European Chips Act

Impact on KDT

Key Digital Technologies – Portuguese National Infoday

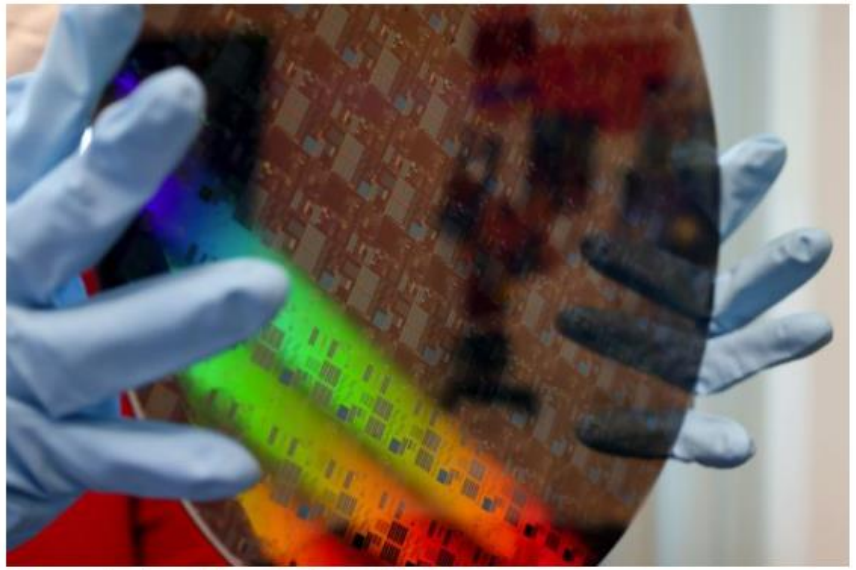
Arian Zwegers, Microelectronics and Photonics Industry, European Commission

21 February 2022

2021
the year of chip shortages

The Year Chip Shortages Changed the World

Sold-out products and rising geopolitical tensions defined 2021 for the chip industry.



Photographer: Liesa Johannssen-Koppitz/Bloomberg

By Debby Wu
December 28, 2021, 12:45 PM GMT+1

The shortage cost the global auto industry about **$210 billion** in lost revenue in 2021. That's **11.3 million units** not produced.

English

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Home > News > World > Car sales in Europe hit record low due to global microchip shortage

WORLD

Car sales in Europe hit record low due to global microchip shortage COMMENTS

By Euronews • Updated: 18/11/2021

FILE - In this Wednesday, July 25, 2018 file photo, cars are parked at a Fiat Chrysler car dealer in Milan, Italy. - Copyright Luca Bruno/AP

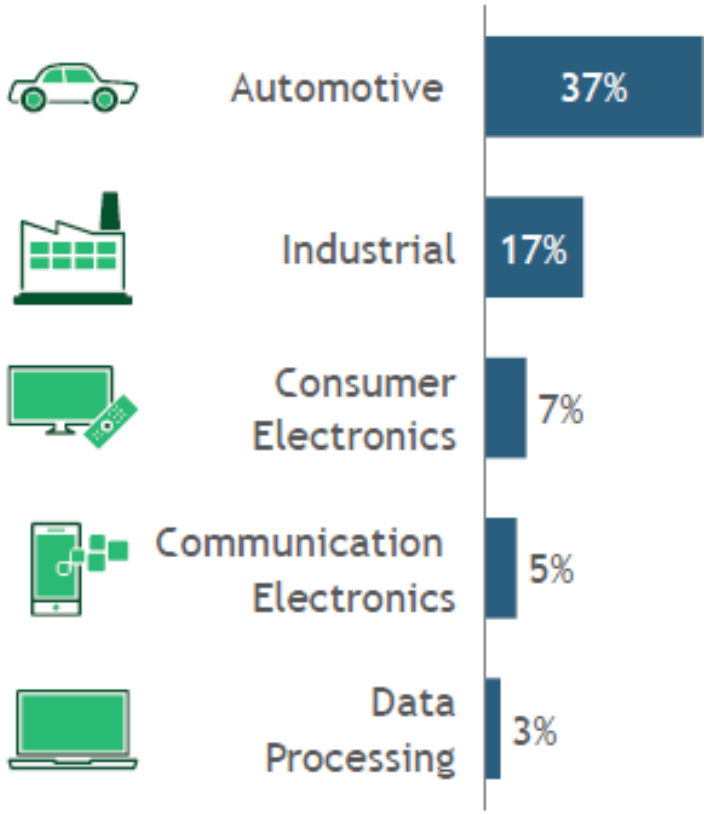
Sales of new cars in the EU fell by **2.4%**, or **3.3 million units in 2021** below pre-crisis sales in 2019.

