

# EUROPE'S QUEST FOR AI

Prof. Dr. Willem Jonker – Chairman of the Board

#ADRF2024 Keynote, Eindhoven, November 4, 2024







# AiNed

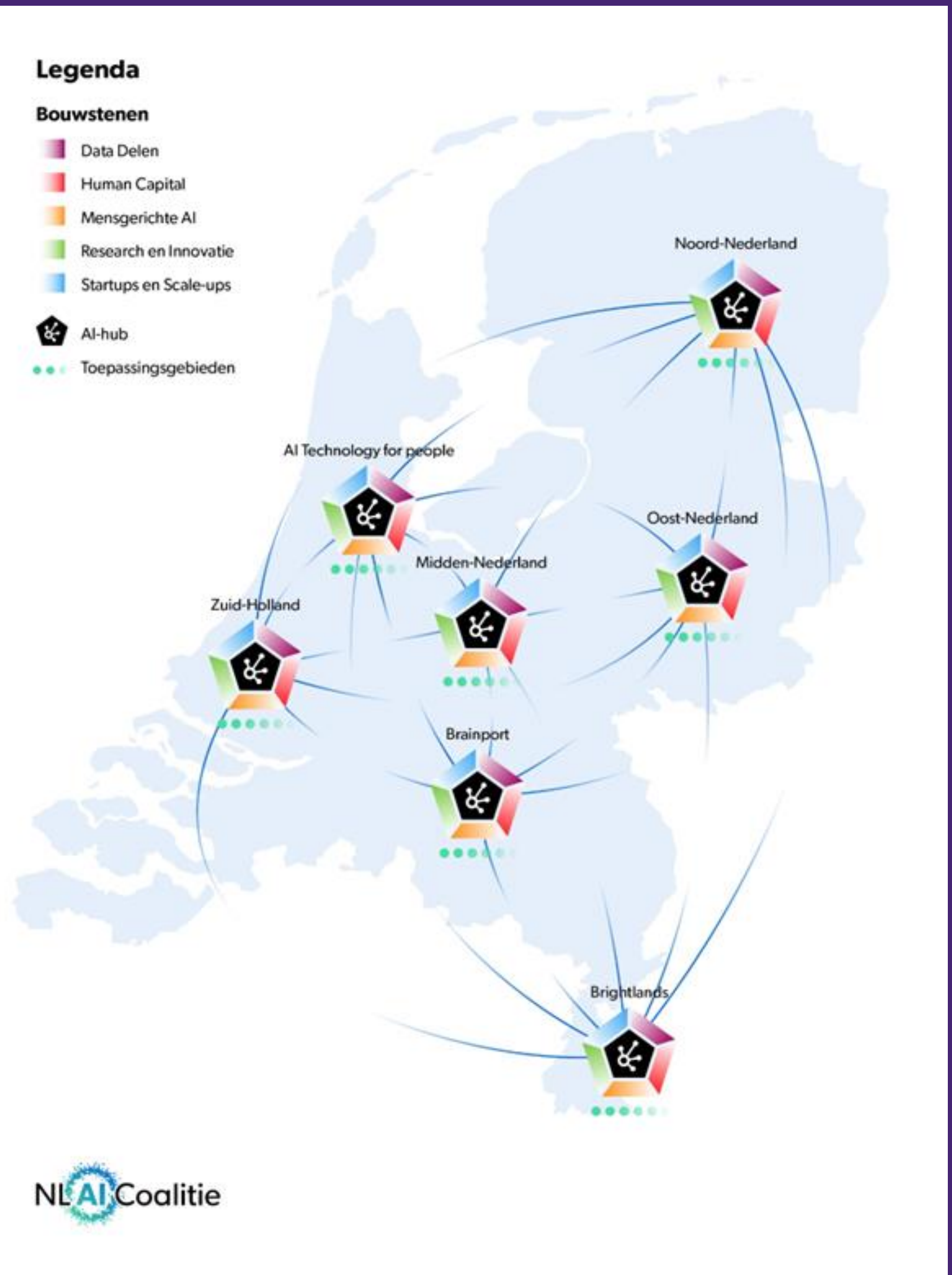
ICAI Innovation Center for Artificial Intelligence  
ROBUST AI programme

Het Nationaal Groeifonds   
Welvaart van morgen begint vandaag  
Nationaal Groeifonds 

  
**Welkom bij NOLAI**  
NOLAI is het nationale onderwijslab AI voor het basisonderwijs, voortgezet en speciaal onderwijs van Nederland, gefinancierd door het Nationaal Groeifonds.

  
GPT-NL, Een 'veilig alternatief van eigen bodem'

- Legenda**
- Bouwstenen**
- Data Delen
  - Human Capital
  - Mensgerichte AI
  - Research en Innovatie
  - Startups en Scale-ups
  - AI-hub
  - Toepassingsgebieden



# AiNed

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Nationaal Groeifonds 

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**Dutch IT Channel** Dutch IT Awards 2024 ▾ Thema's ▾ Dutch IT Events IT A

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WITOLD KEPINSKI - 29 OKTOBER 2024 Deel dit artikel 

## AiNed investeert 50 miljoen euro in AI voor Nederland

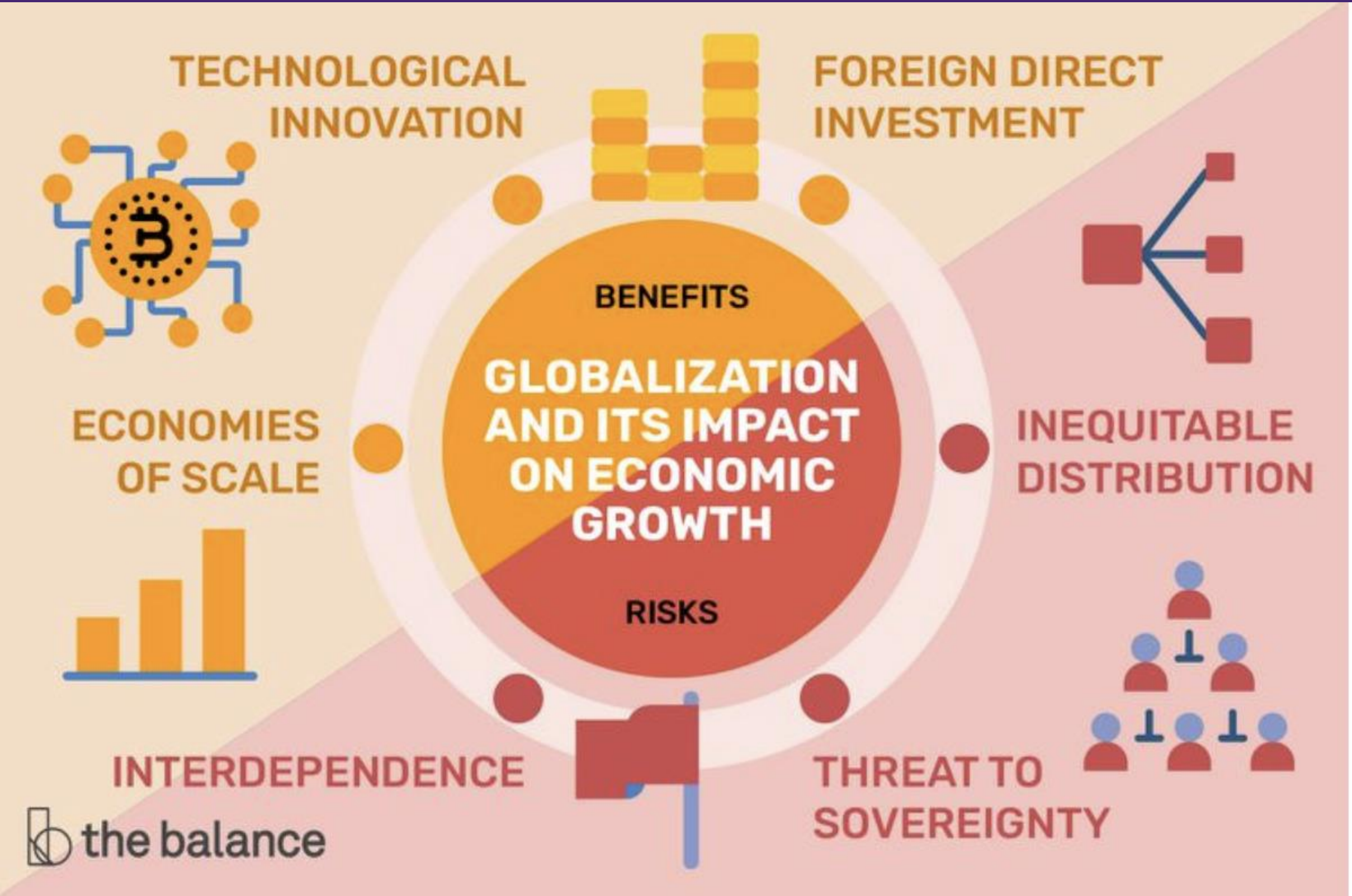
totaal werd in de voorgaande jaren 70 miljoen euro geïnvesteerd. De recente 50 miljoen euro komt de teller op 120 miljoen euro. Dit bedrag wordt ongeveer een derde van het AiNed programma geïnvesteerd



Een 'veilig alternatief van eigen bodem'

