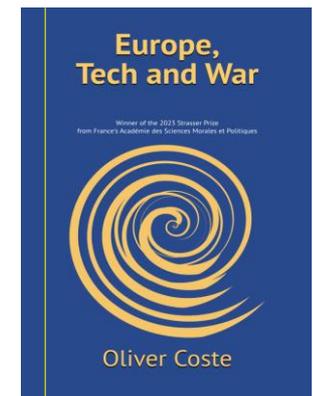
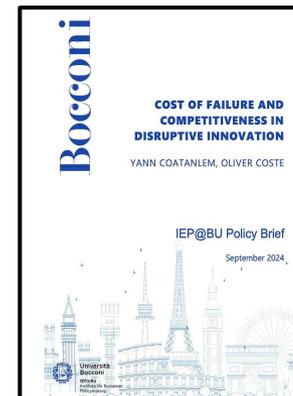

Europe's Innovation Deficit: Is it real, and what can be done about it?

17th Digital Economics Conference
Toulouse School of Economics

Oliver Coste

EuropeTechandWar.com

9 January 2025



Agenda

A: Disruptive Innovation

B: Cost of Failure

C: Profitability of tech investment

D: The Usual Suspects

E: Solutions within the European social model

F: Academic Literature



Mario Draghi on 9/9/24:

“EU companies face higher restructuring costs compared to their US peers, which places them in a position of huge disadvantage in highly innovative sectors”

Innovation: Incremental vs Disruptive



ChatGPT

Incremental
innovation

Disruptive
innovation



20%
of Projects Fail

80%
of Projects Fail

Cost of Failure: Europe vs Rest of the World



2 to 6 months
of compensation

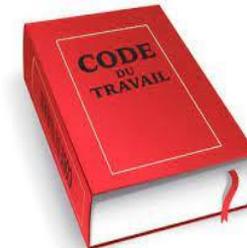
Low cost of failure

x10

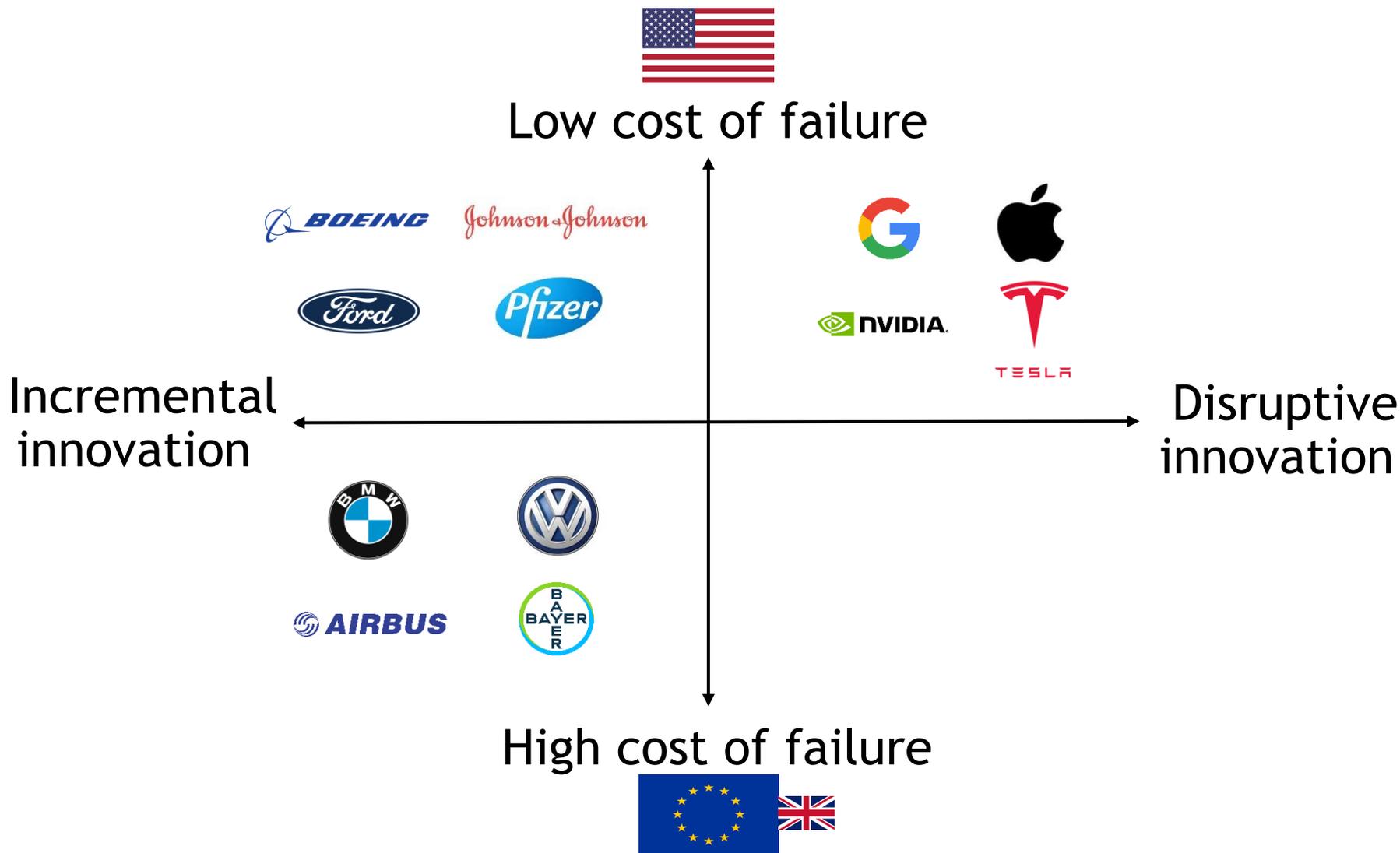
- Total Costs of Failure include:
- Operational losses during social negotiation
 - Severance pay
 - Training, Reindustrialization...