European Commission

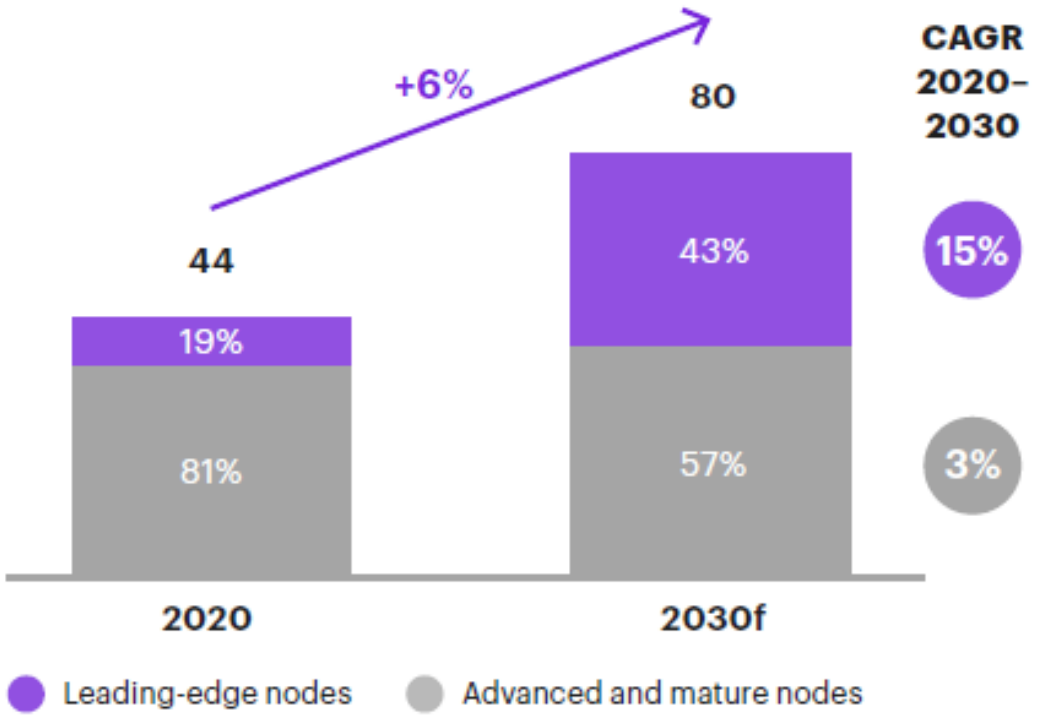
https://www.bloomberg.com/news/newsletters/2021-12-28/how-chip-shortages-helped-define-2021,
https://www.euronews.com/2021/11/18/car-sales-in-europe-hit-record-low-due-to-global-microchip-shortage

European chip demand by end-use

Europe's share by end-application, ESIA 2019



European consumption of leading-edge non-memory semiconductors is expected to skyrocket (EUR billion)