NL AI Coalitie

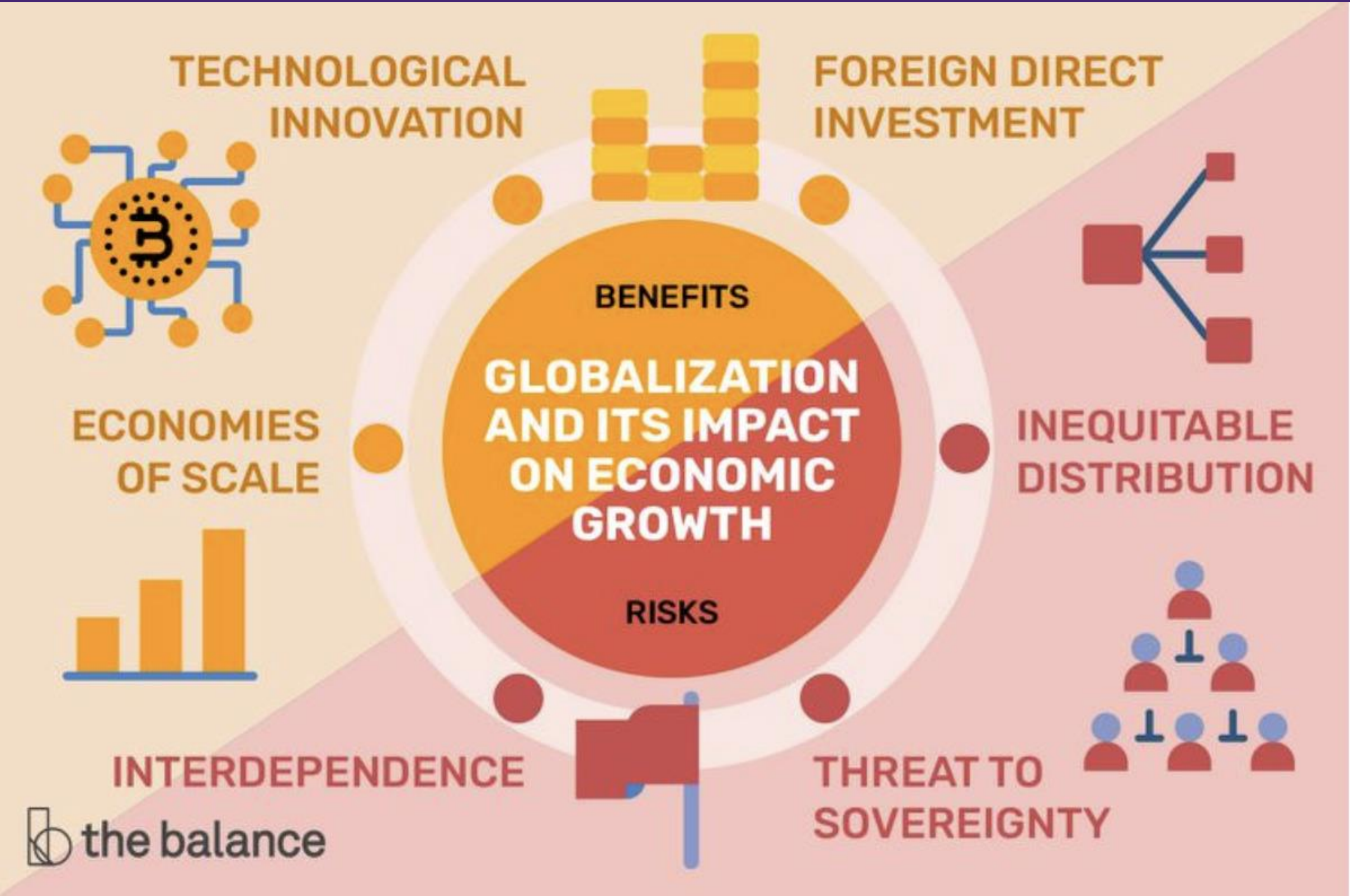
# TECHNOLOGICAL SOVEREIGNTY



OWN



# TECHNOLOGICAL SOVEREIGNTY



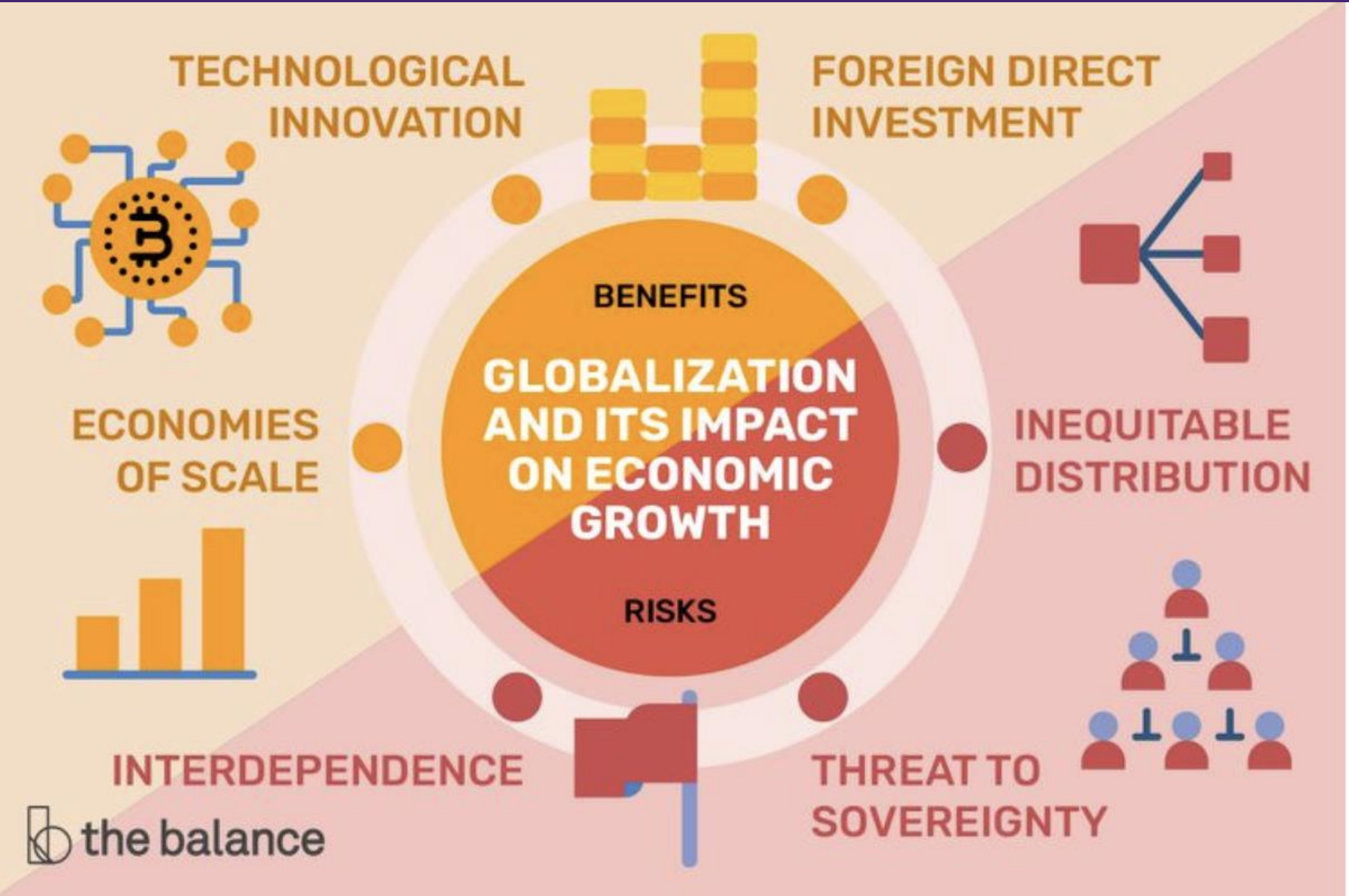
OWN



SHARE



# TECHNOLOGICAL SOVEREIGNTY



OWN



SHARE

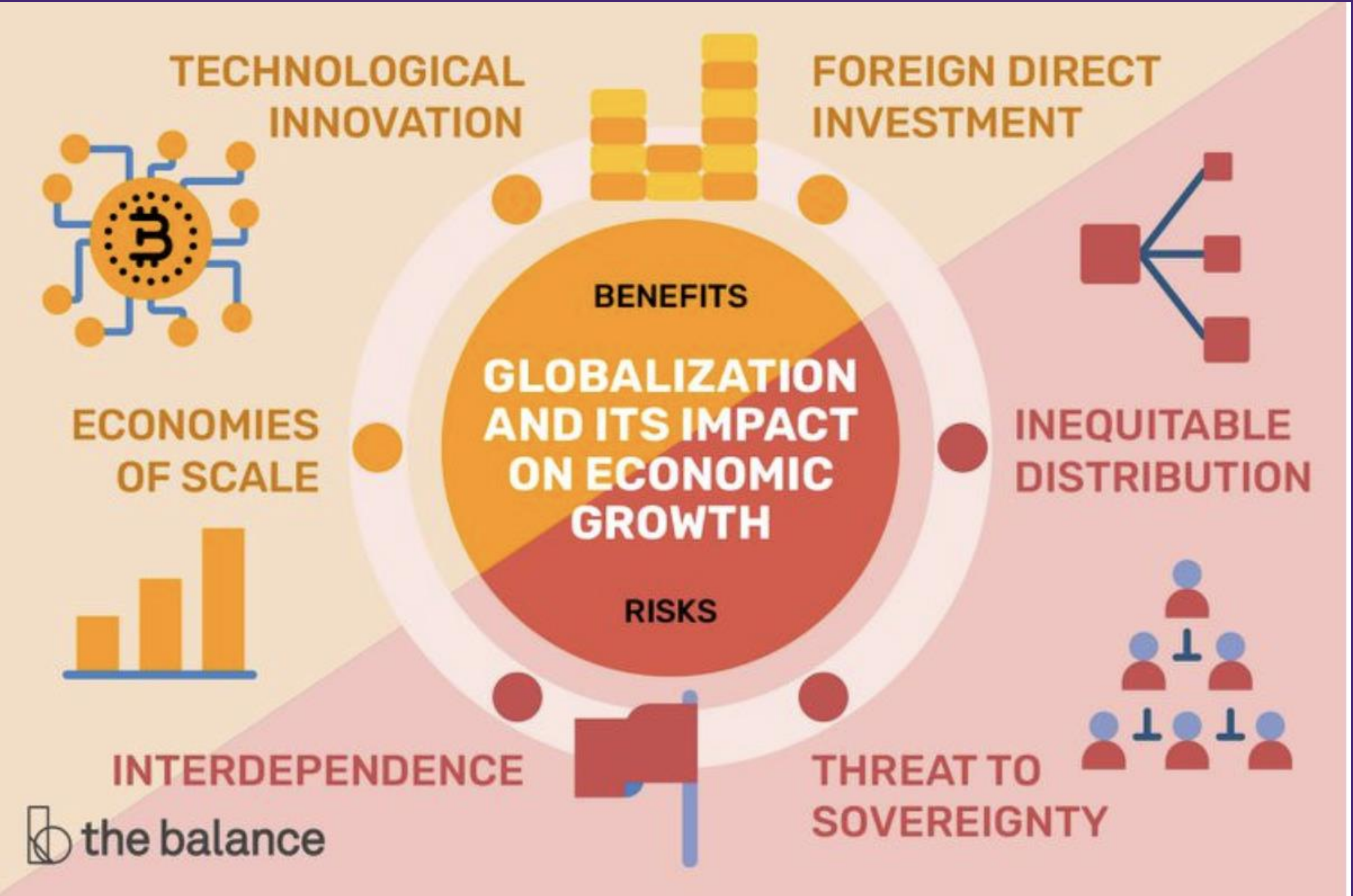


ACCESS





# TECHNOLOGICAL SOVEREIGNTY

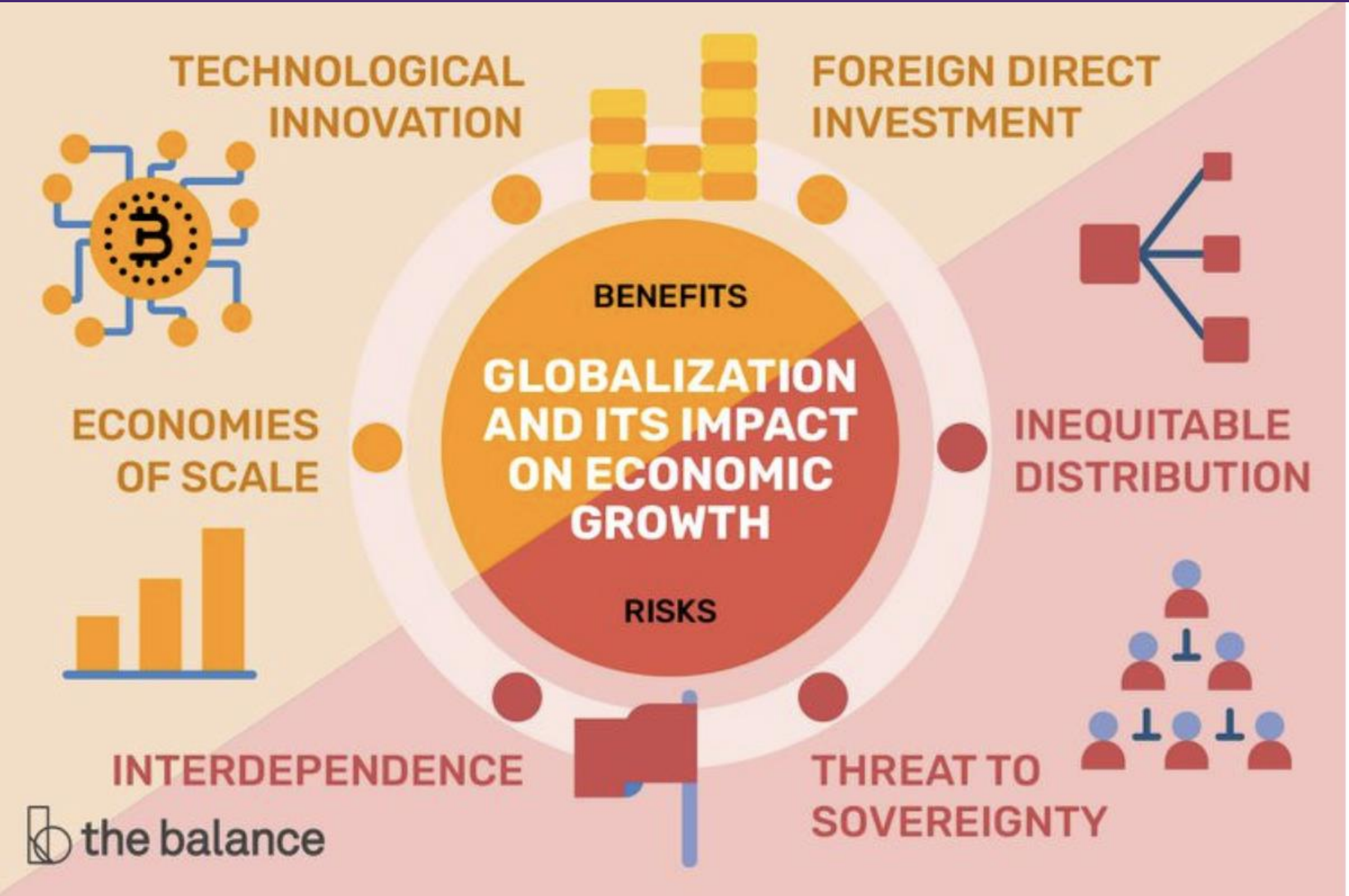


## CAR

	OWN	SHARE ACCESS
US	X	
CHINA	X	
EU	X	



# TECHNOLOGICAL SOVEREIGNTY



## CAR

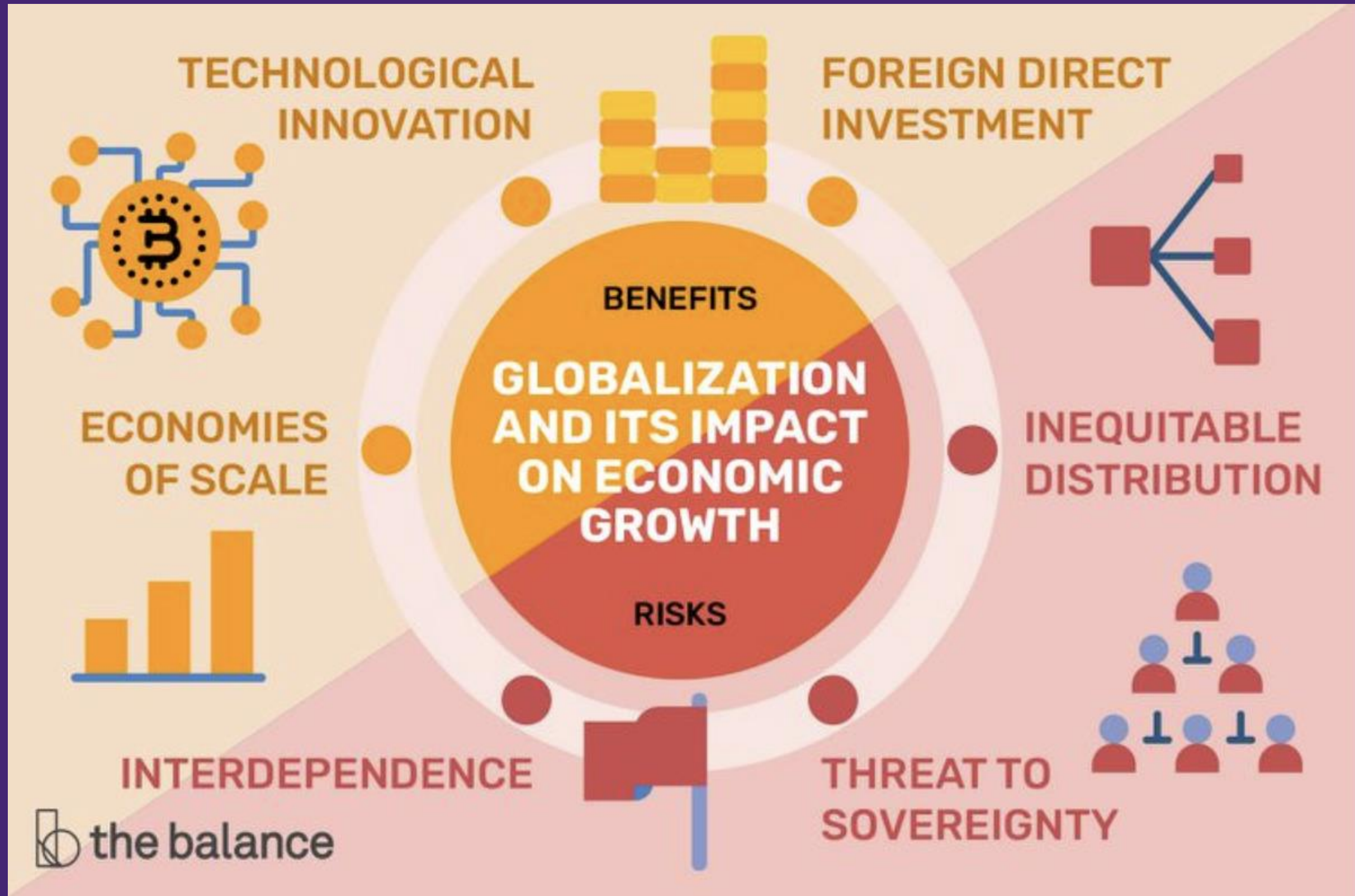
	OWN	SHARE ACCESS
US	X	
CHINA	X	
EU	X	

## SPACE

	OWN	SHARE ACCESS
US	X	X
CHINA	X	
EU	X	X



# TECHNOLOGICAL SOVEREIGNTY



## CAR

	OWN	SHARE	ACCESS
US	X		
CHINA	X		
EU	X		

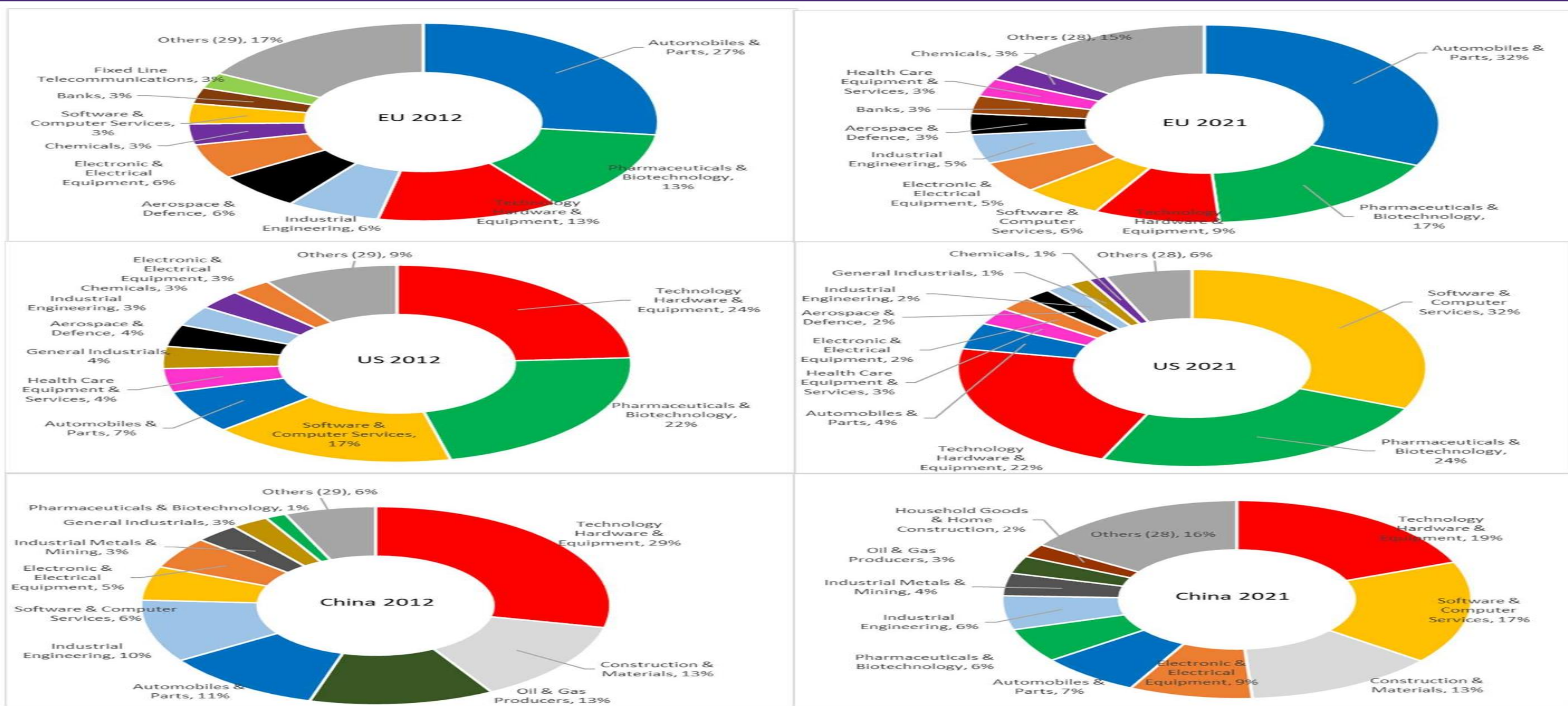
## SPACE

	OWN	SHARE	ACCESS
US	X	X	
CHINA	X		
EU	X		X

## AI

	OWN	SHARE	ACCESS
US	X		
CHINA	X		
EU			X

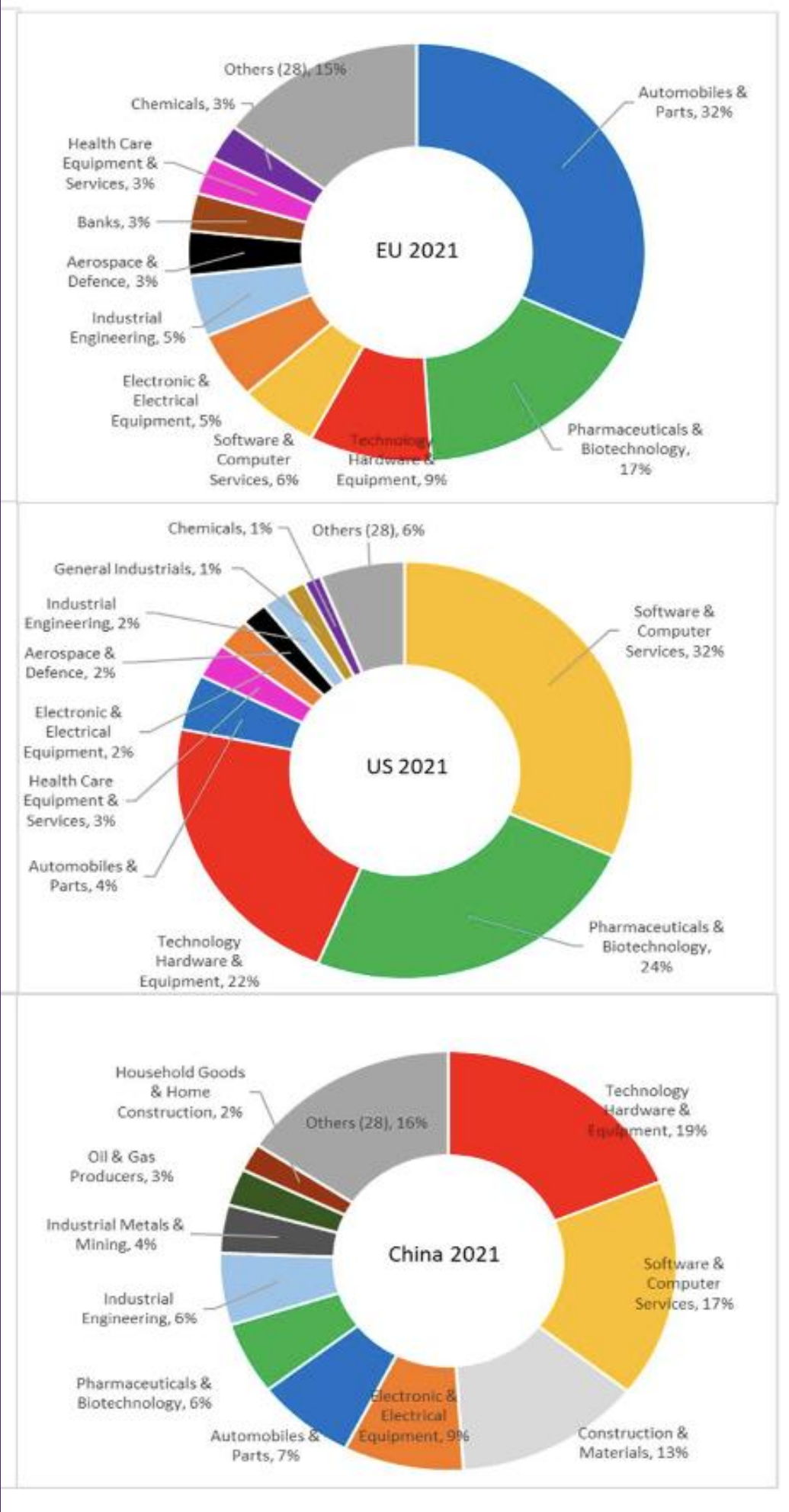
# LET'S HAVE A LOOK AT CARS AND SOFTWARE



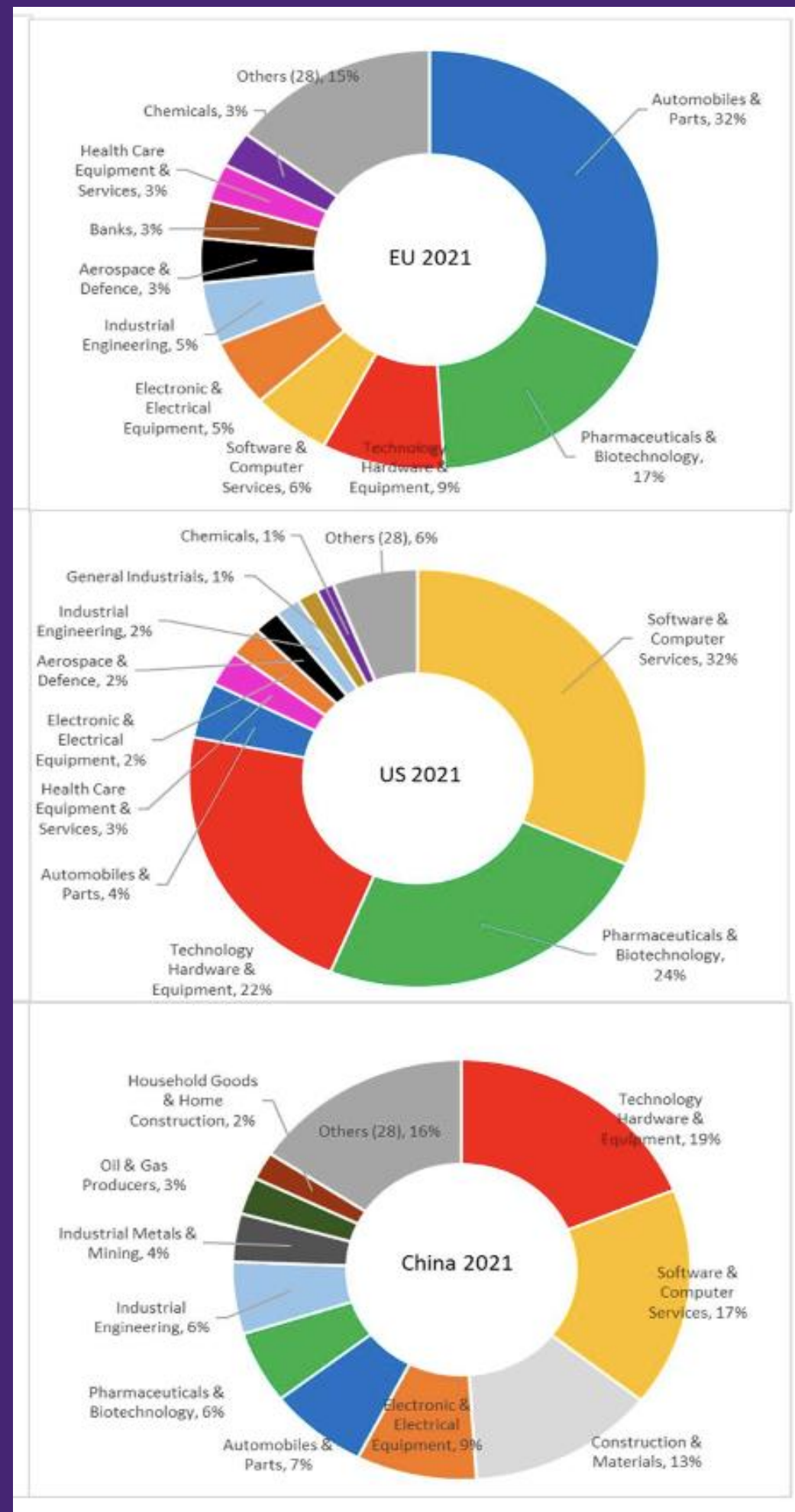
Note: Data from 2012 and 2021 editions of the *EU Industrial R&D Investment Scoreboard*. EU is always EU-27.



