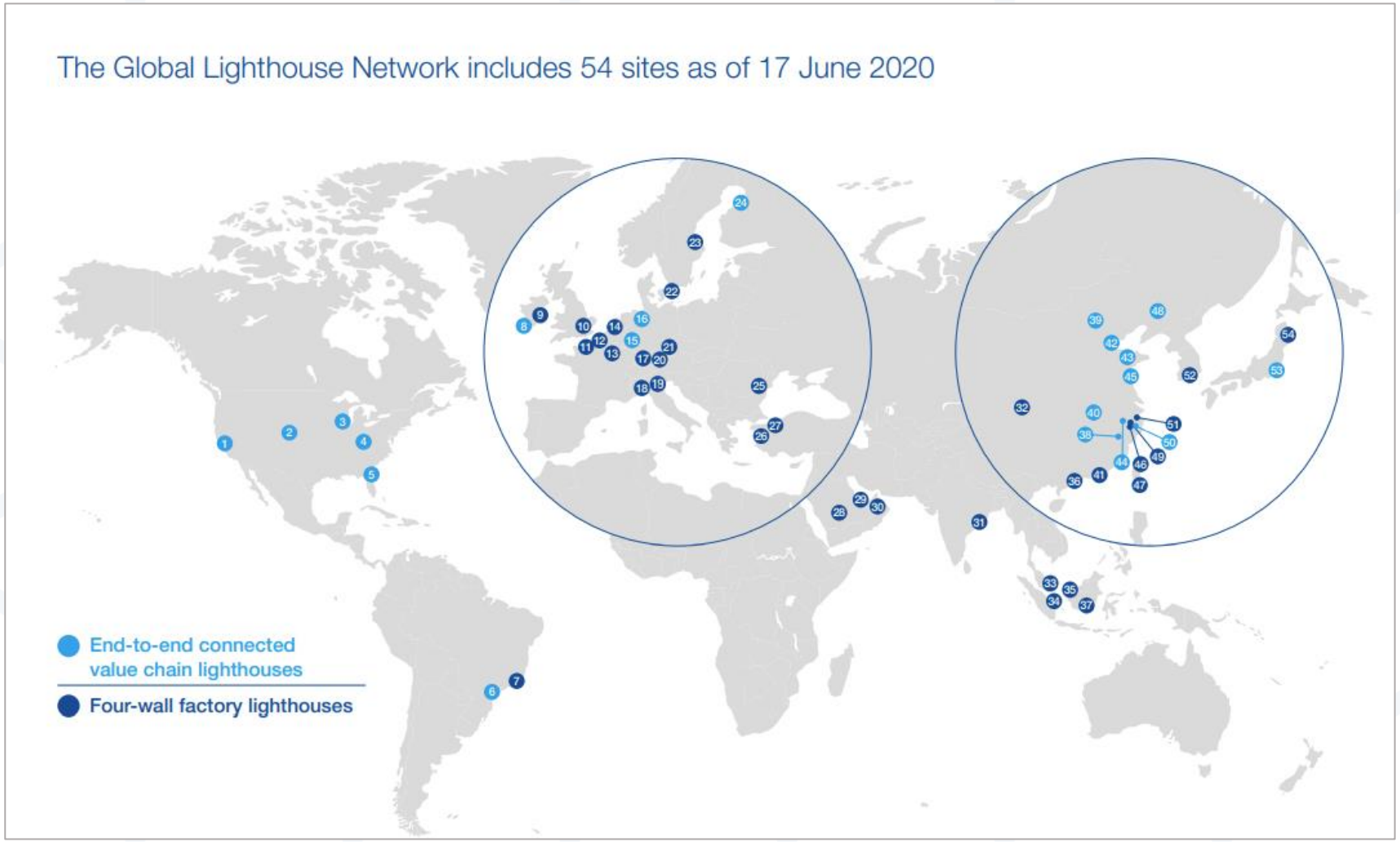
Ecosystems and value chains

Digital Innovation Hubs



RIS EIT Manufacturing

Digitally advanced manufacturing: Global Lighthouse network



Europe's industry strategy for climate smart industry

European Commission

A EUROPEAN INDUSTRIAL STRATEGY

A new Industrial Strategy for a globally competitive, green and digital Europe

March 2020

#EUIndustrialStrategy

Europe has always been the home of industry. Over time, industry has proven its ability to lead change. Now it must do the same as Europe embarks on its twin transition towards climate neutrality and digital leadership in an ever-changing world. With a new Industrial Strategy, the Commission is ready to do what it takes to make sure European businesses remain fit to achieve their ambitions and cope with increasing global competition.