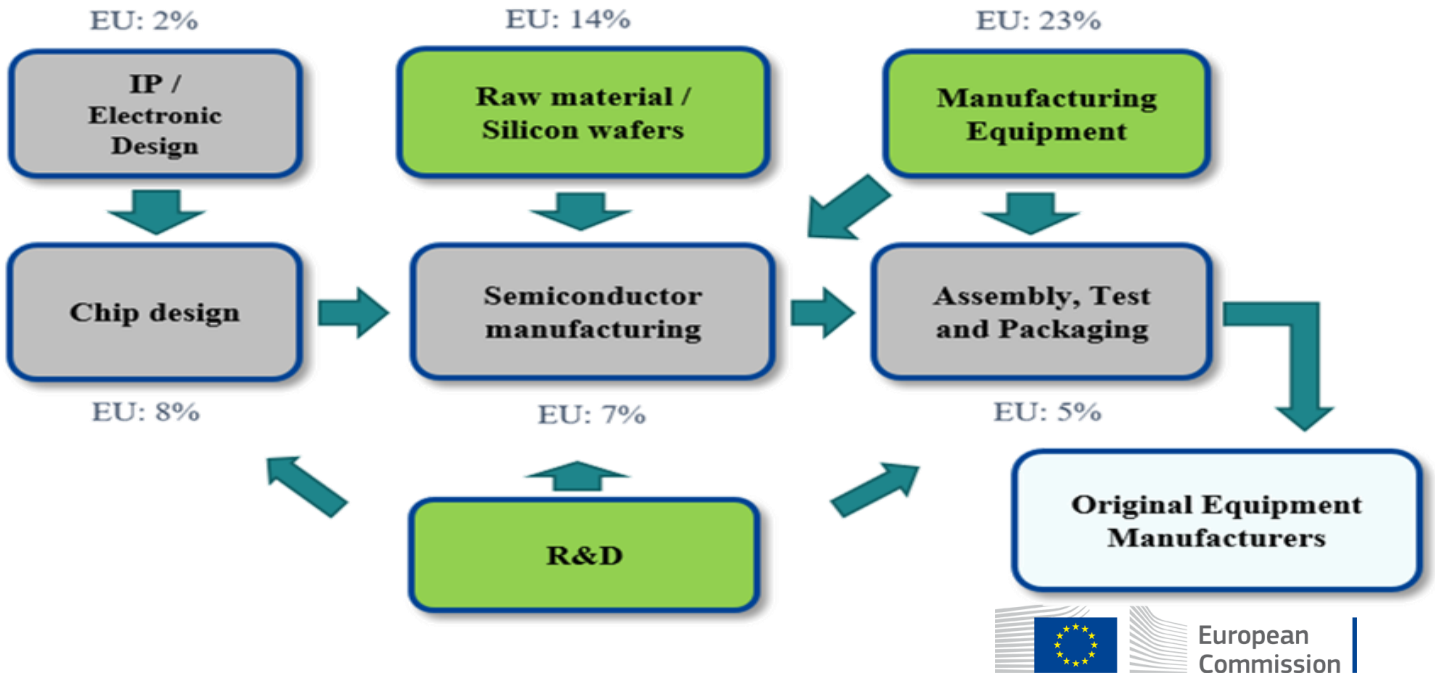
https://www.kearney.com/communications-media-technology/article/?/a/europes-urgent-need-to-invest-in-a-leading-edge-semiconductor-ecosystem

European Commission

Semiconductors value chain


Cleanroom at IMEC © Bloomberg

- EU **strengths**: R&D, manufacturing equipment, materials
- EU **gaps** in IP & digital design, design tools, manufacturing, packaging



European Commission

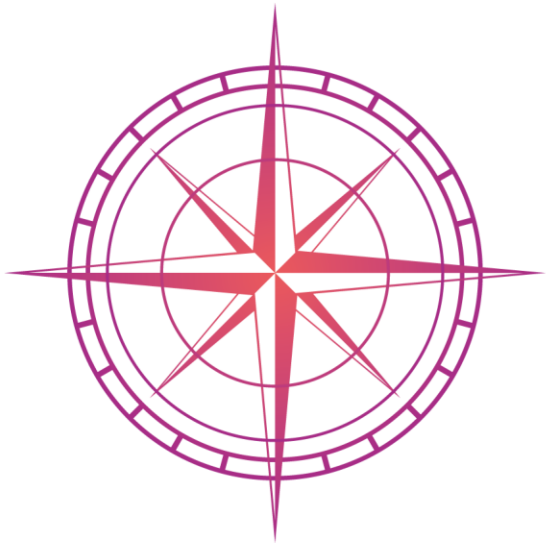
The Direction: a Compass and Common Targets

Skills

ICT Specialists: 20 millions + Gender convergence
Basic Digital Skills: min 80% of population

Government

Key Public Services: 100% online
e-Health: 100% availability medical records
Digital Identity: 80% citizens using digital ID