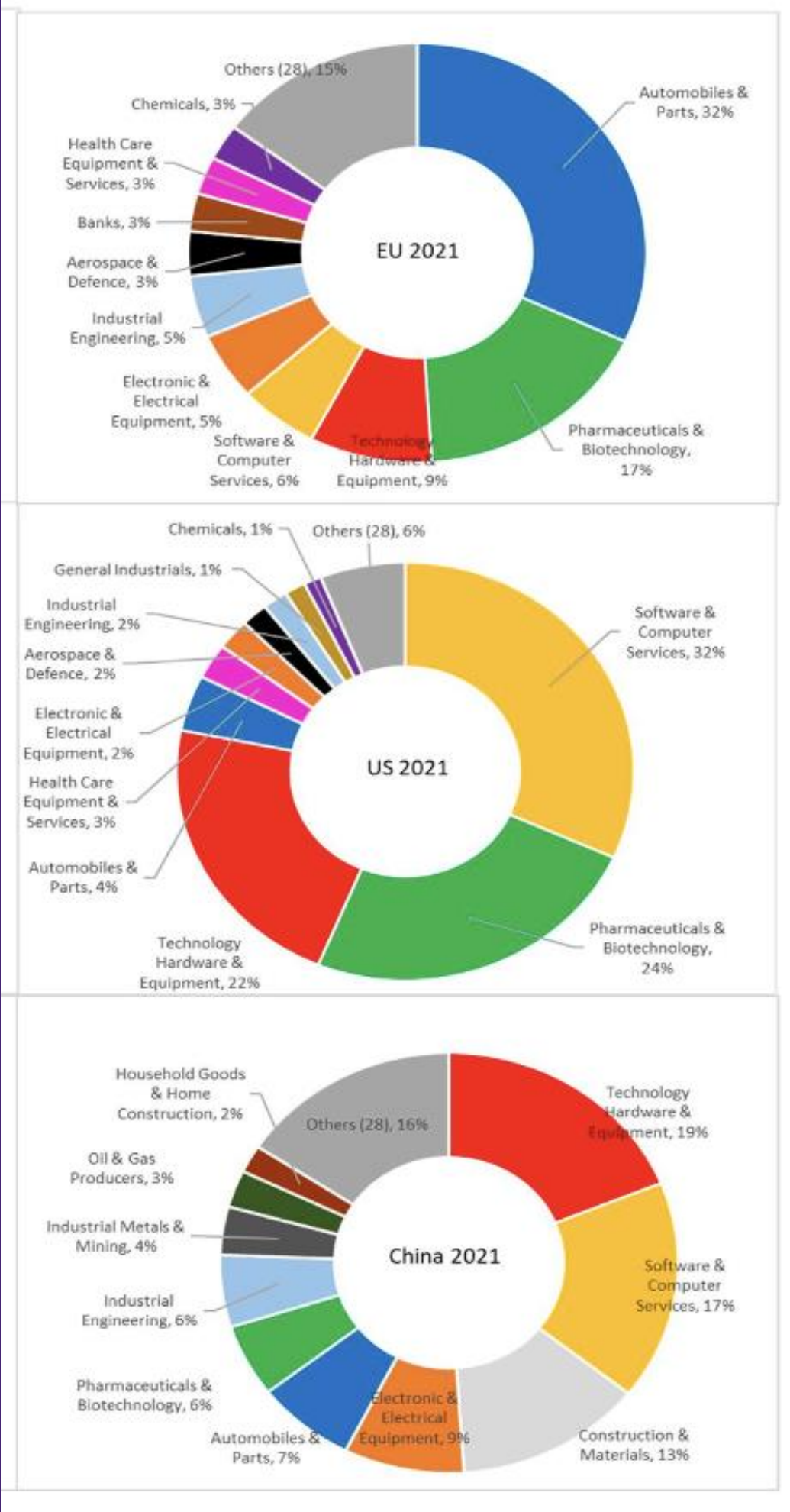
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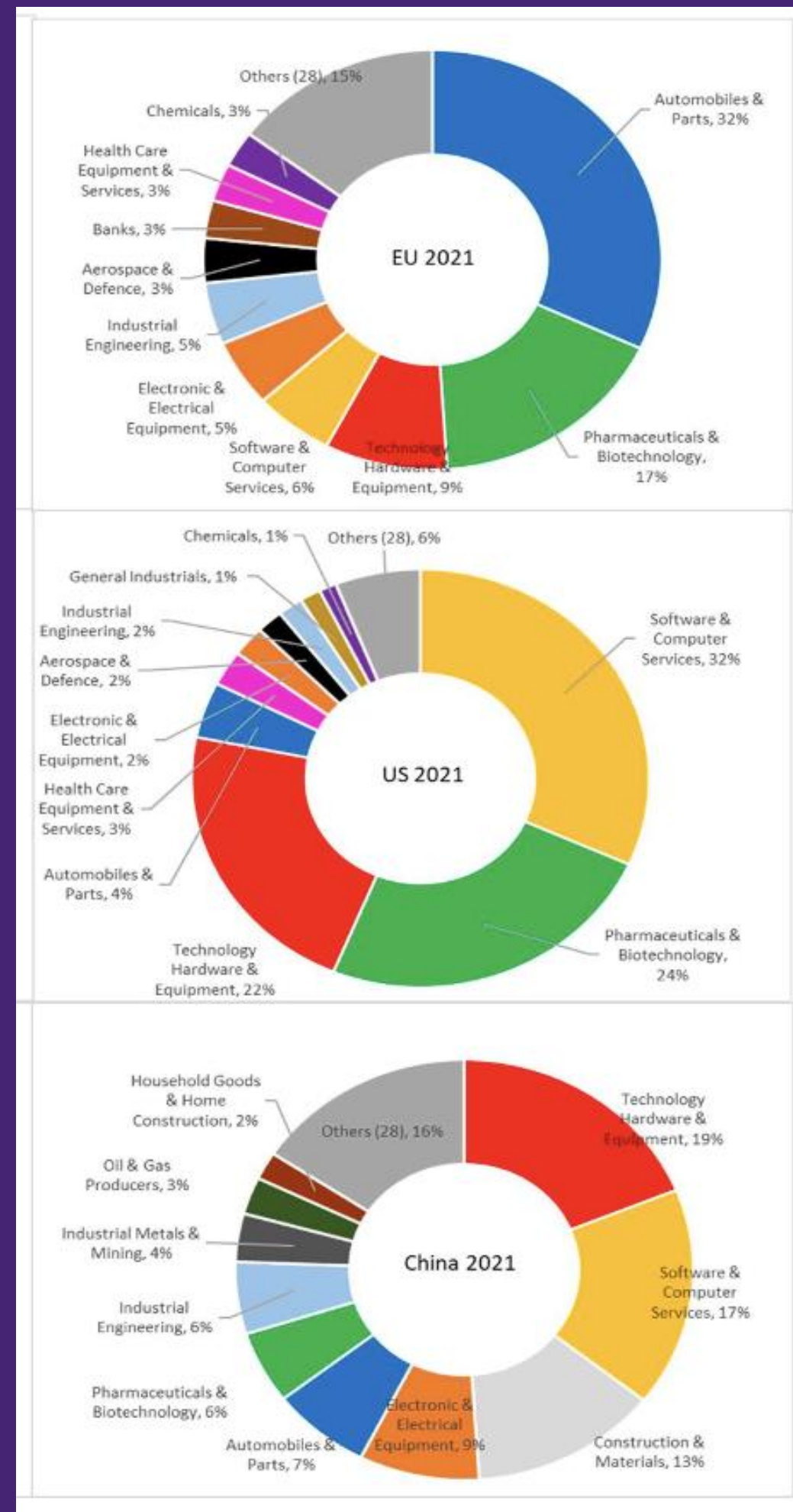


## EU vision on cars

- machines to provide driving experience
- software focused on improving the machine
- BMW and VW are car companies



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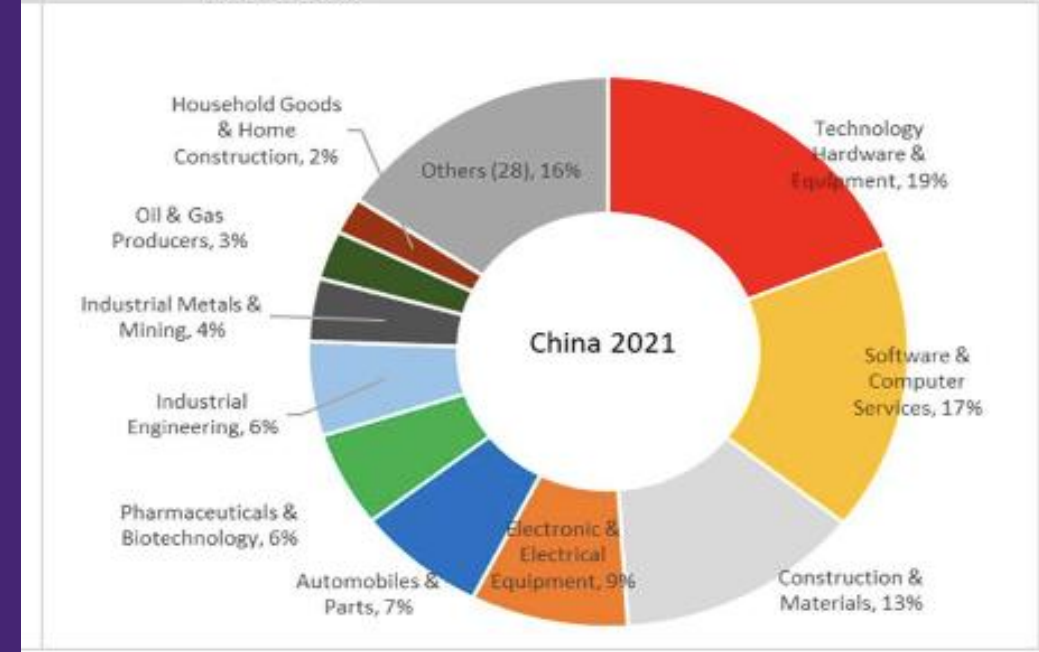
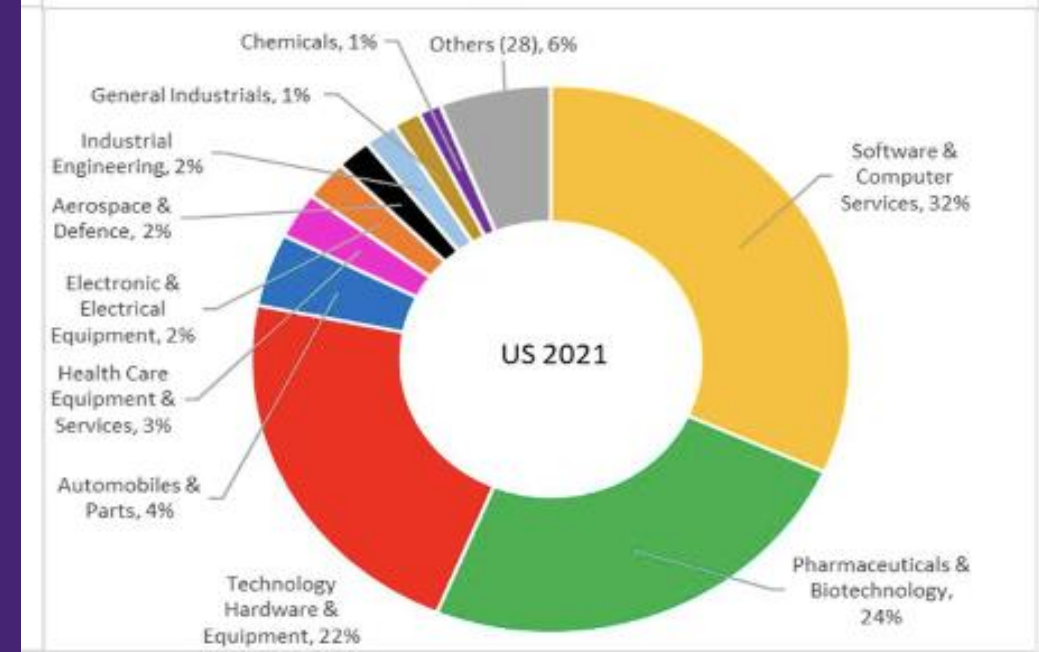
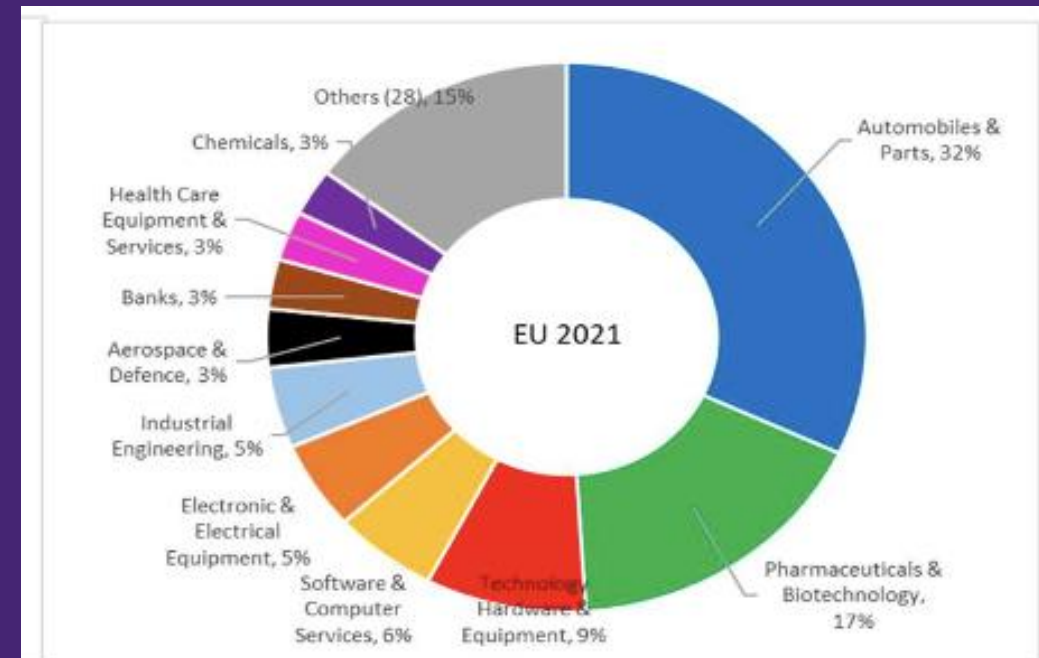
## Musk vision on cars

- intelligent special purpose robots on wheels
- software focused on supporting the user experience
- TESLA is a data, software and robotics company





# LET'S HAVE A LOOK AT CARS AND SOFTWARE



POLITICS | GERMANY

## VW's Dieselgate: Ex-CEO market manipulation trial to resume

12/28/2023

Automaker Volkswagen admitted to using software that cheated emissions tests in 2015. Ex-CEO Martin Winterkorn is to stand trial again in a market manipulation case after the proceedings were suspended two years ago.

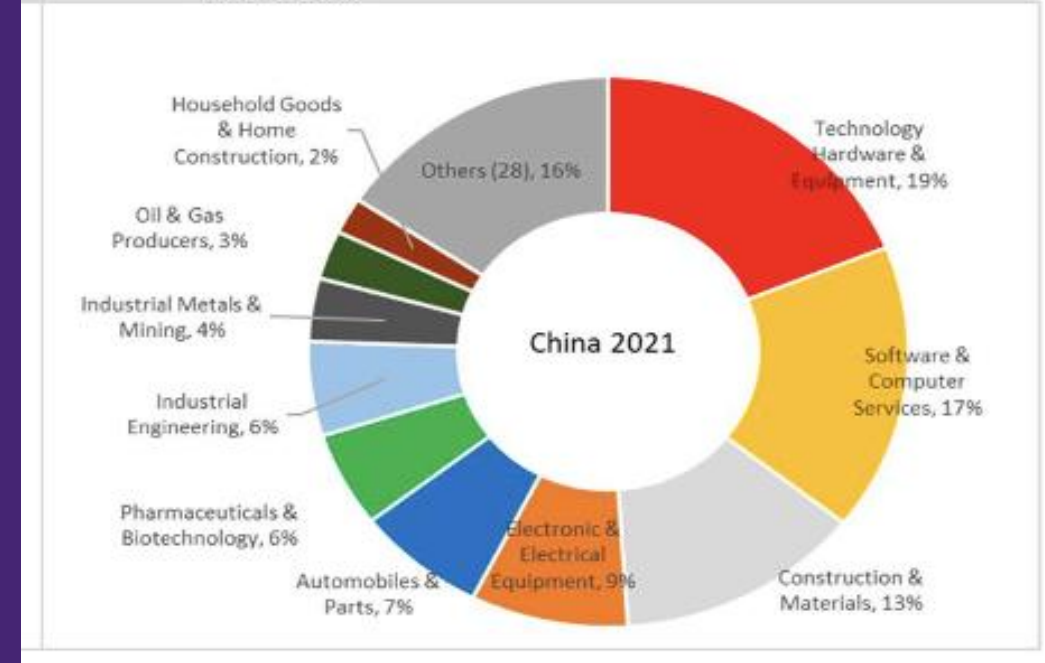
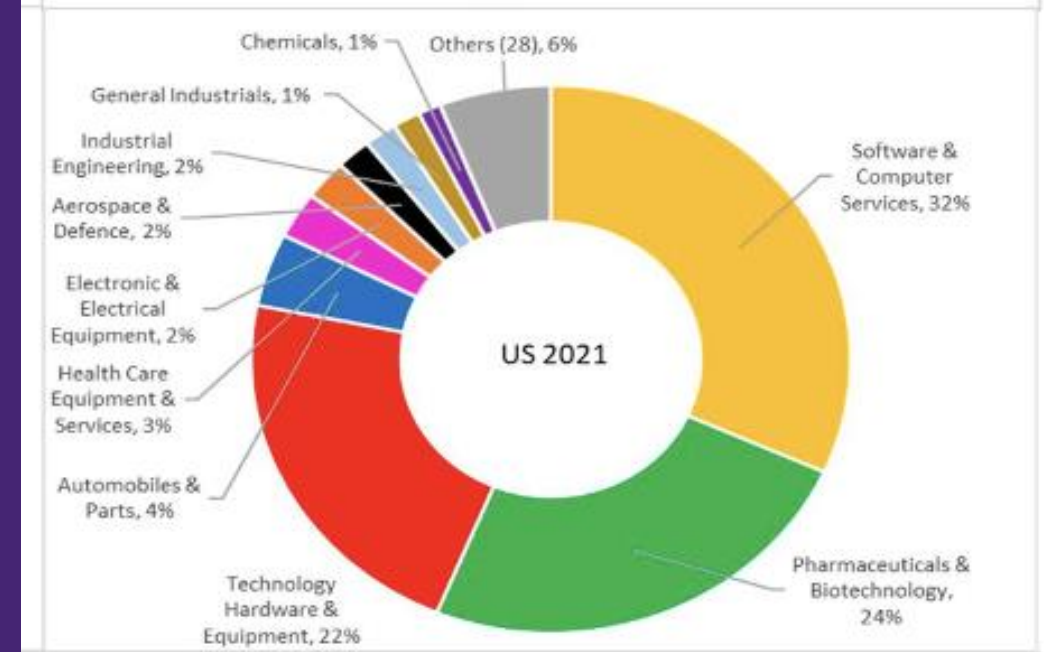
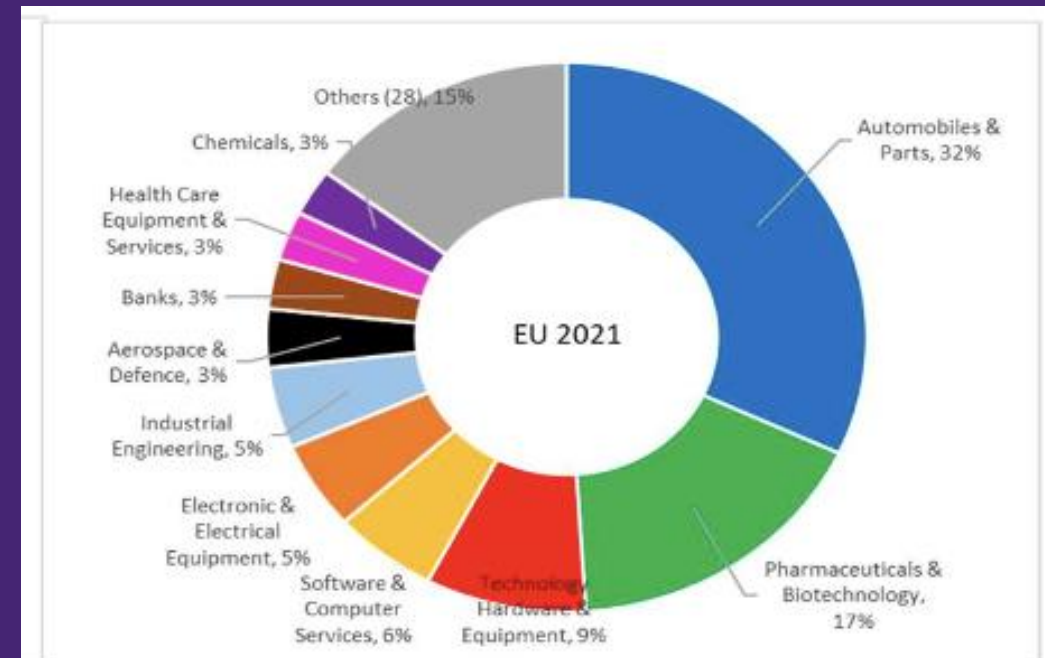
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WWW.BMW.DE

It took us 55 years to grow one this big.