EUROPEAN INDUSTRY

20% of total EU value added

35 million Jobs

Industry accounts for 80% of exports

99% of European firms are small and medium sized businesses

Objectives:

- Green Transition
- Global Competitiveness
- Digital Transition

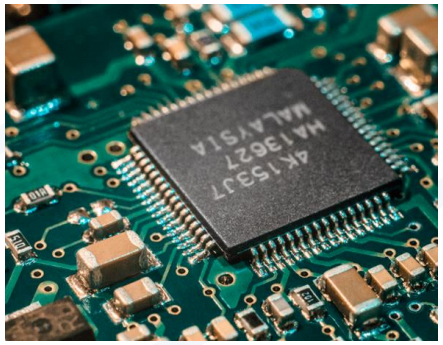
Efforts towards increased technological sovereignity

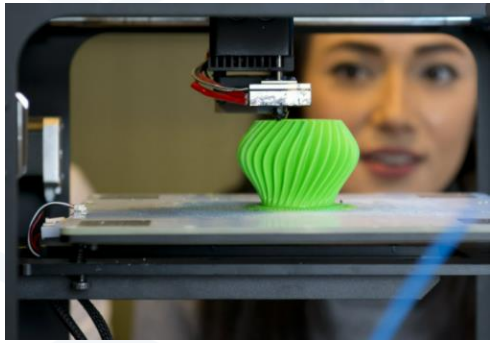
New Industrial Alliances:

- Raw materials
- Clean Hydrogen
- European Battery
- Low carbon industries
- Circular plastics
- Hydrogen Alliance
- Industrial
- Industrial data, Edge, Cloud
- Processors and semiconductor technologies

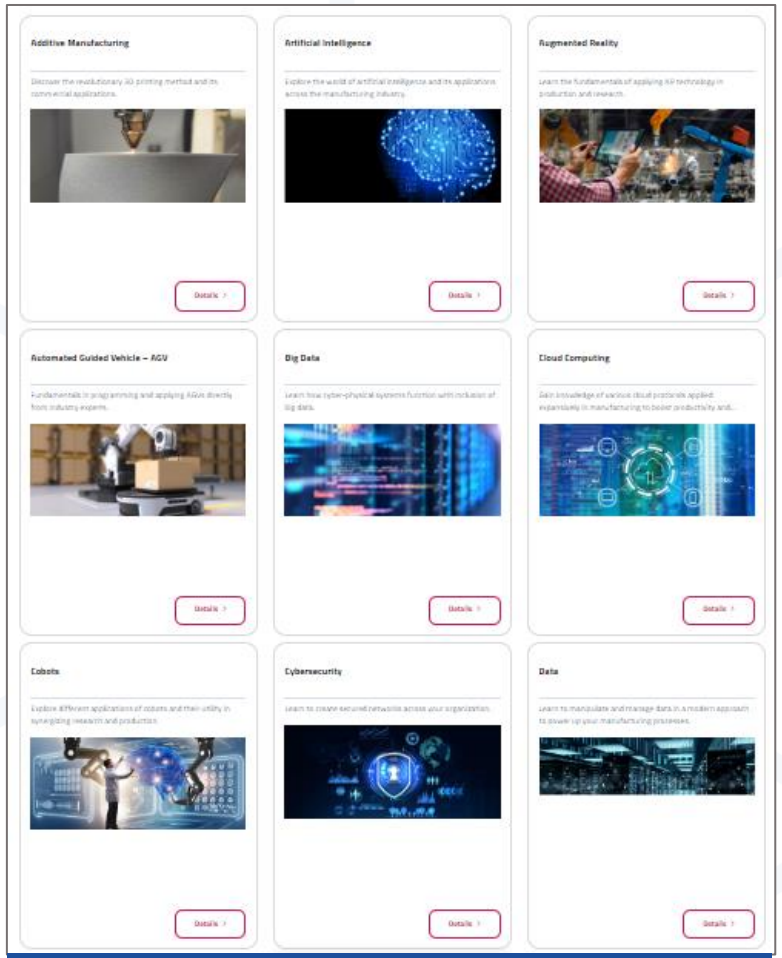
Key Enabling Technologies:

- Advanced manufacturing
- Materials
- Life Science technologies
- Micro, nano electronics and photonics
- Artificial Intelligence
- Security
- Connectivity