Infrastructures

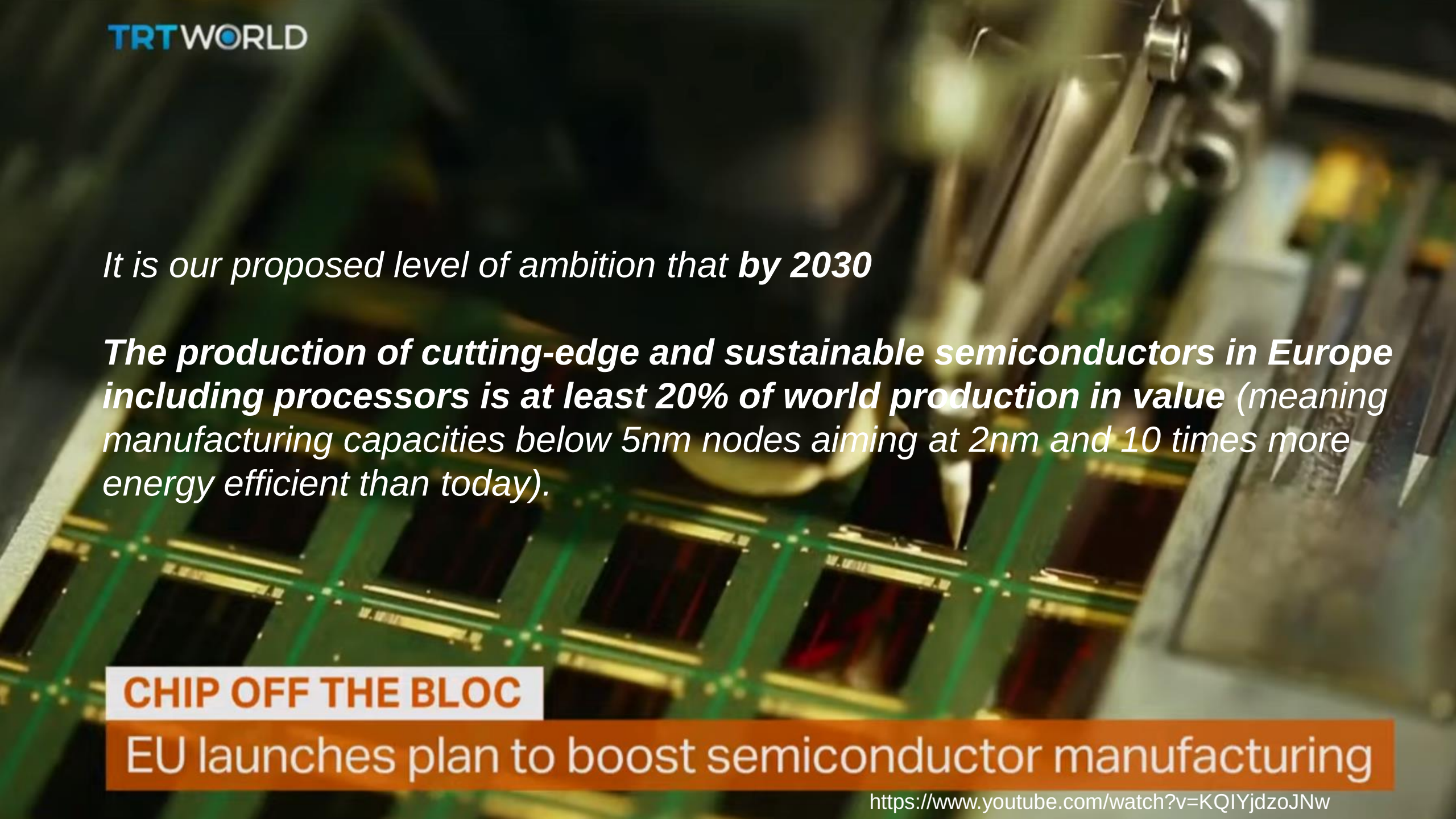
Connectivity: Gigabit for everyone, 5G everywhere
Cutting edge Semiconductors: double EU share in global production
Data – Edge & Cloud: 10,000 climate neutral highly secure edge nodes
Computing: first computer with quantum acceleration

Business

Tech up-take: 75% of EU companies using Cloud/AI/Big Data
Innovators: grow scale ups & finance to double EU Unicorns
Late adopters: less than 10% companies with very low digital intensity

European Commission

https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en



https://www.youtube.com/watch?v=KQIYjdzoJNw

Europe needs a Chips Act!