# LET'S HAVE A LOOK AT CARS AND SOFTWARE



POLITICS | GERMANY

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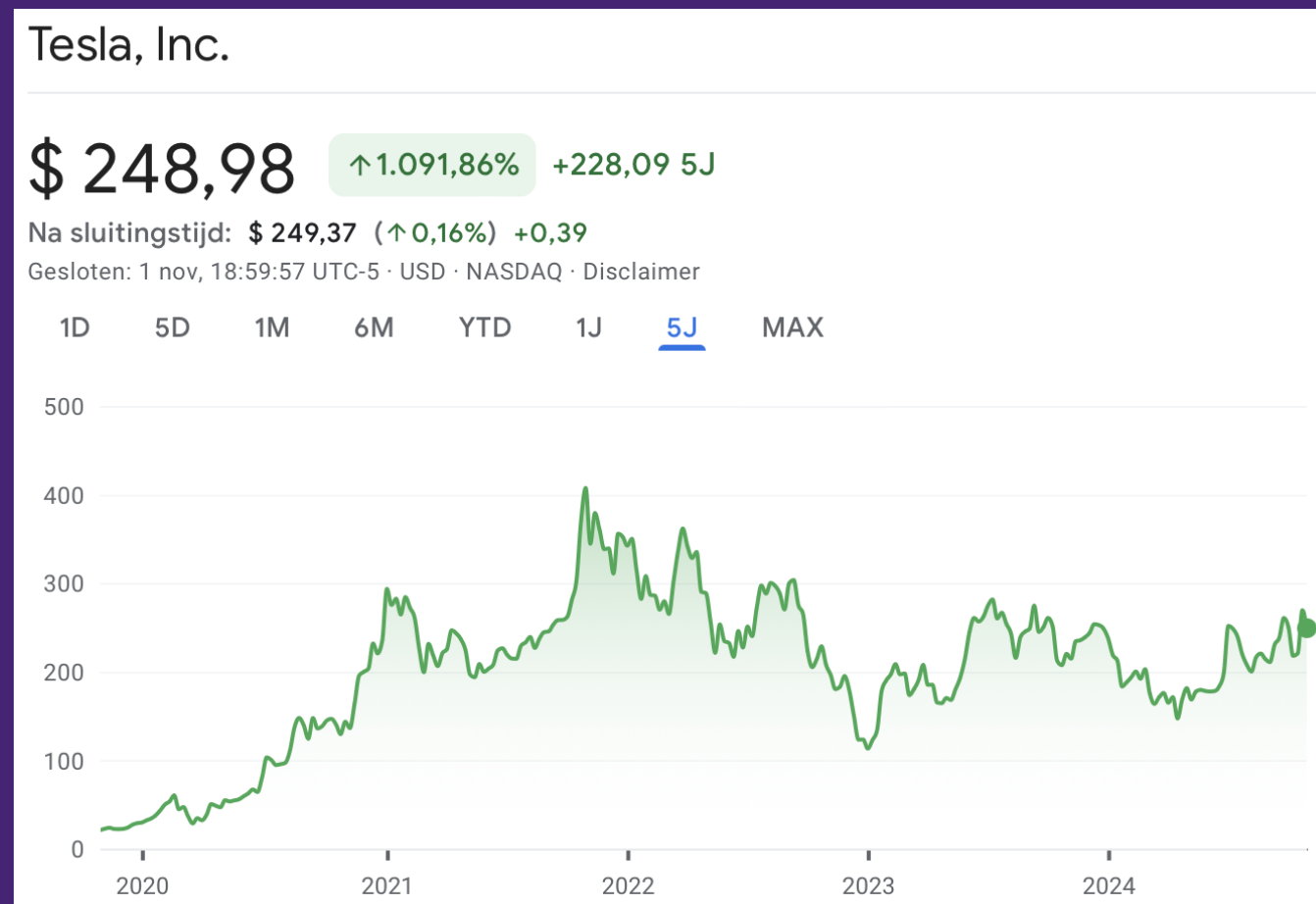
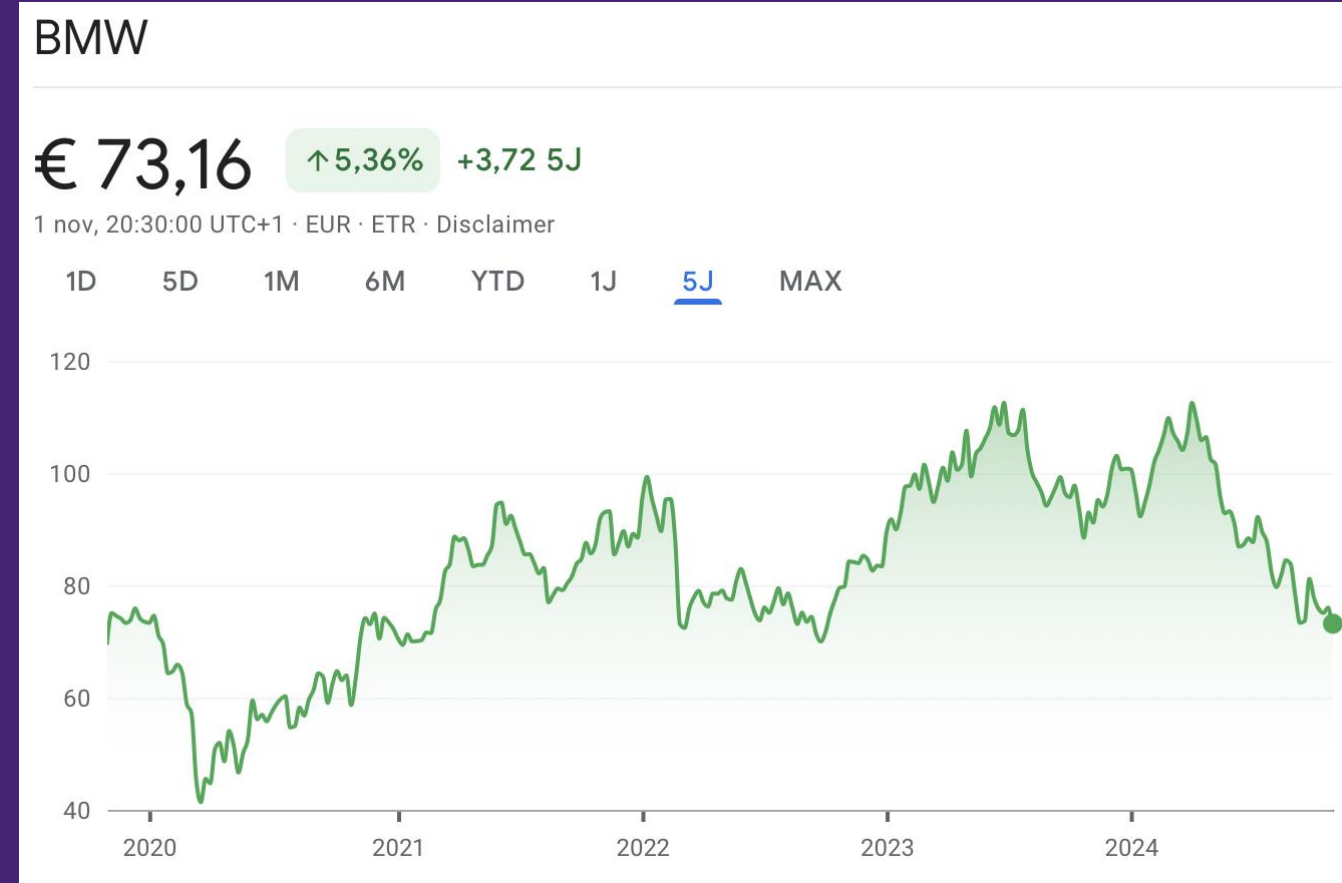
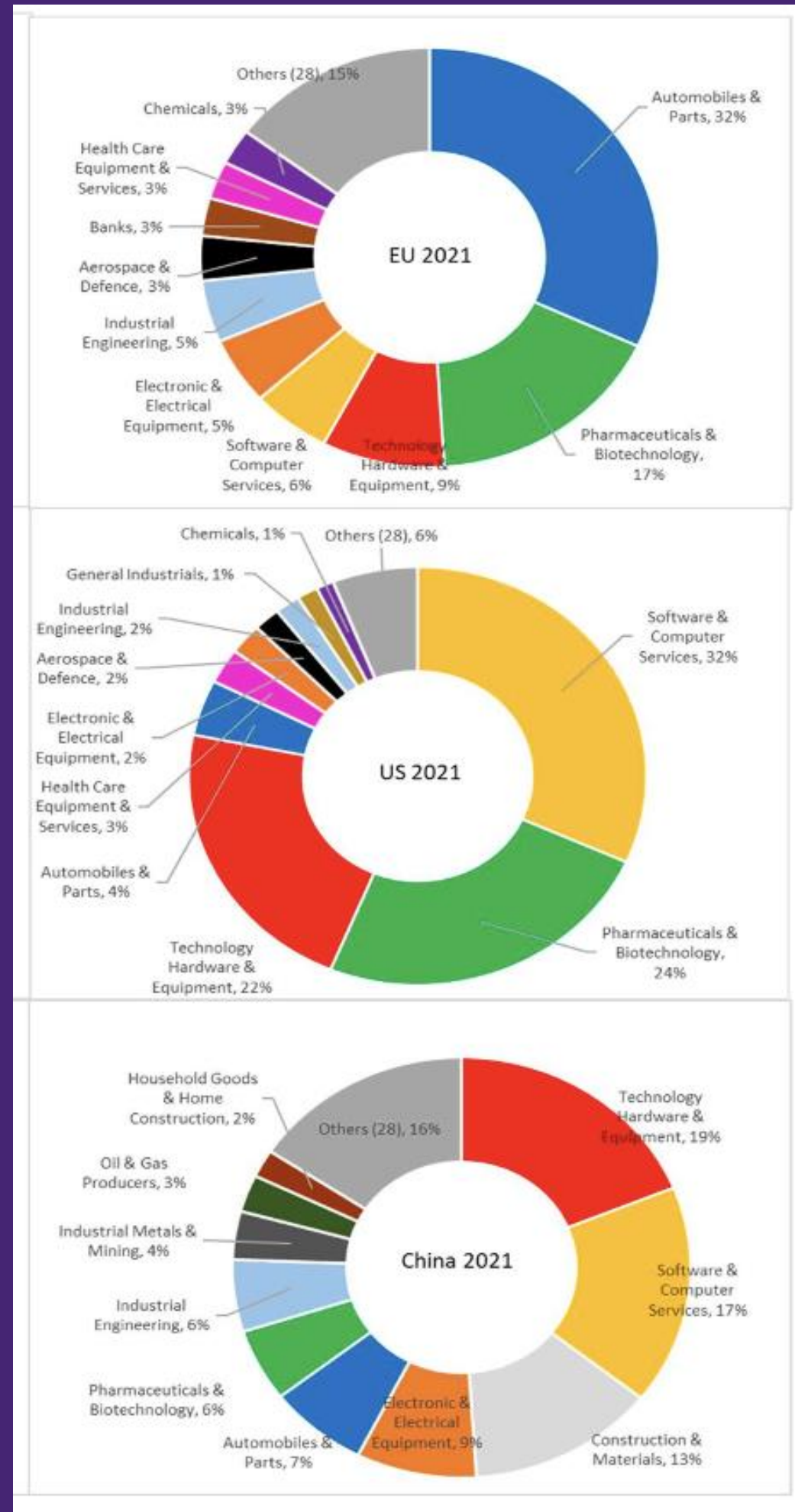
Business

## Tesla settles lawsuit on eve of trial in deadly automated-driving crash

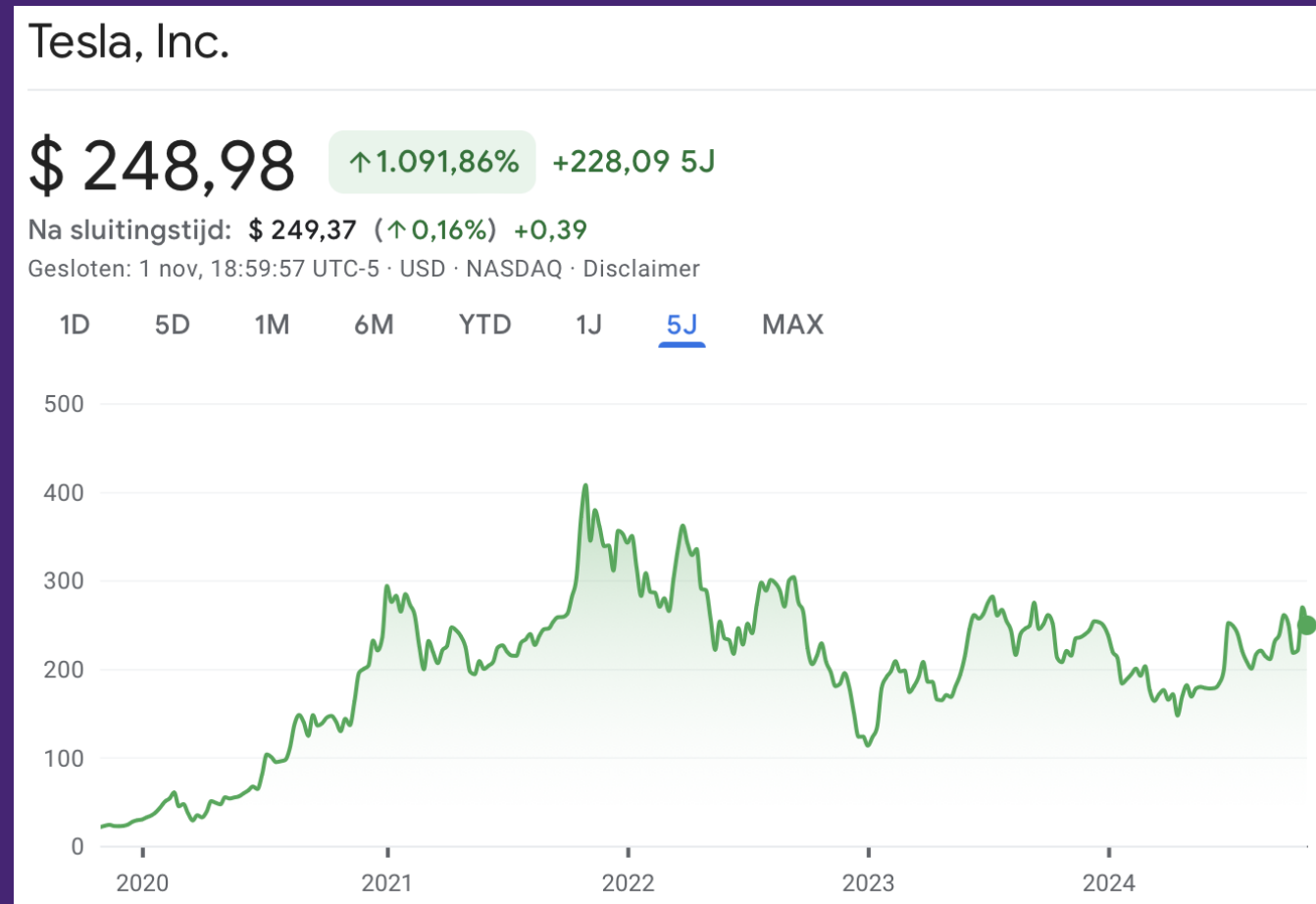
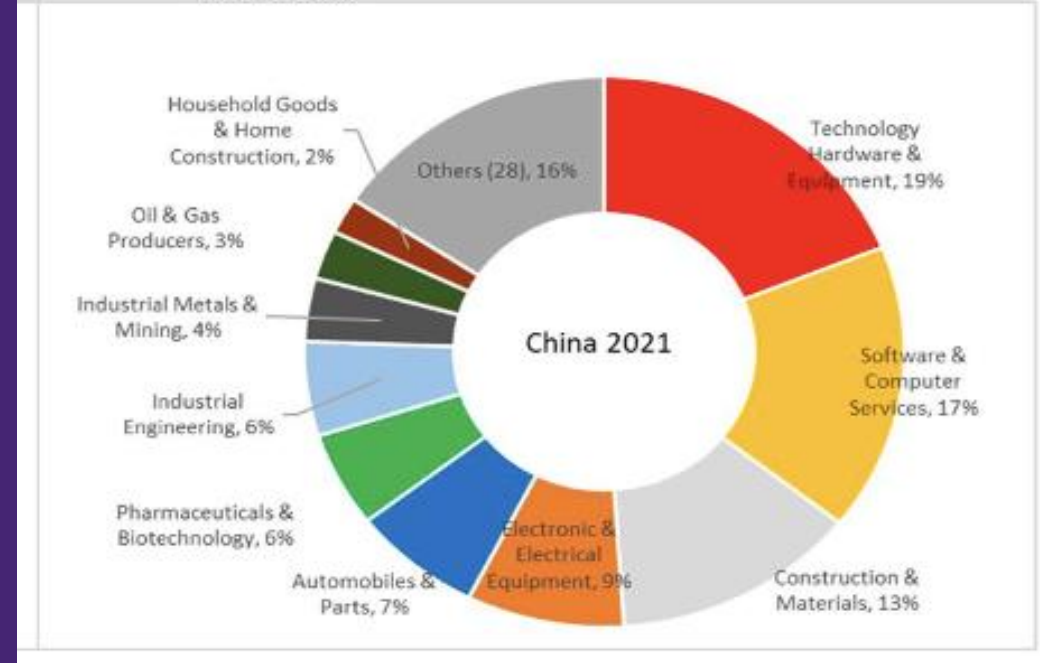
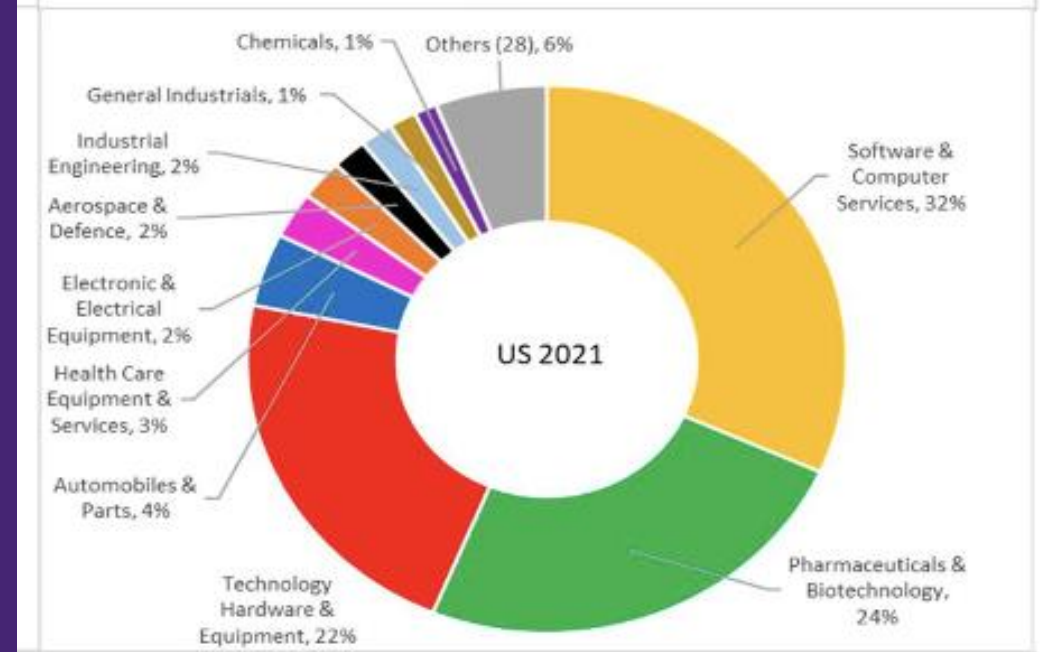
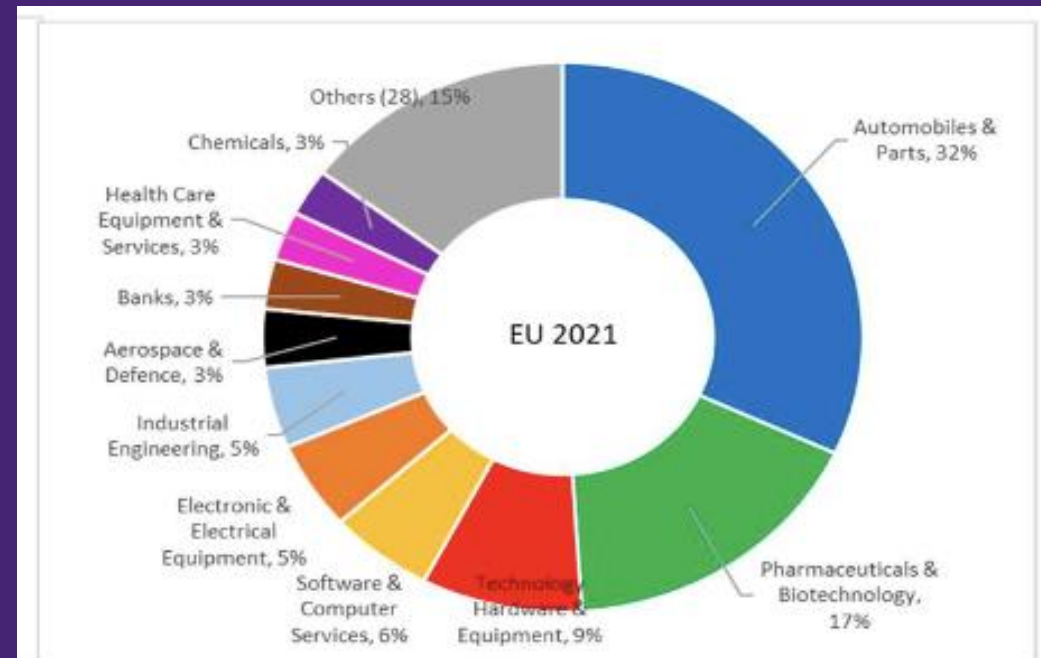
Walter Huang, an engineer for Apple, was killed in a 2018 Northern California highway crash