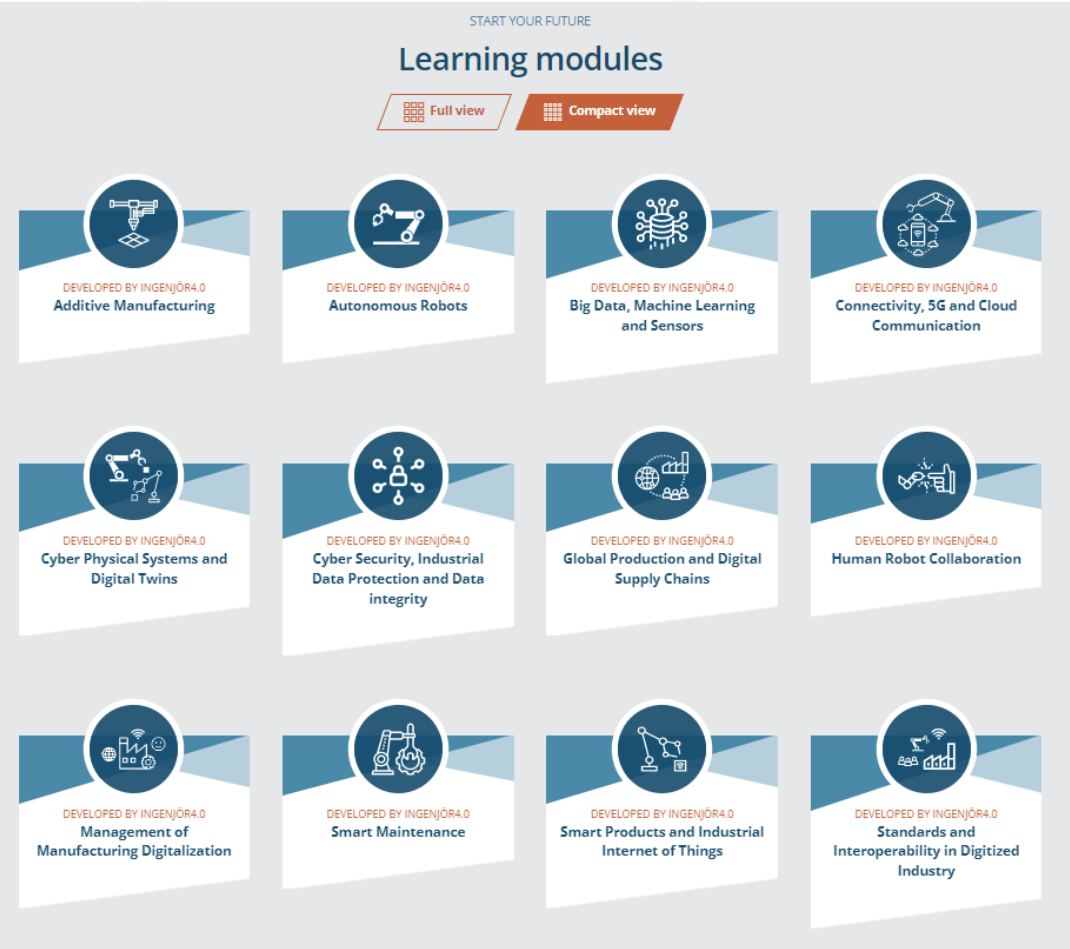




Getting up- and re- skilled



Skills .MOVE | eit Manufacturing | Co-funded by the European Union



Ingenjör 4.0: Upskilling for future manufacturing

PRODUKTION2030

Industry – get on board!

eit Manufacturing

Innovation

Connected Assets iNteroperability framework Via AAS (CanvAAS)

New Industry 5.0 Award contest opens: apply by 1 April

I4MS

Digital Maturity Assessment tool

BoostUp

Education

Professional Training for Advanced Toolpath and NC-Code Optimization (CAMplus4.0)

Education

Employees Skills for Predictive Maintenance (Skills4PdM)

28 APRIL 2022

Latvian outreach: EIT Manufacturing at TechChill and EIT Awareness Day in Riga

Thank you!


Photonic Integrated Circuit
MINIATURIZATION
REDUCED POWER CONSUMPTION
INCREASED RELIABILITY


PIC's =
Photonic Integrated Circuit
MINIATURIZATION
REDUCED POWER CONSUMPTION


What is it about?
igh complexity of the value-chains:
complex in the case of semi-conductors (more than
ines... !). It is like a lace...
y the attention is more focused on the large-scale
stments on which we are dependent.
everal types of disturbances:
political situations, Climatic perturbations or
dents (fire, accident applying on concentrated
strial areas (cf Fukushima)...), Regulations
ACH...)
, of course, there is also the economical question
ces, conditions...).
en we cumulate the risks, it becomes
mplicated...