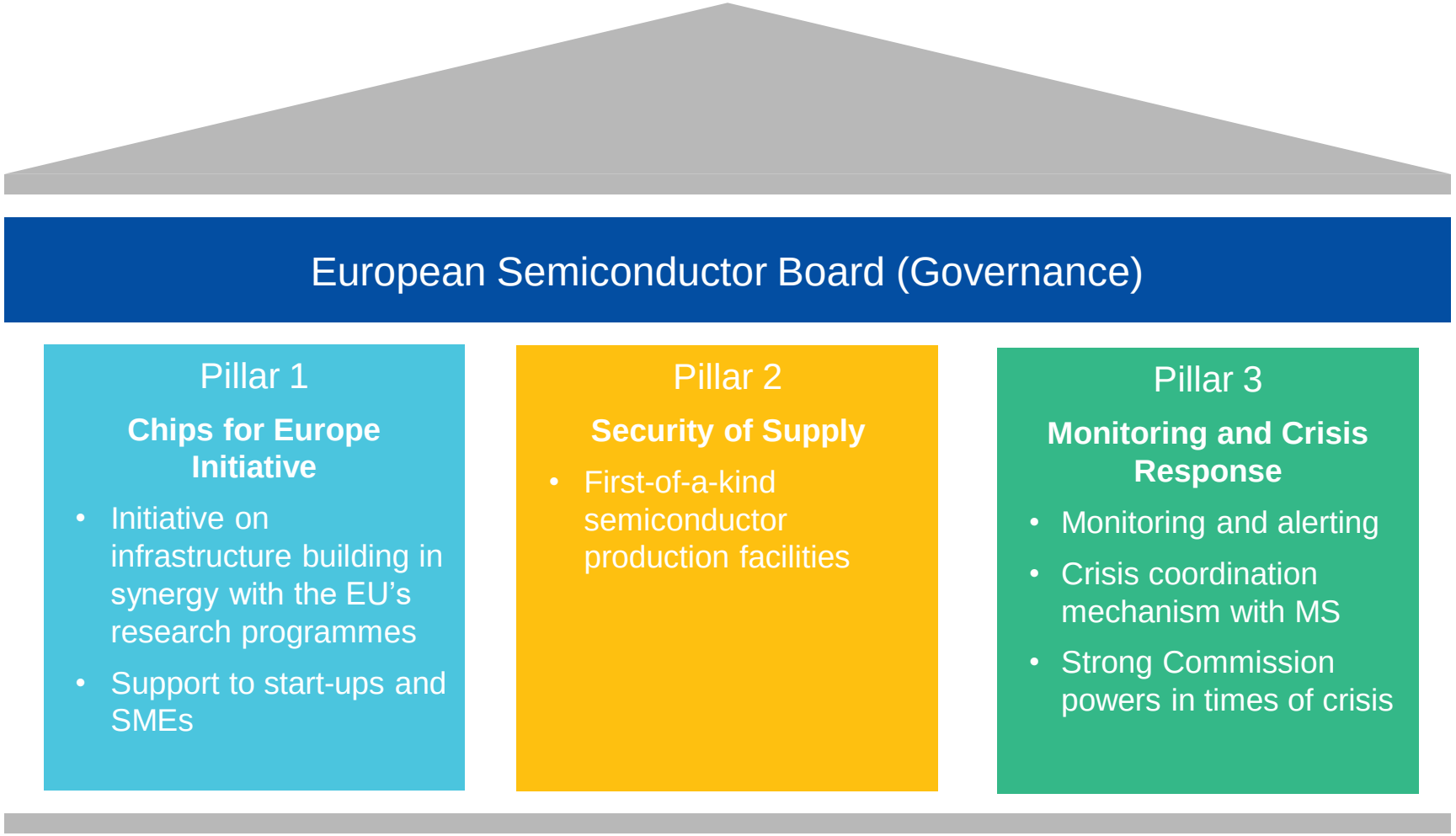
> *Our aim is to jointly create a state-of-the-art European chip ecosystem, including production. We need to link together our world-class research, design and testing capacities. We need to coordinate EU and national investment along the value chain. This is not just a matter of our competitiveness. This is also a matter of tech sovereignty.*