Thomson Reuters · Posted: Apr 09, 2024 7:55 AM EDT | Last Updated: April 9

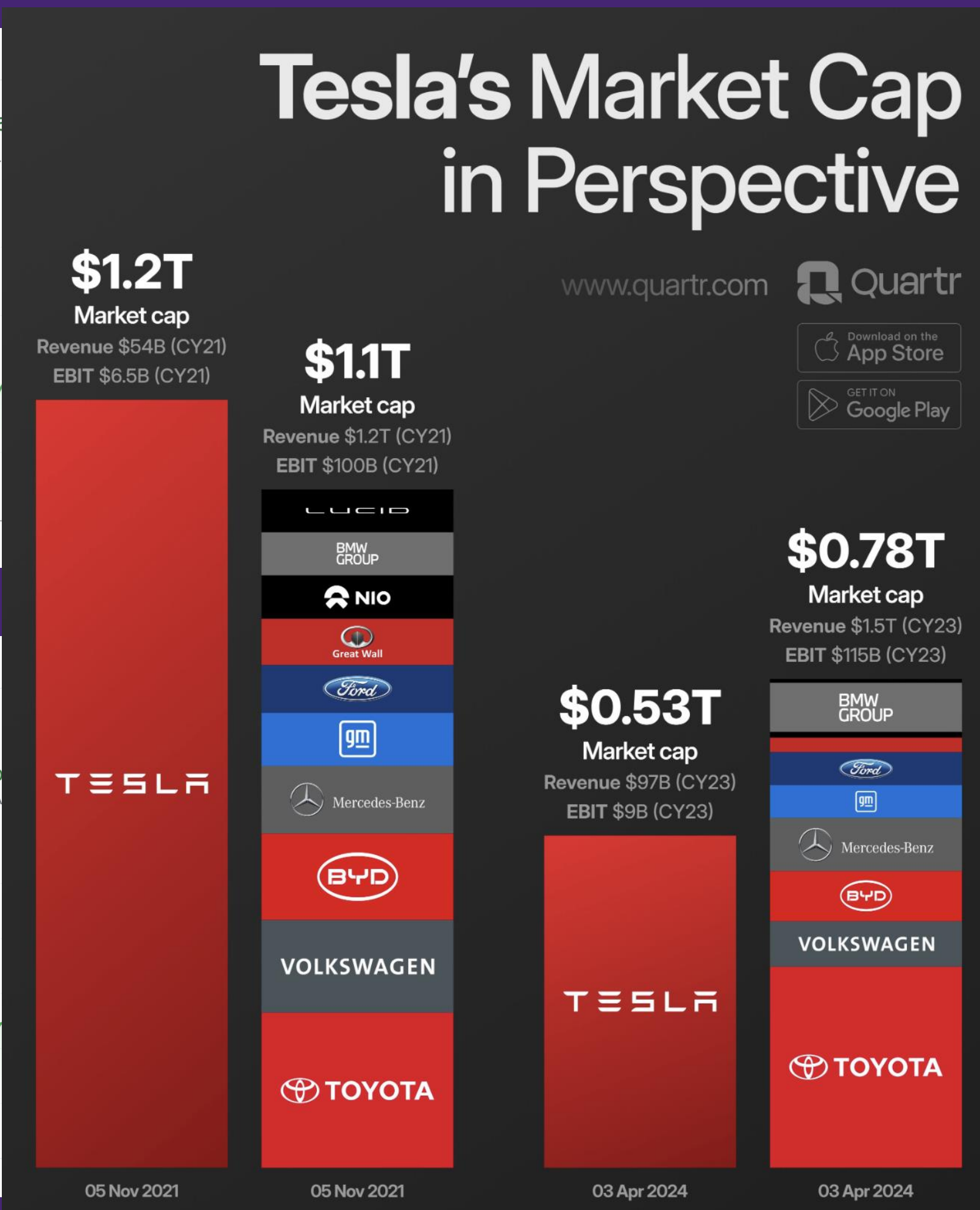
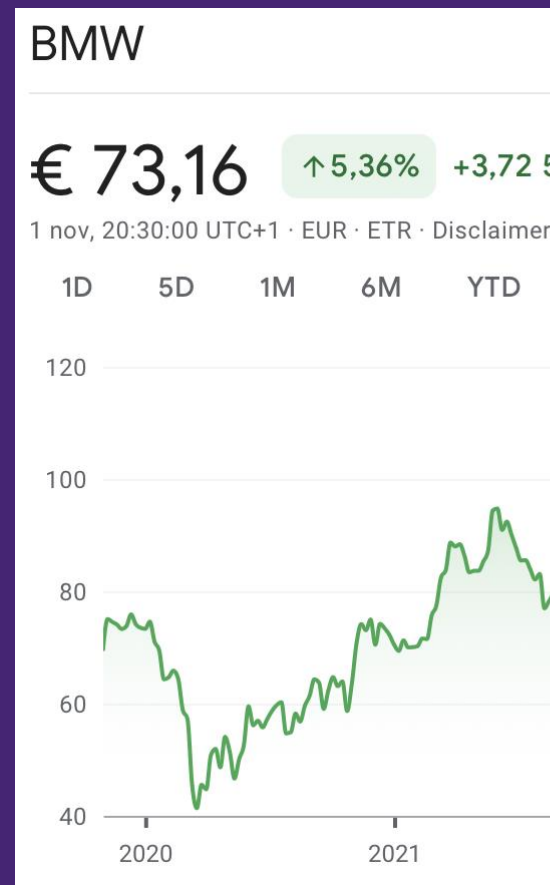
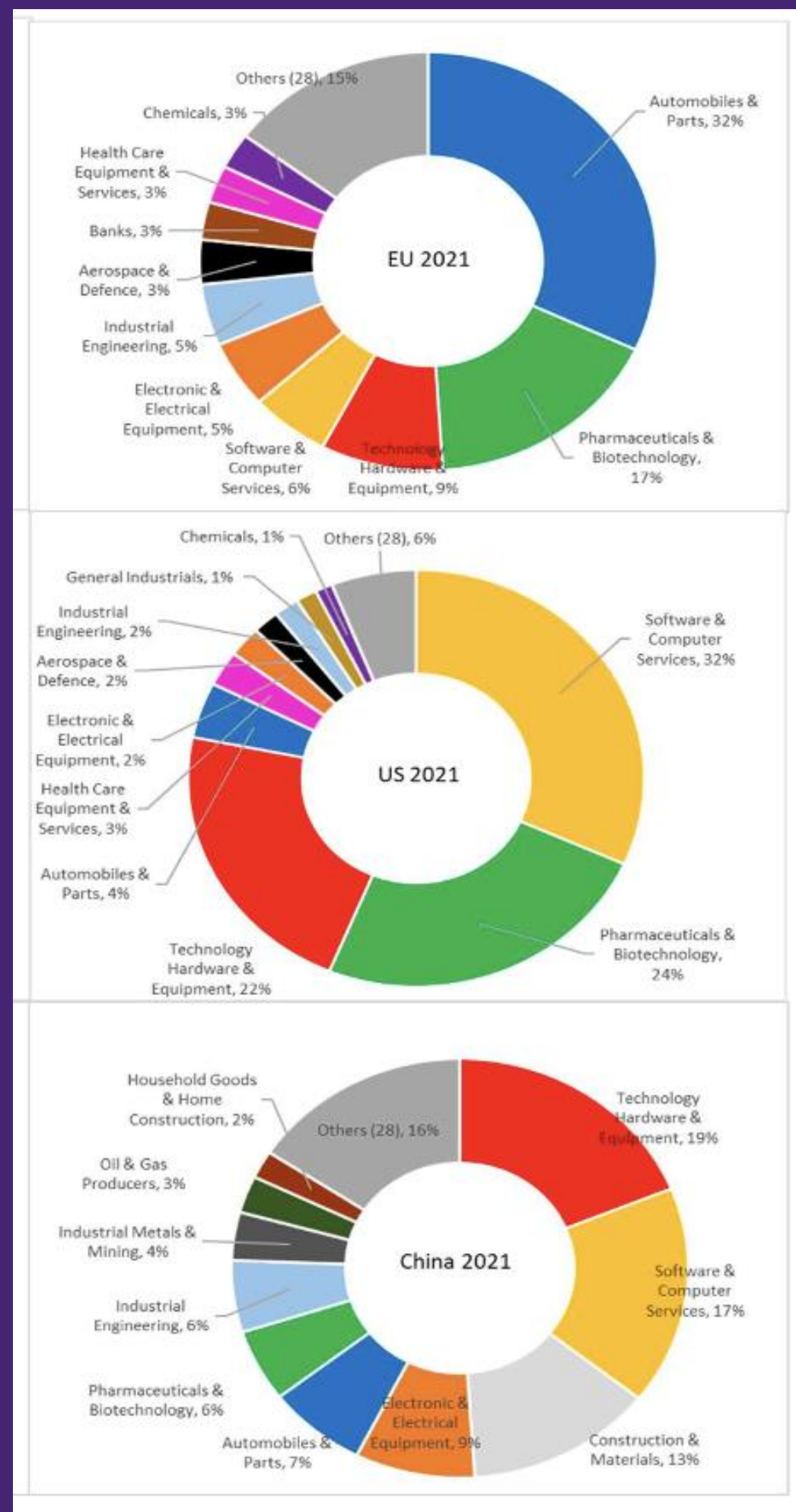
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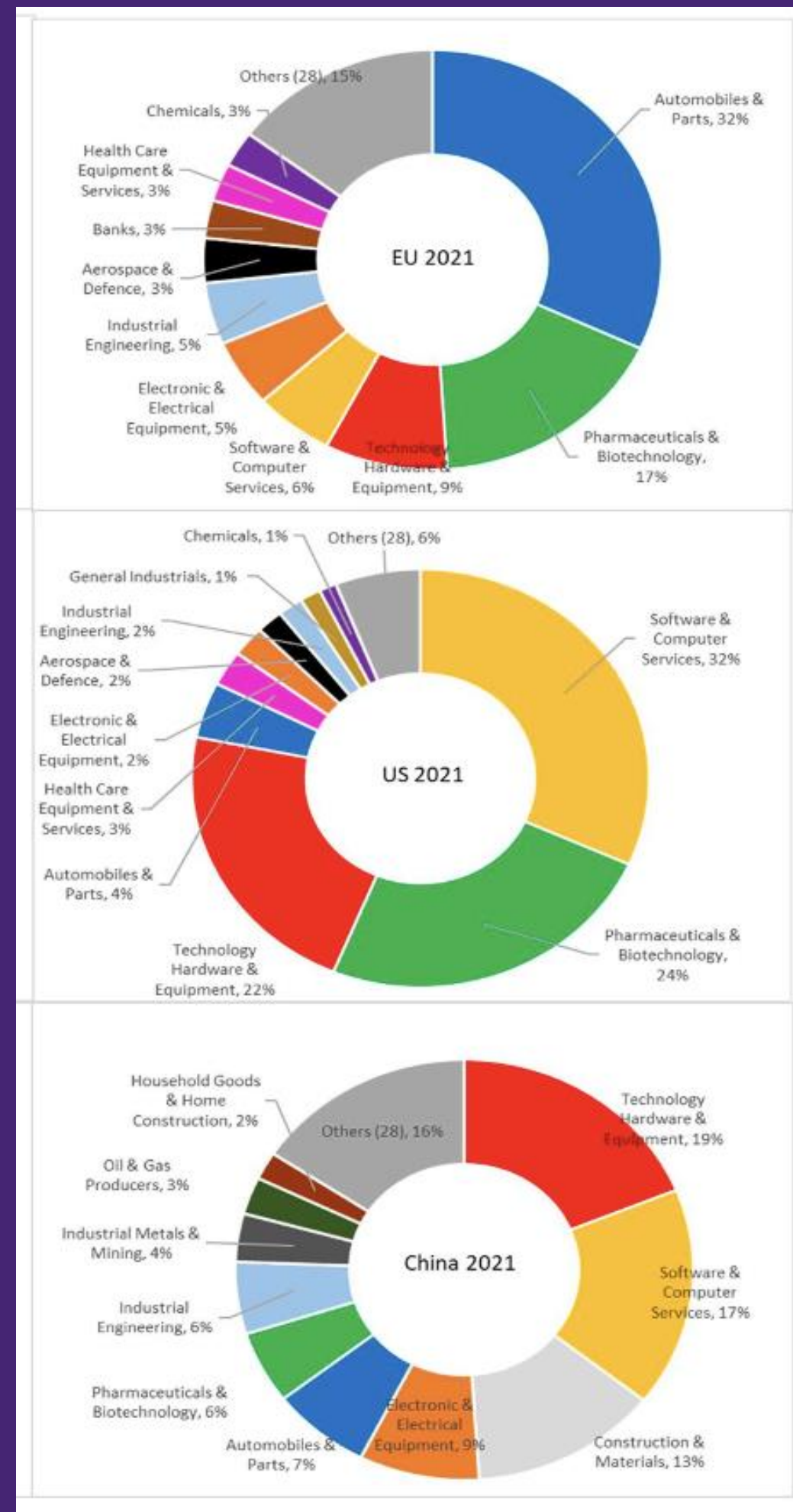
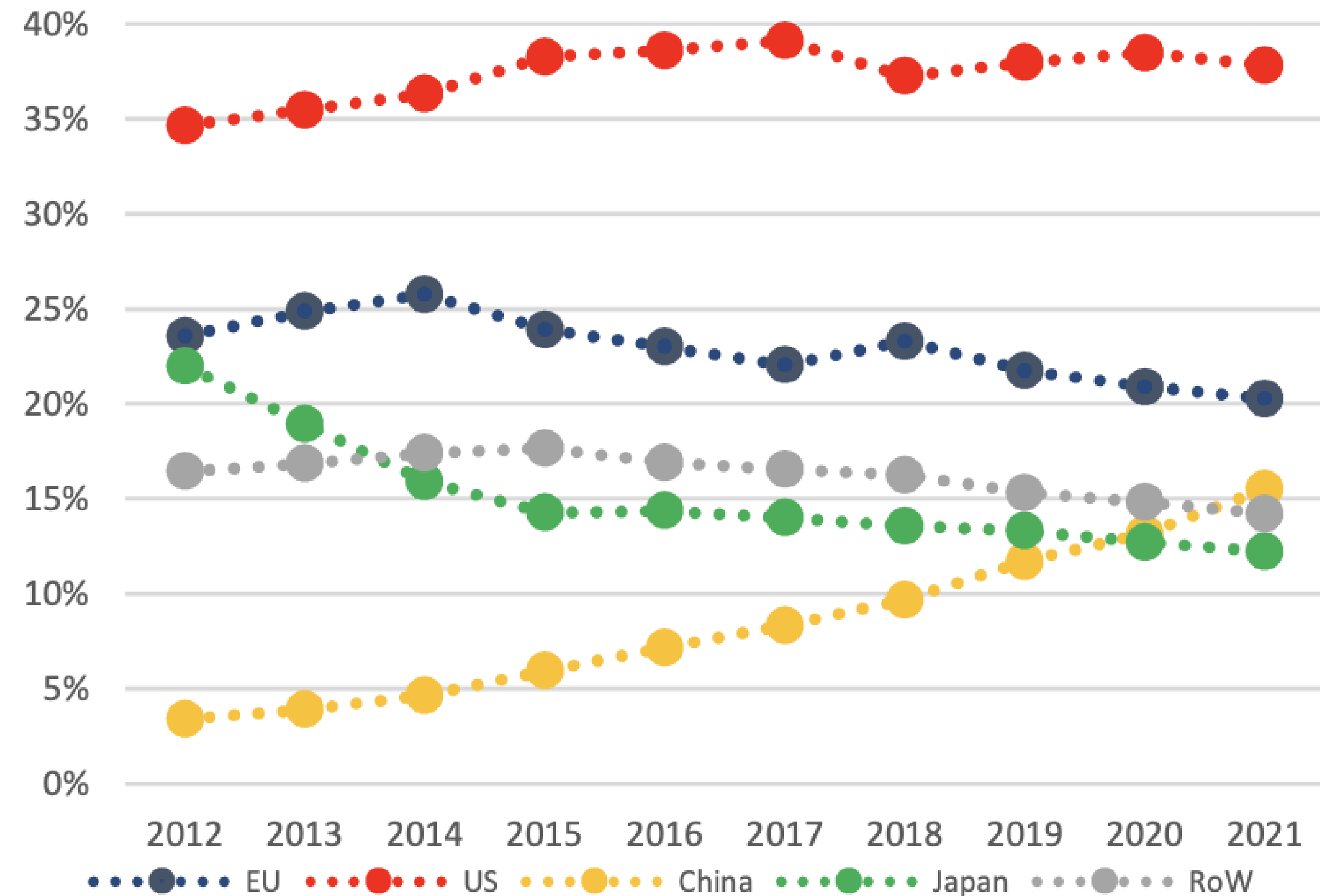


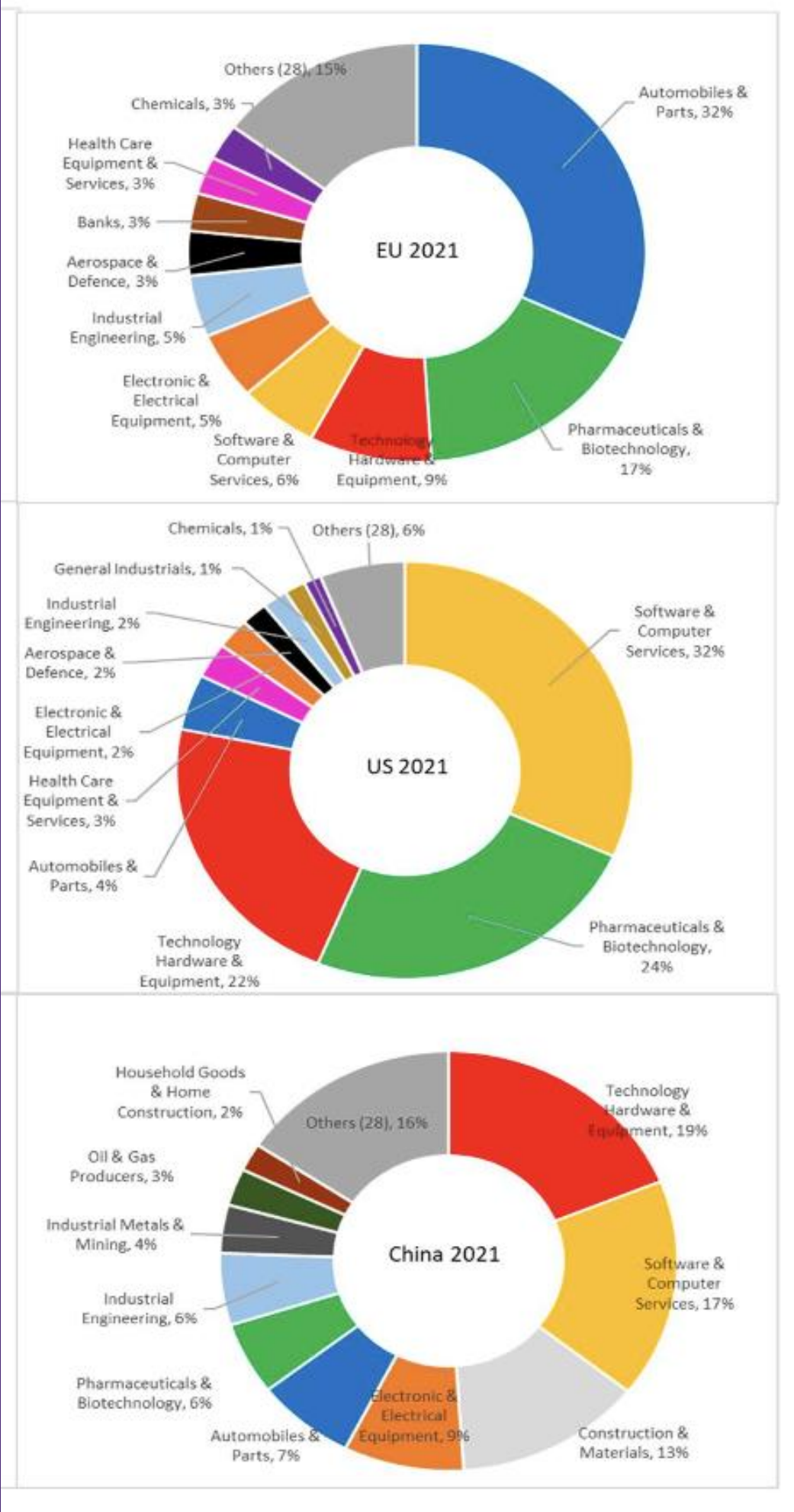
Figure 1. Share of corporate R&D investment



Note: Years refer to different editions of the *EU Industrial R&D Investment Scoreboard*. EU is always EU-27.