Commission President Ursula von der Leyen set the vision for Europe's chip strategy for the digital decade in her state of the Union speech of 15 September 2021:

Europe's objectives are:

- **To strengthen its research and technology leadership**
- **To build and reinforce its own capacity to innovate in the design, manufacturing and packaging of advanced chips**
- **To put in place an adequate framework to increase substantially its production capacity by 2030**
- **To address the acute skills shortage**
- **To develop an in-depth understanding of the global semiconductor supply chains**

Three pillars of the Chips Act



Chips for Europe Initiative Pillar 1

European Commission

Chips for Europe Initiative:
Why do we need an Initiative?

Situation today

- Strong in R&D, RTOs and in manufacturing equipment
- EU and Member States spend ~4 B€ in research and in part of the supply chain development in MFF programmes

What is the EU missing today

- Industrial capabilities in advanced production notably in leading-edge nodes
- Design capabilities for leading-edge nodes
- Capability for translating R&D know-how into industrial innovation
- Market pull

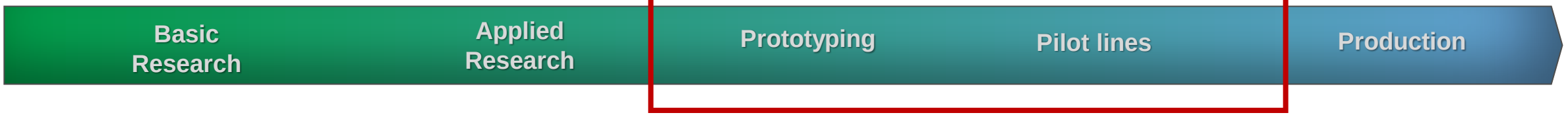
EU + MS programmes address the missing items to a very limited extent

Chips for Europe Initiative:
What are the objectives?

Bridge the gap ***from lab to fab***

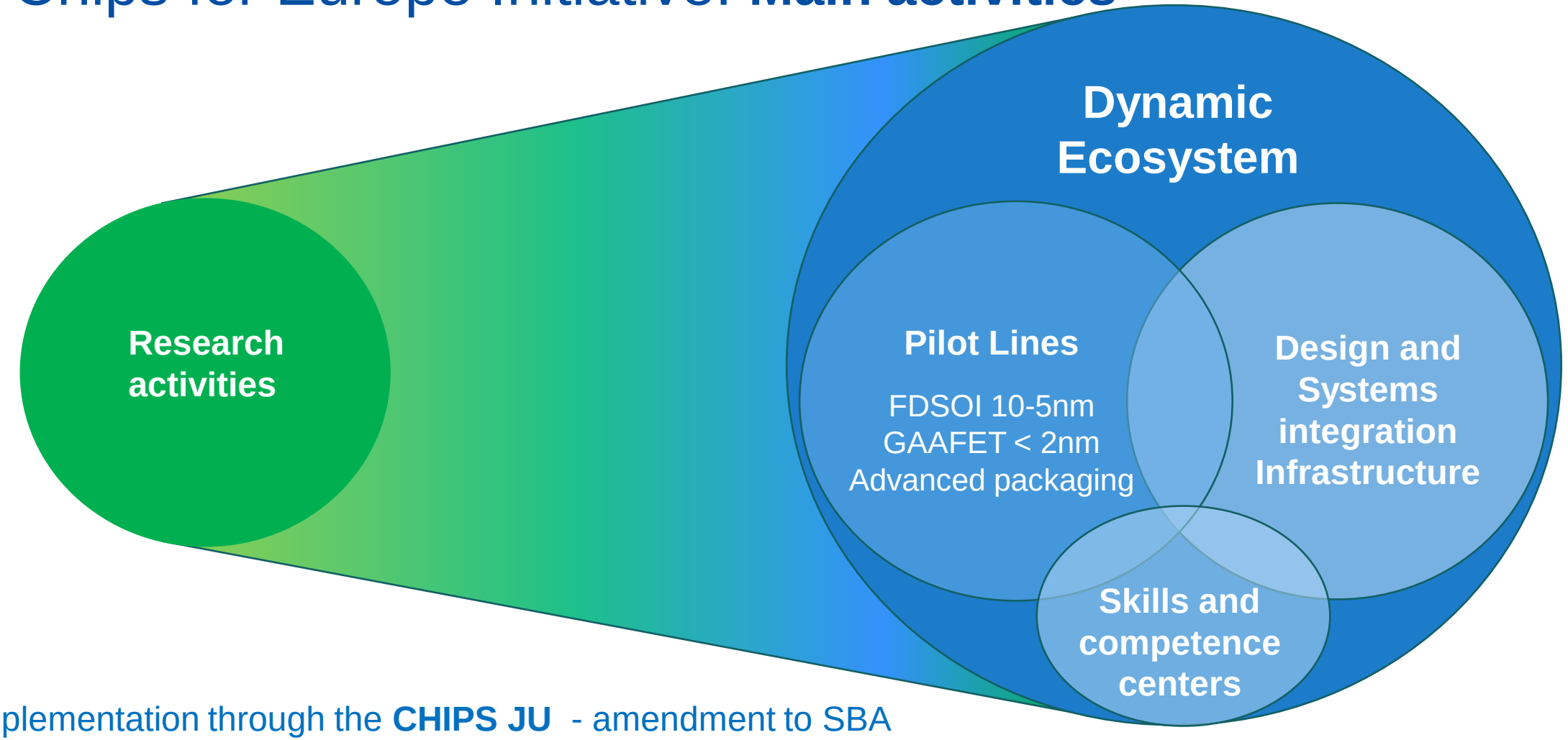
Create ***large innovation capacity*** and ***a resilient and dynamic*** semiconductor ***ecosystem***