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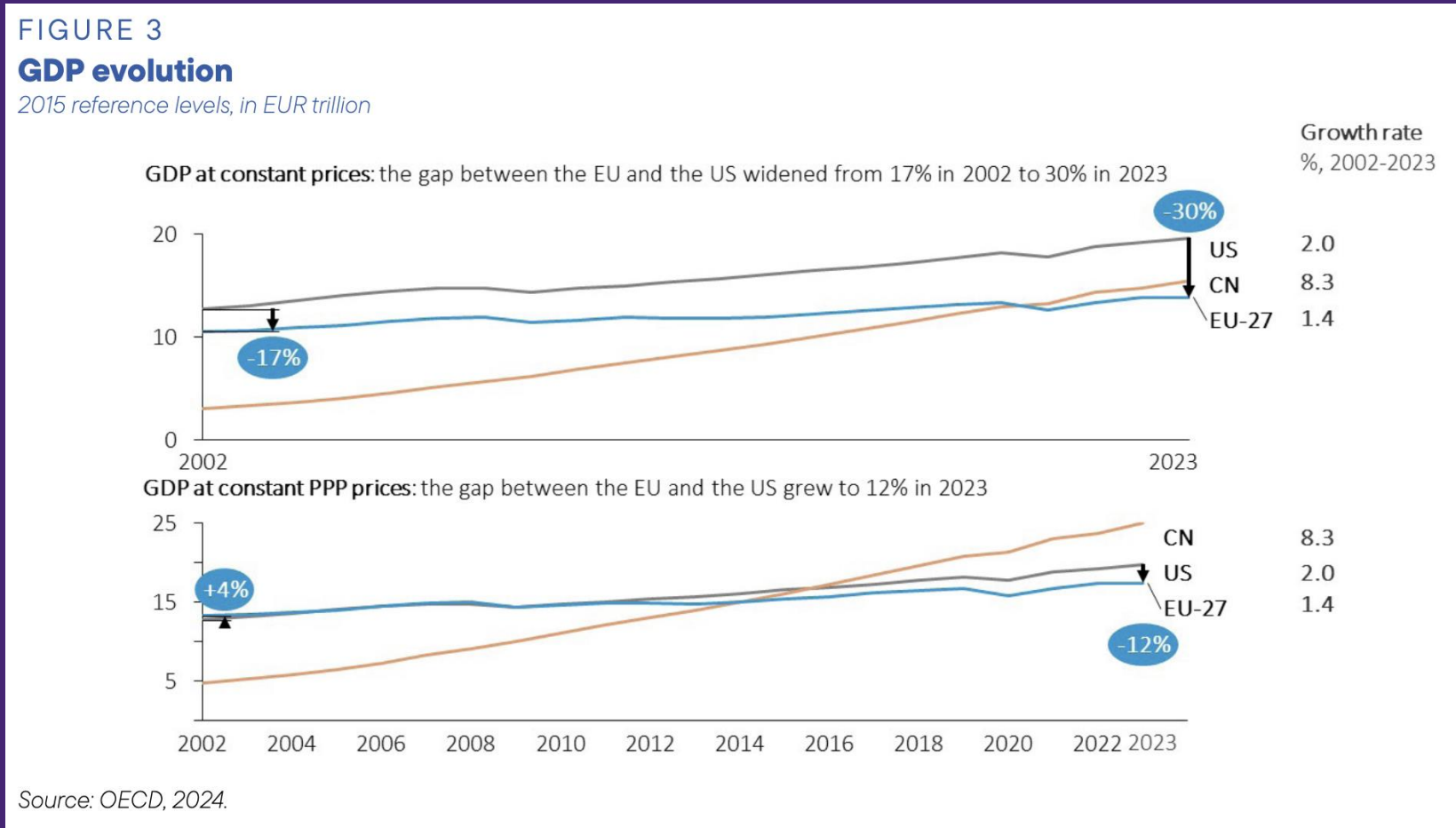
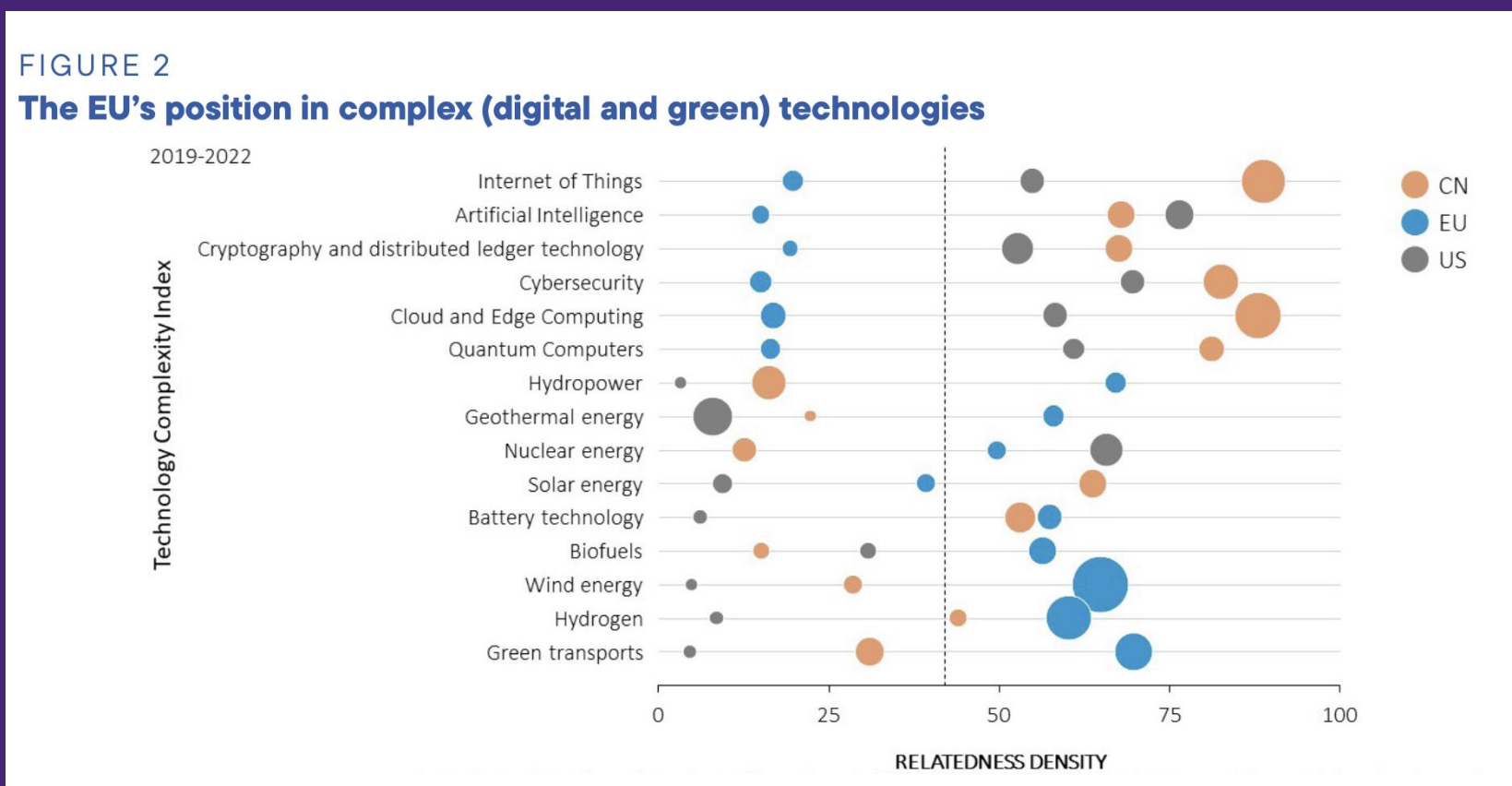


Europe needs to drastically step up (industrial) software research and innovation





- 1. The starting point:  
a new landscape for Europe . . . . . 07**
- Three transformations ahead for Europe . . . . . 10
- Towards a European response . . . . . 13
- Preserving social inclusion . . . . . 15
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- 5. Financing investments . . . . . 59**
- 6. Strengthening governance . . . . . 63**







**3.2. Computing and AI**, i.e. infrastructure, platforms and advanced technologies needed to autonomously develop and scale up digital services, enabling companies to innovate, boost their productivity and upscale, notably concerning cloud, high-performance computing and quantum, as well as AI and its industrial applications.

**Finally, while the ambitions of the EU's GDPR and AI Act are commendable, their complexity and risk of overlaps and inconsistencies can undermine developments in the field of AI by EU industry actors.** The differences among Member States in the implementation and enforcement of the GDPR (as detailed in the Governance Chapter), as well as overlaps and areas of potential inconsistency with the provisions of the AI Act create the risk of European companies being excluded from early AI innovations because of uncertainty of regulatory frameworks

HPC / AI / QUANTUM / CLOUD PROPOSALS:  
A NEW 'EU CLOUD AND AI DEVELOPMENT ACT'

TIME  
HORIZON <sup>14</sup>

- |   |  |              |
|---|--|--------------|
| 1 | <b>Increase the computational capacity dedicated to the training and fine-tuning of AI models and create an EU-wide framework for providing 'computing capital' to innovative SMEs in the EU</b> | <b>ST/MT</b> |
| 2 | Identify priority AI vertical applications for the EU, encouraging EU companies to participate in their development and deployment in key industrial sectors                                     | MT           |
| 3 | Leverage the EU-wide coordination and harmonisation of national AI sandbox regimes, and ensure harmonised and simplified implementation of the GDPR  | ST           |



# Generative AI Dominated by (non-EU) Big Tech

## Companies Investing Big in Artificial Intelligence

Meta has developed its own LLM called LLaMa, and is continuing to invest in the development of the metaverse.

Meta



Amazon

Amazon's is developing a new LLM, the Alexa Teacher Model, to power its Alexa devices, and is investing heavy in AWS.

Google has released ChatGPT competitor Bard, which is trained on Google's LaMDA technology.

Google



Tesla

Tesla's semi-autonomous vehicles are powered by AI, and CEO Elon Musk plans to create an AI company to rival OpenAI

Open AI is paving the way in the generative AI field with its large language model ChatGPT.

OpenAI



Snapchat

Snapchat has many AI-powered lenses as well as its new generative chatbot, My AI.

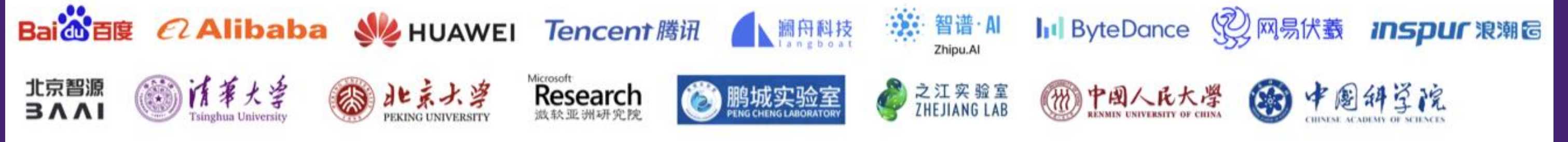
Microsoft has a multi-billion dollar stake in OpenAI, and has also released a GPT-4 powered iteration of Bing.

Microsoft



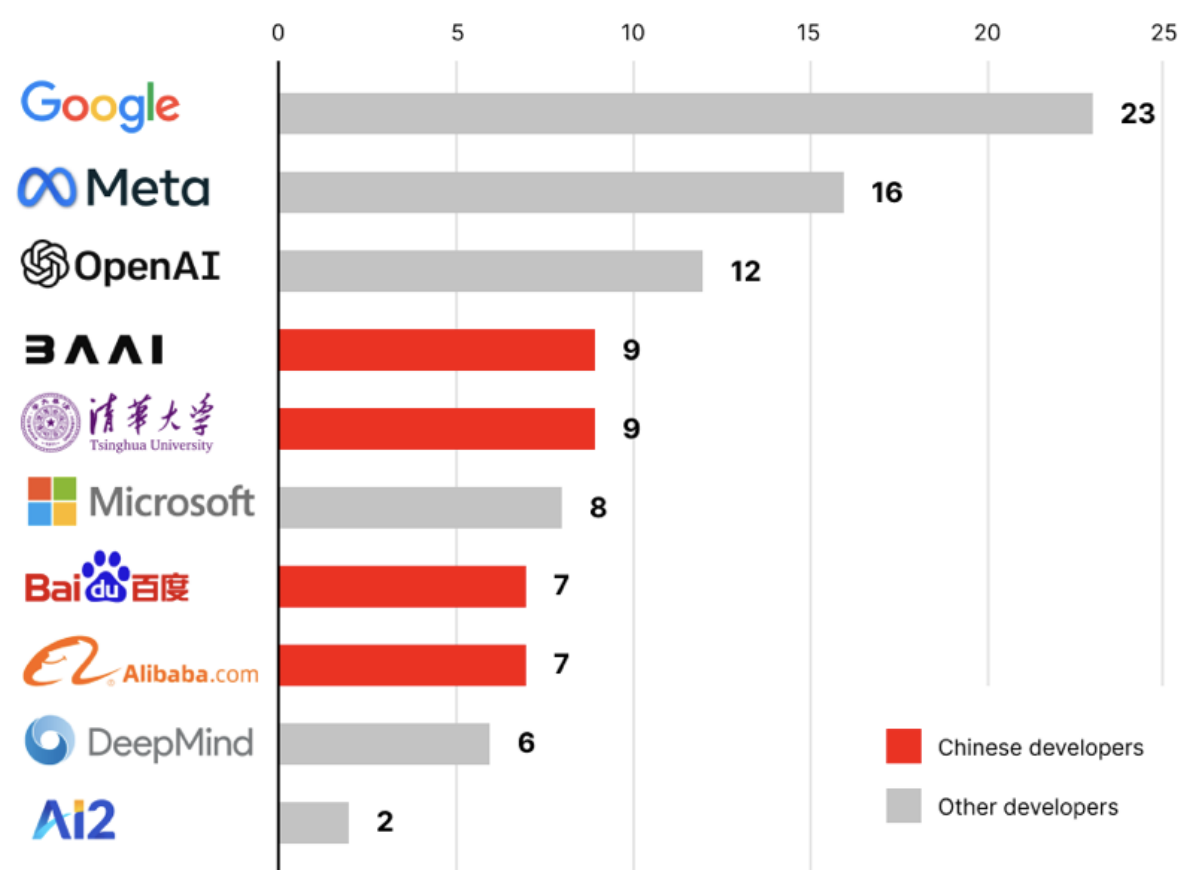
Sources: Emerging Tech Brew, Financial Times

More charts: [genuineimpact.substack.com](https://genuineimpact.substack.com)



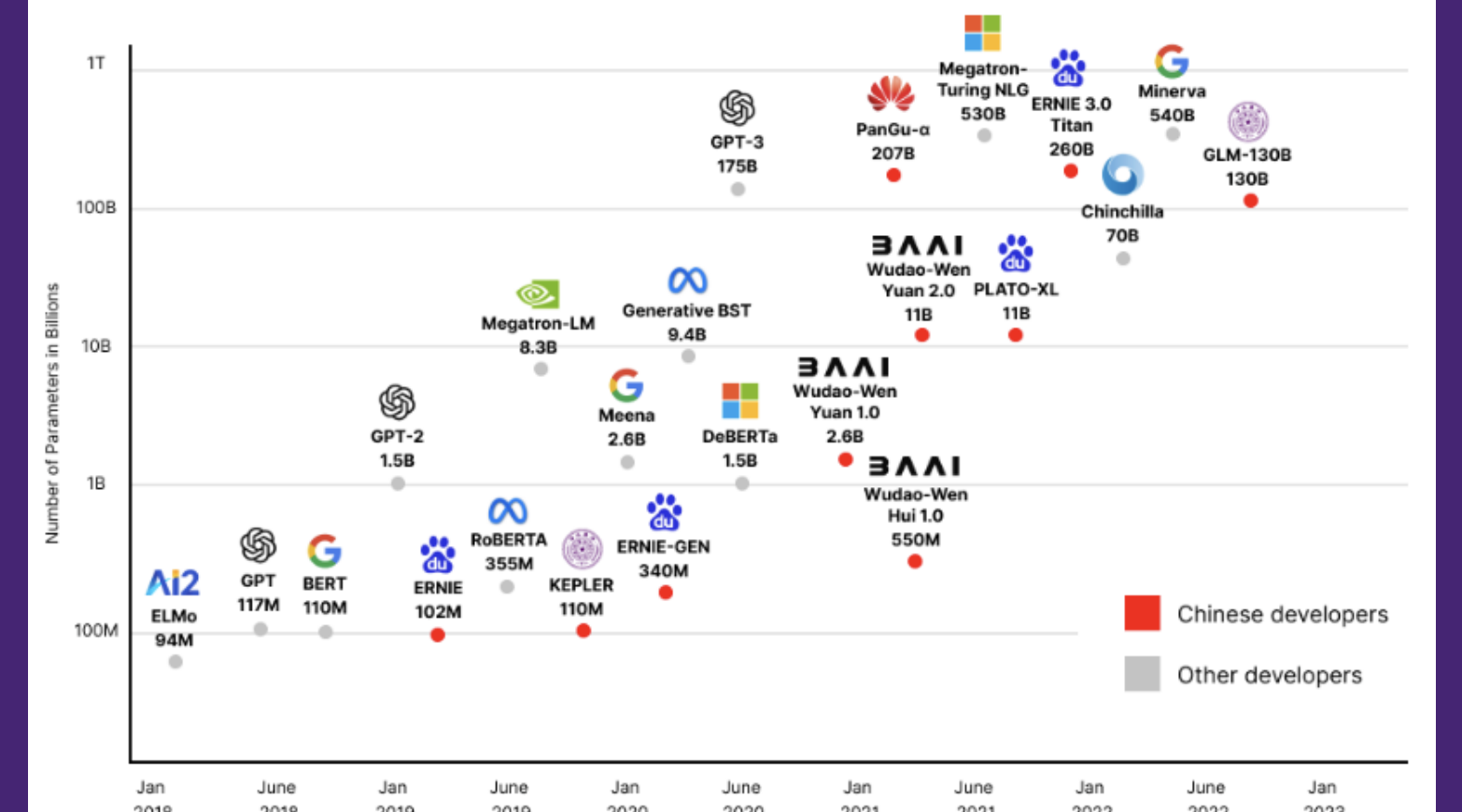
## Top 10 Developers of Generative AI Models

Number of Models Released from Jan 2018 to Jan 2023

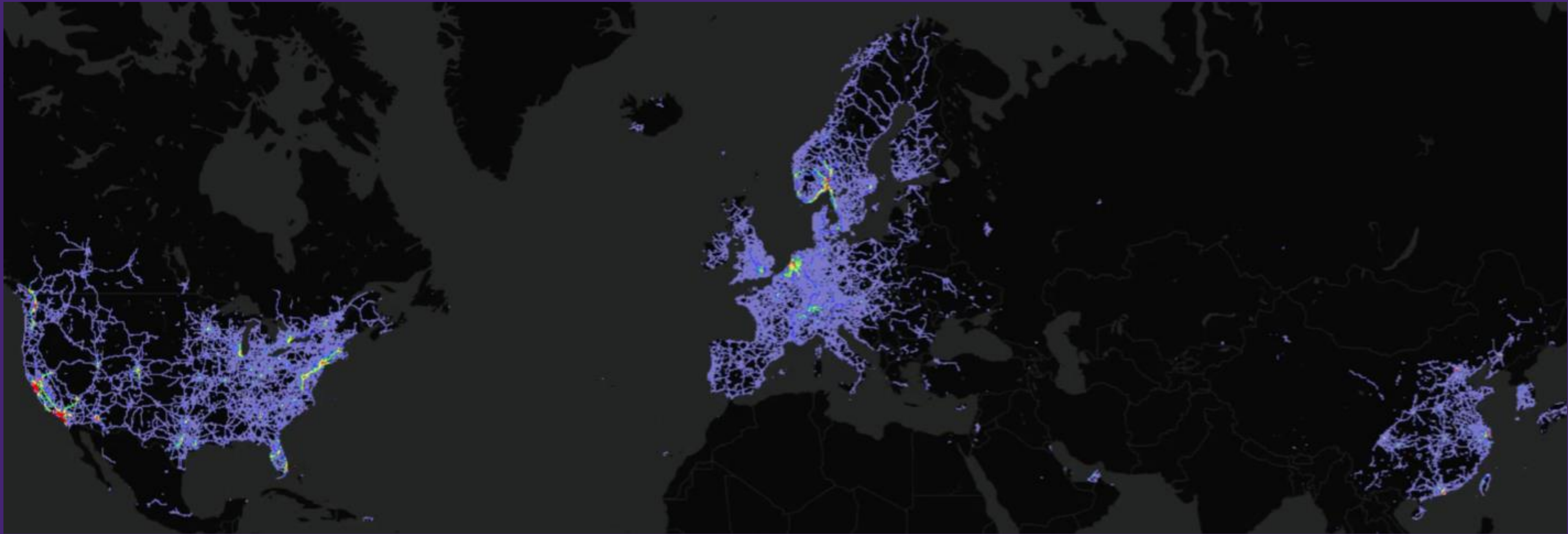


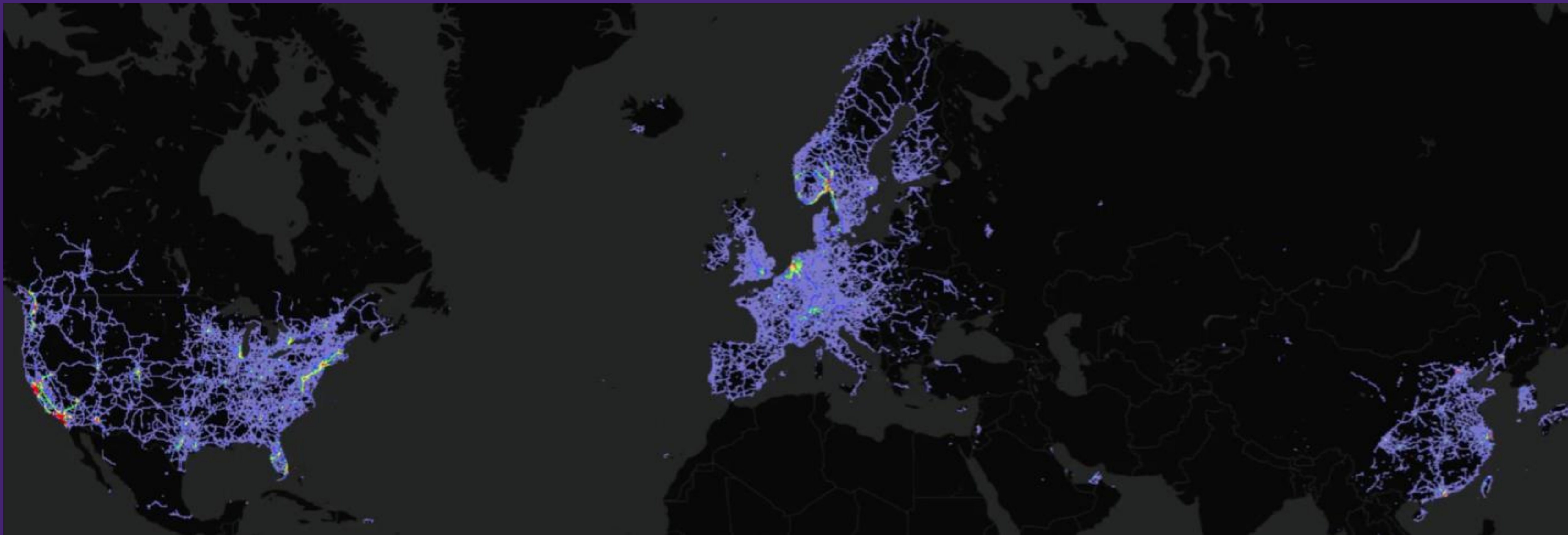
Source: Leonis Capital research

## Parameter Count of Large Language Models (LLMs)



Source: Leonis Capital research

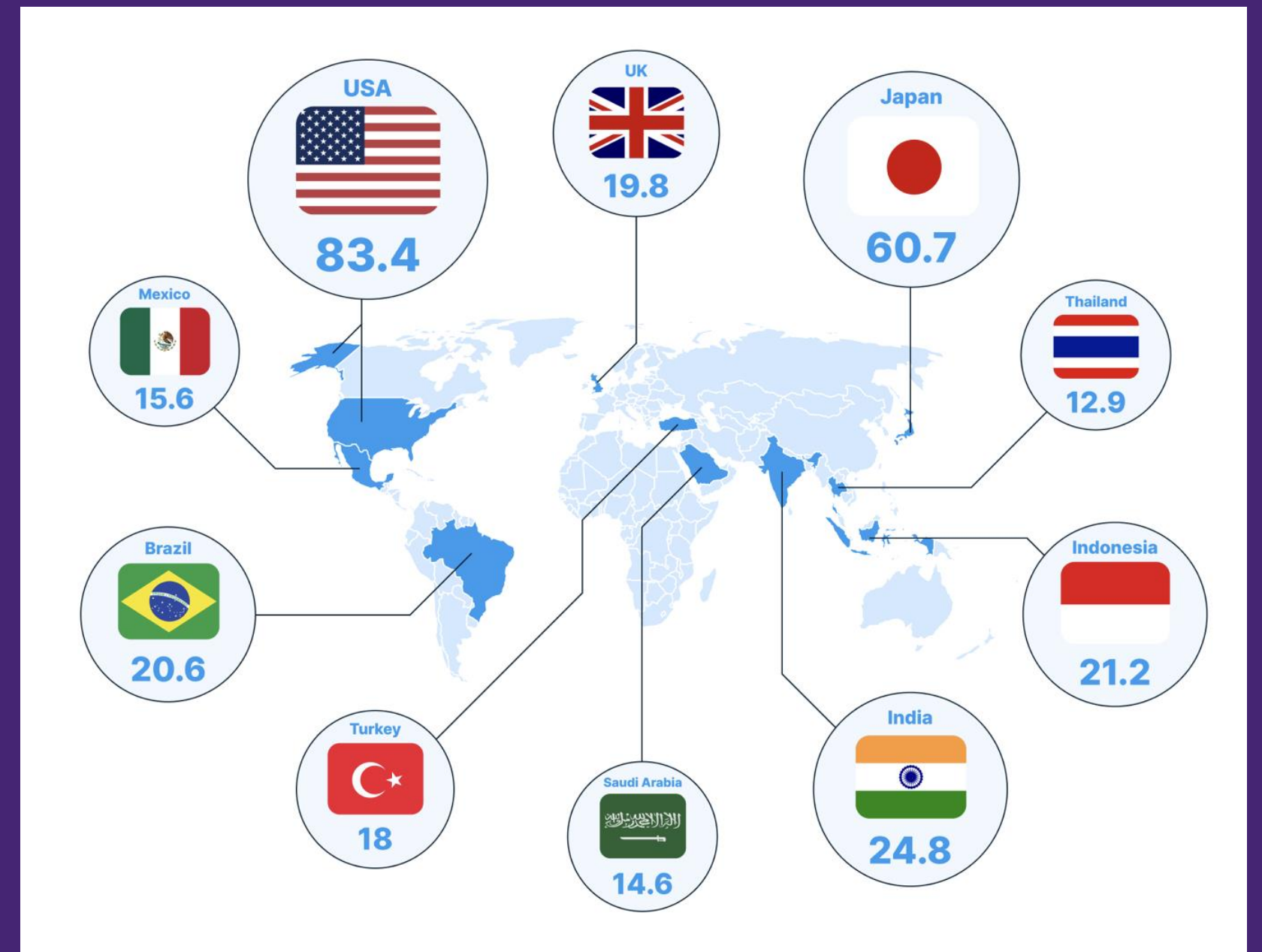
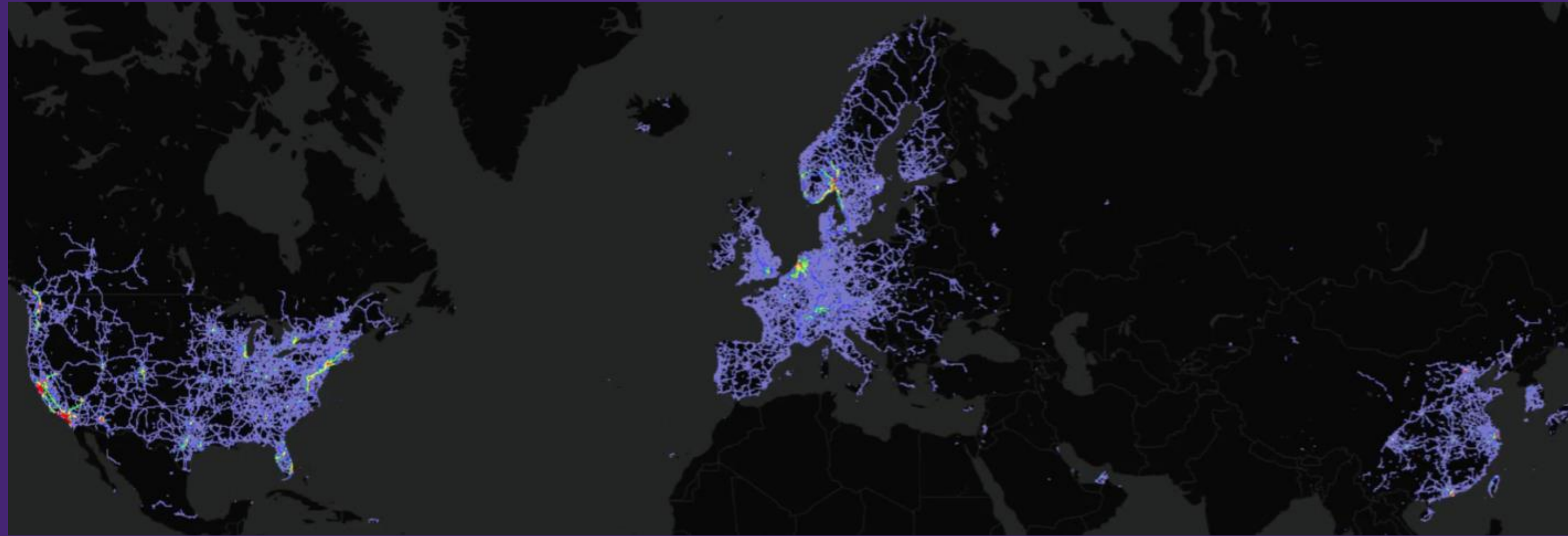




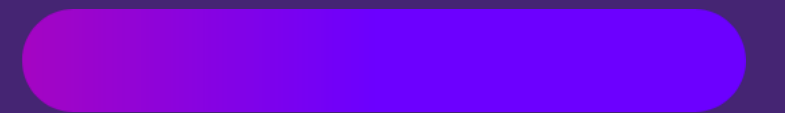
## Tesla's Deep Learning at Scale: Using Billions of Miles to Train Neural Networks

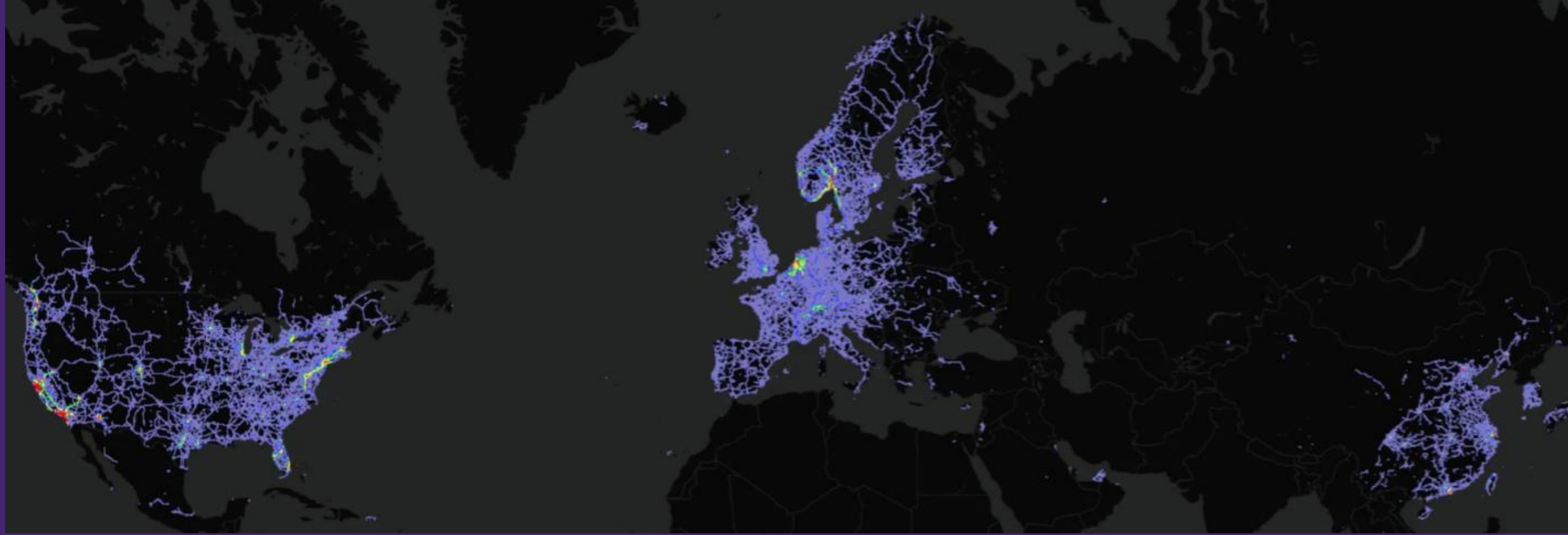
What Tesla can do that Waymo can't





Source: Oberlo





Source: Oberlo



## Artificial Narrow Intelligence (ANI)

AI that specializes in one area.



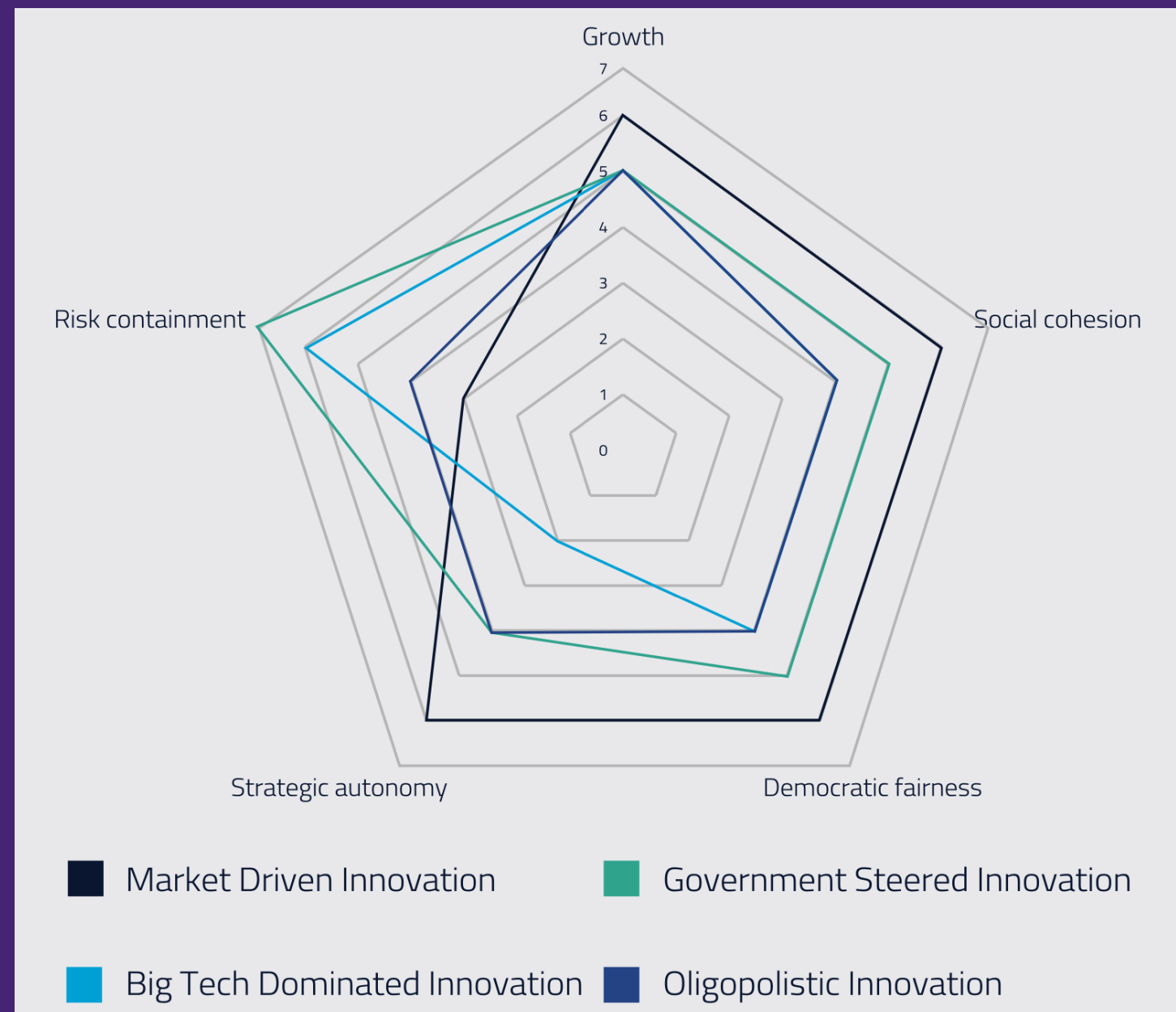
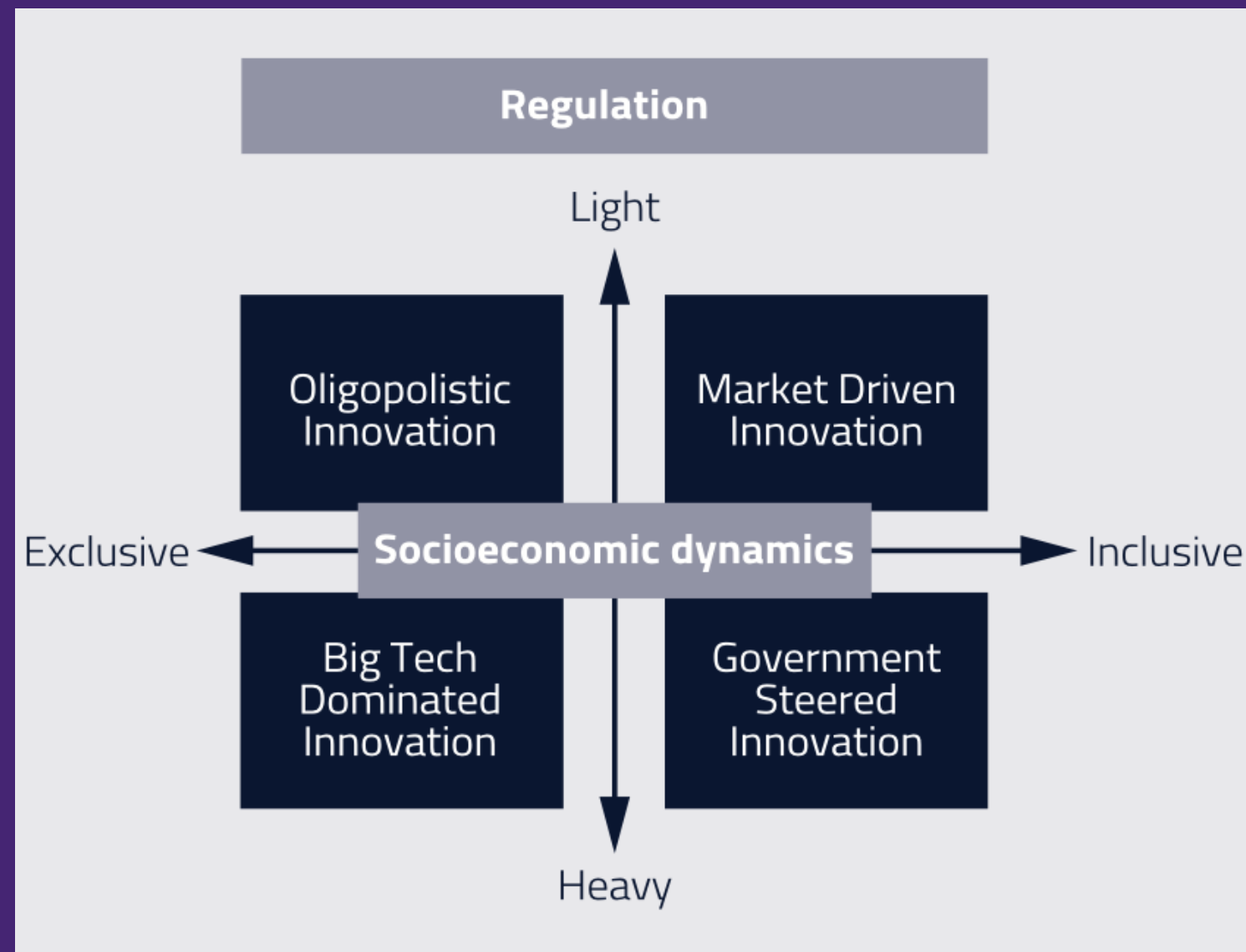
## Artificial General Intelligence (AGI)

Or Strong AI, refers to a computer that can perform any intellectual task that a human being can.

## Artificial Superintelligence (ASI)

“an intellect that is much smarter than the best human brains in practically every field, including scientific creativity, general wisdom and social skills.”





- 1. Regulation as co-creation.** Work on regulating GAI, including operationalizing legislation through standards, norms and
- 2. Mission-oriented approach at EU level.** The future of GAI impacts European sovereignty and therefore must be integral to an overall EU strategy rather than relying on disconnected initiatives by Member States. A coordinated GAI industrial
- 3. New R&D instruments.** Traditional R&D instruments do not work in the fast-moving world of AI; instruments should be
- 4. High Performance Computing.** The European High Performance Computing Joint Undertaking (EuroHPC JU) has
- 5. Beyond LLMs.** GAI is more than just scaling LLMs. More efforts should go into combining foundation models with semantic modelling techniques to support more explicit modelling of the reasoning state, for example to enable reasoning explanations, as well as effort and research into alternative foundation models architectures such as federated specialised smaller scale models.