- Build up **large-scale design innovative capacities** for integrated semiconductor technologies
- Enhance existing and developing new **pilot lines**
- Build advanced technology and engineering capacities for accelerating the development of **quantum chips**
- Create a network of **competence centres** across Europe
- Establish a **Chips Fund** to facilitate access to loans and equity by start-ups, scale-ups and SMEs and other companies in the semiconductor value chains



European Commission

Chips for Europe Initiative: **Main activities**



Implementation through the **CHIPS JU** - amendment to SBA

Basic Research | Applied Research | Prototyping | Pilot lines | Production

Chips JU

- Reinforced and reoriented KDT Joint Undertaking
- EU contribution: EUR 4.175 billion, incl up to EUR 50 million for admin costs
  - up to EUR 2.650 billion from Horizon Europe;
  - up to EUR 1.525 billion from the Digital Europe Programme;
- Contributions from other members
  - Participating States: unchanged (“total contribution that is commensurate to the amount of the Union contribution to operational costs”)
  - Private members IKOP + IKAA: unchanged
  - Private members admin costs: at least EUR 26.3 million, 35% on annual basis

Budget sources

	Chips for Europe Initiative					
	Source	Amount	Subtotal	Total		Via JU
DEP				**1,650**		**1,525**
	Cluster 4 HE (Art 15.3)	400				
			400			400
	Heading 1 Margin	250				
			250			250
	Cybersecurity	60				
	European Cybersecurity Competence Centre	60				
	High-Performance Computing JU	150				
	Artificial intelligence	220				
	Skills	60				
	Deployment	50				
	Subtotal DEP		600			600
	CEF Digital	150				
	CEF Transport	250				
	Subtotal CEF		400			400
	To InvestEU					-/- 125
HE				**1,650**		**2,650**
	Cluster 3	150				150
	Cluster 4 (direct)	400				400
	Cluster 5	300				300
	European Innovation Council (earmarked)	300				
	Key Digital Technologies JU (earmarked)	500				500
	Subtotal HE		1,650			
	Key Digital Technologies JU (rest)	1,300				1,300

Projected funding for the Chips Act by 2030 (B€)

	EU Investment	MS Investments	Private Investments
CHIPS JU (incl. KDT budget)	4.175	4.175	2.500
Next MFF (projection)	1.125	1.125	
European Innovation Council	0.300		0.900
InvestEU	0.250		1.250
TOTAL	**5.850**	**5.300**	**4.650**
	Total public spending **11.150**		
	Total public and private spending **15.800** during 2022-30		
IPCEI + potential fabs under negotiation		≈30	*Confidential*
	Total public (incl. equity)	**43**	

Thank you

https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-chips-act_en

@EU_Microelectronics

European Commission