# BUILDING AN AI POSITION IN EUROPE

- TALENT
- TECHNOLOGY
- DATA
- INFRASTRUCTURE
- FINANCING
- MARKET
- REGULATION



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- TALENT
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## RETAIN – ATTRACT - CONNECT

EU INC Petition

THE PETITION

**A call for European policymakers to unify the startup ecosystem.**

Imagine it's 2035. Europe's first trillion-dollar tech company, founded in a garage in Krakow, now employs 120,000 people across the continent. A pan-European team leads the world in quantum computing. Europe has become the home of the world's most valuable and innovative businesses, and a magnet for top talent in robotics, climate tech, AI, manufacturing and beyond.

This might sound far fetched. But it doesn't have to be – if we act now.

**Building a true single market**

The multitude of countries and cultures in Europe is its unfair advantage. But because of that, our startup scene is fragmented. Legal and regulatory compliance is a burden, and cross-border collaboration is rare. While US angels invest coast-to-coast, European capital sticks within national borders. The results: stifled momentum, unrealized potential, and an artificial limit on our startups' chances of success.

Despite these challenges, Europe stands at the threshold of an exciting future. We're outflanking the US in new tech founders. We're a global leader in climate tech investment. Our deep tech scene is thriving, and European startups

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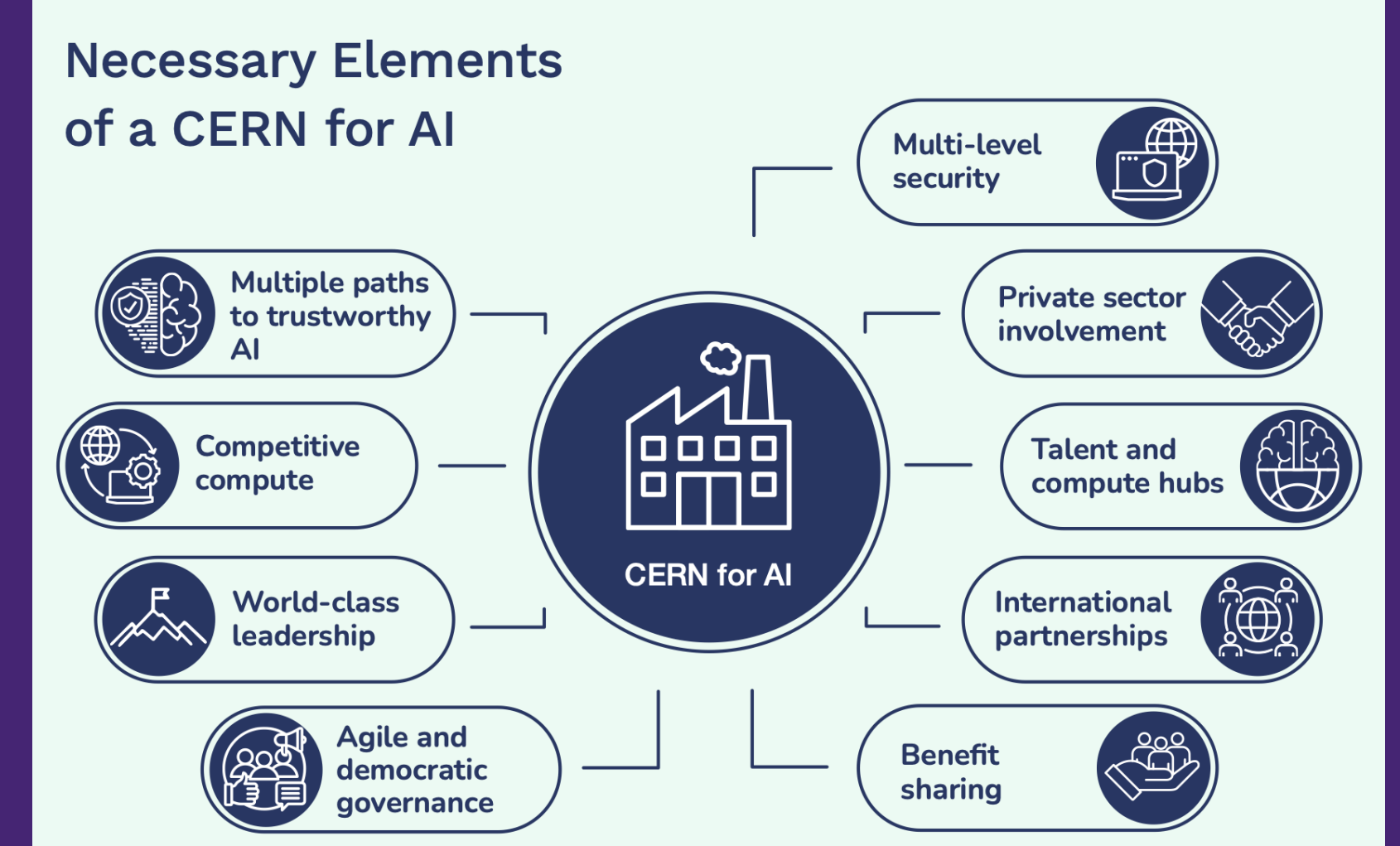
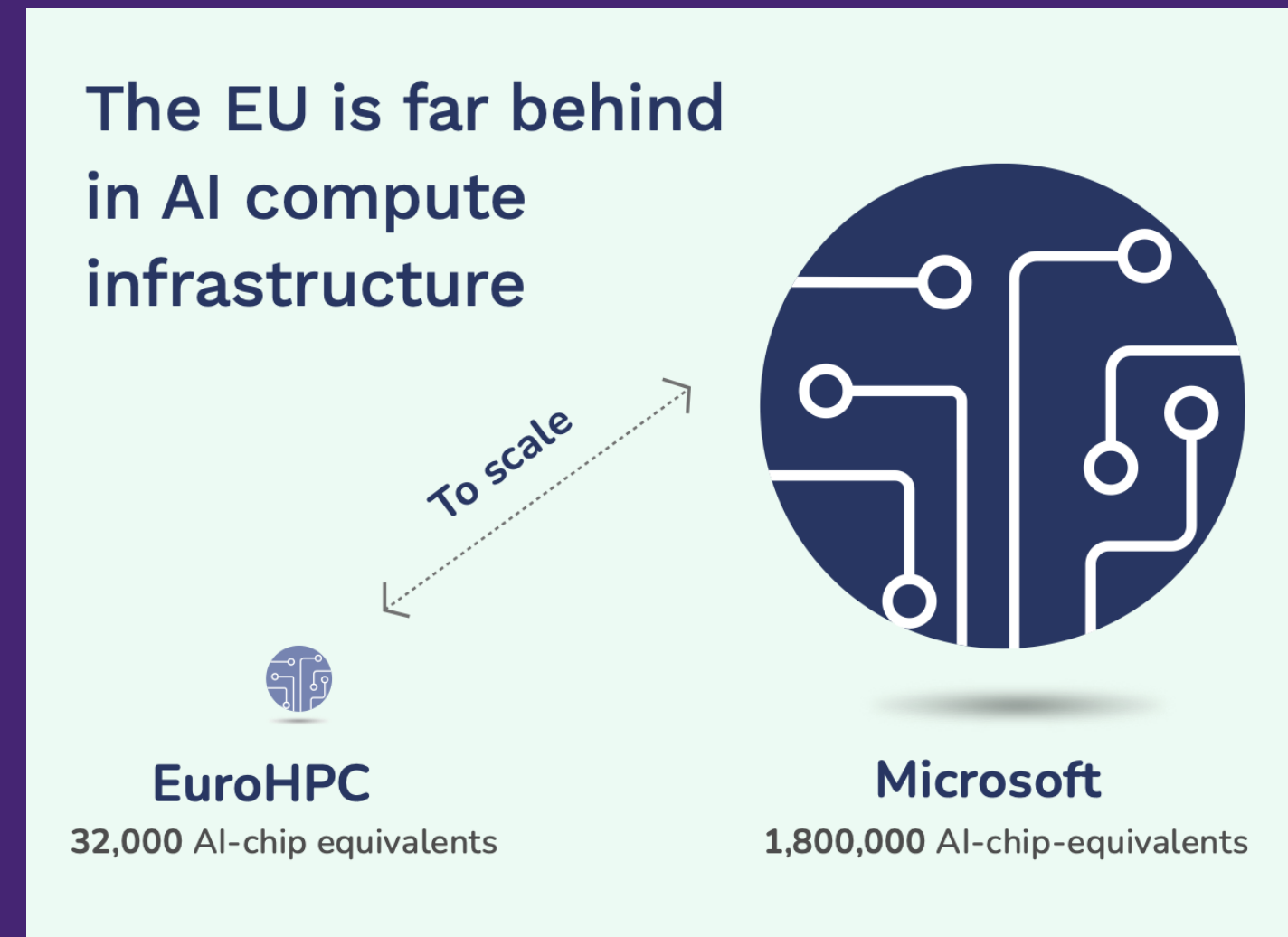
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# BUILDING AN AI POSITION IN EUROPE

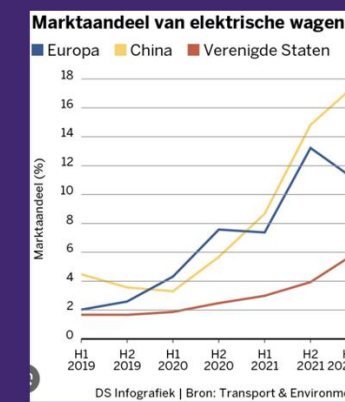
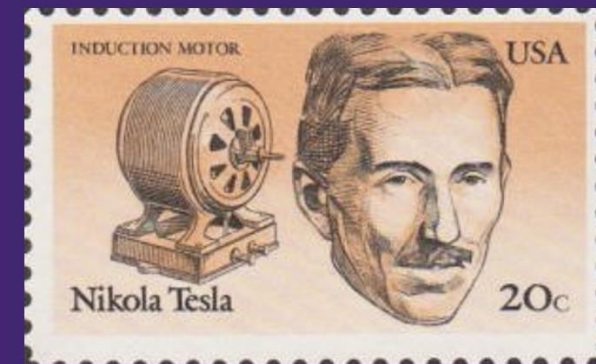
- TALENT
- TECHNOLOGY
- DATA
- **INFRASTRUCTURE**
- FINANCING
- MARKET
- REGULATION



# BUILDING AN AI POSITION IN EUROPE

- TALENT
- TECHNOLOGY
- DATA
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RESEARCH - INNOVATION - TRANSITION



## FINANCING RESEARCH

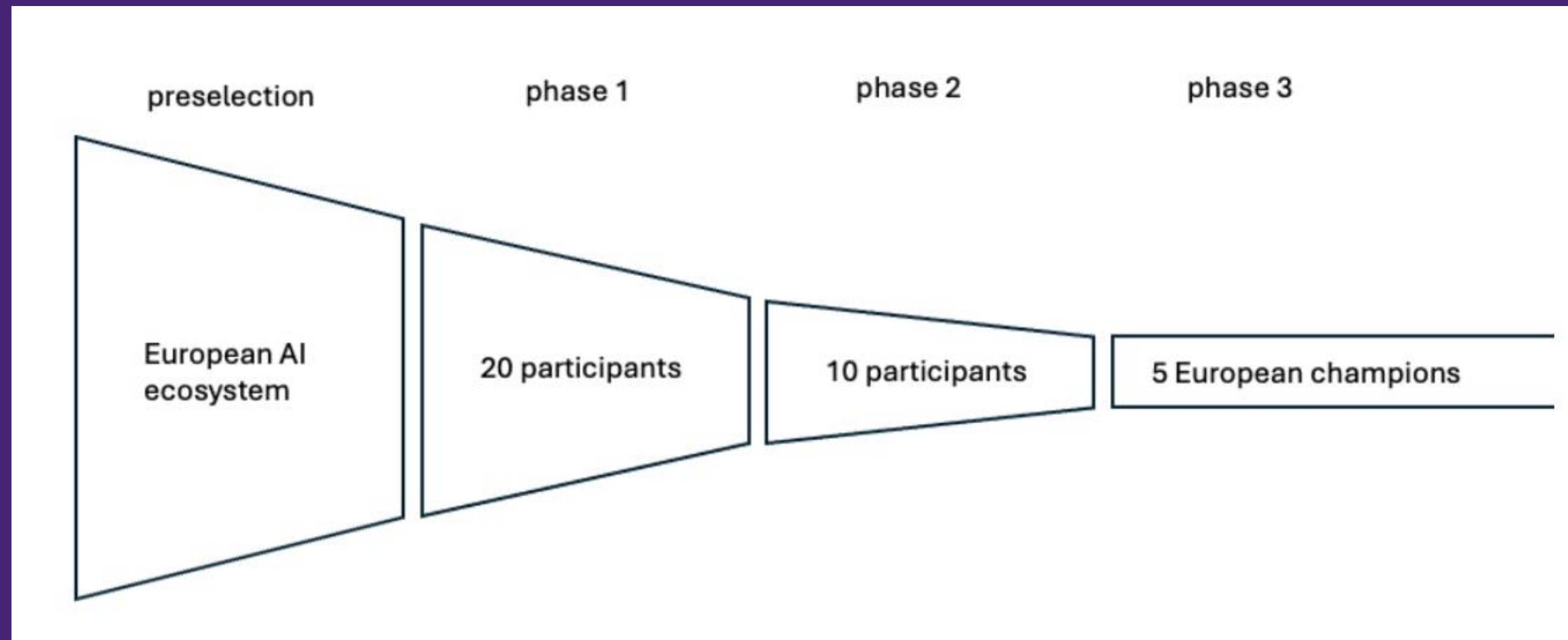
- FUNDING A PLAN
- A CREDIBLE CONSORTIUM
- KNOWLEDGE
- GRANT BASED

## FINANCING INNOVATION

- REWARDING AN ACHIEVEMENT
- A WINNING TEAM
- TECHNOLOGY
- CHALLENGE BASED



# A EUROPEAN CHALLENGE FOR FOUNDATION MODELS



**STAGE GATED**

**PUBLIC / PRIVATE INVESTMENT MIX**

**RATIO PUBLIC / PRIVATE SHRINKS PER STAGE**

**INVESTMENT TIMES FIVE AT EACH STAGE**



# BUILDING AN AI POSITION IN EUROPE

From common interests to common goals

Mobilise our diverse community behind these common goals

NONE OF US IS AS  
SMART AS **ALL OF US**

IF YOU WANT TO GO  
**GO FAST ALONE**

---

IF YOU WANT TO GO  
**GO FAR TOGETHER**



## IN SUMMARY

We have the talent ...

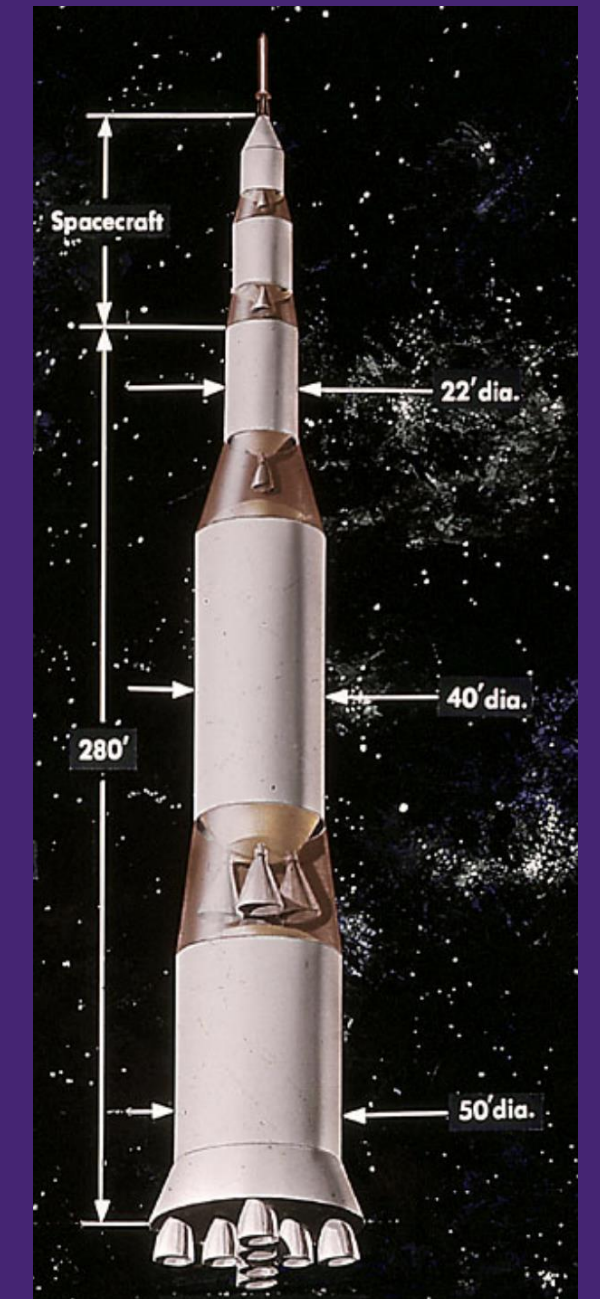
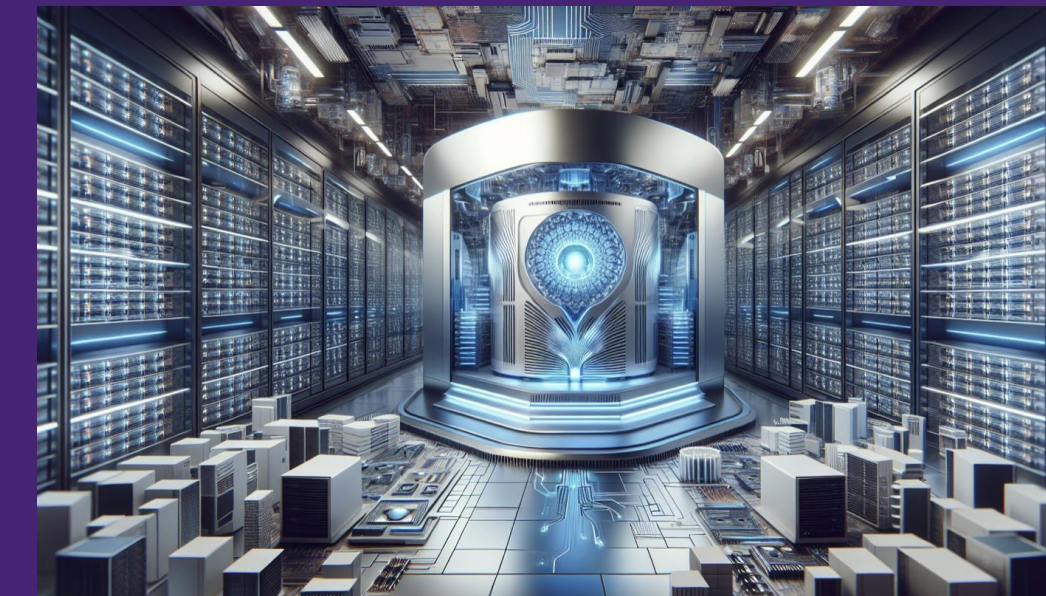
We master the technology ...

But we need to

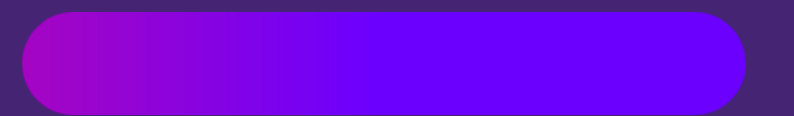
1/ unite the EU AI ecosystems

2/ build a EU AI infrastructure

3/ orchestrate the EU AI investment booster



One more thing...







## I ASKED CHATGPT:

The benefits of playing accordion while riding a motorcycle



**Alain Mecherkani**  
Marketing Specialist  
& Computer Engineer





## I ASKED CHATGPT:

The benefits of playing accordion while riding a motorcycle



**Alain Mecherkani**  
Marketing Specialist  
& Computer Engineer



The accordion is a unique and versatile instrument that has been enjoyed by people all over the world for centuries. Not only is it a joy to listen to, but it can also provide numerous benefits to those who play it. One potentially unexpected activity that can be enhanced by the accordion is motorcycle riding.

One benefit of playing the accordion while riding a motorcycle is that it can help to improve coordination and hand-eye coordination. The accordion requires precise hand movements and finger dexterity, which can be challenging to master. By practicing the accordion while riding a motorcycle, individuals can improve their coordination and concentration skills, as well as their ability to multitask.

In addition to the physical benefits, playing the accordion while riding a motorcycle can also provide a sense of relaxation and stress relief. The soothing melodies and rhythmic melodies of the accordion can help to calm the mind and provide a sense of peace, which can be especially beneficial during a long motorcycle ride.

Another benefit of playing the accordion while riding a motorcycle is that

In conclusion, playing the accordion while riding a motorcycle can provide numerous benefits, including improved coordination and hand-eye coordination, stress relief, a fun activity to pass the time, and an opportunity to connect with other musicians. So next time you hit the open road on your motorcycle, consider bringing along your accordion and enjoying the many benefits it has to offer.

and enjoying the many benefits it has to offer.

# GENERATIVE AI DOESN'T CHANGE OLD WISDOM



# GENERATIVE AI DOESN'T CHANGE OLD WISDOM

*ASK THE RIGHT QUESTION*

*FACT CHECK THE ANSWER*