24 to 48 months
of compensation

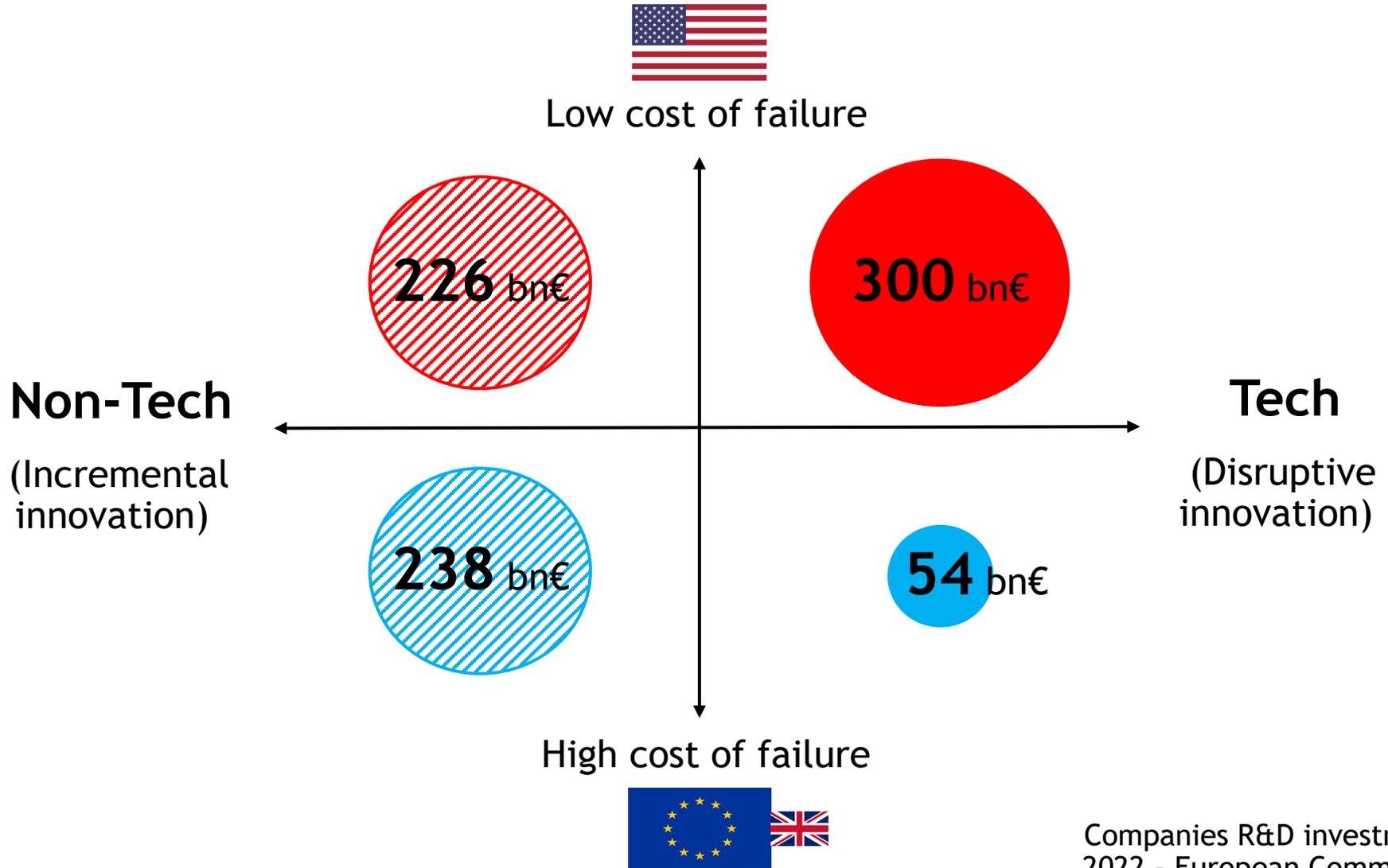
High cost of failure



Europe: no leader in disruptive innovation



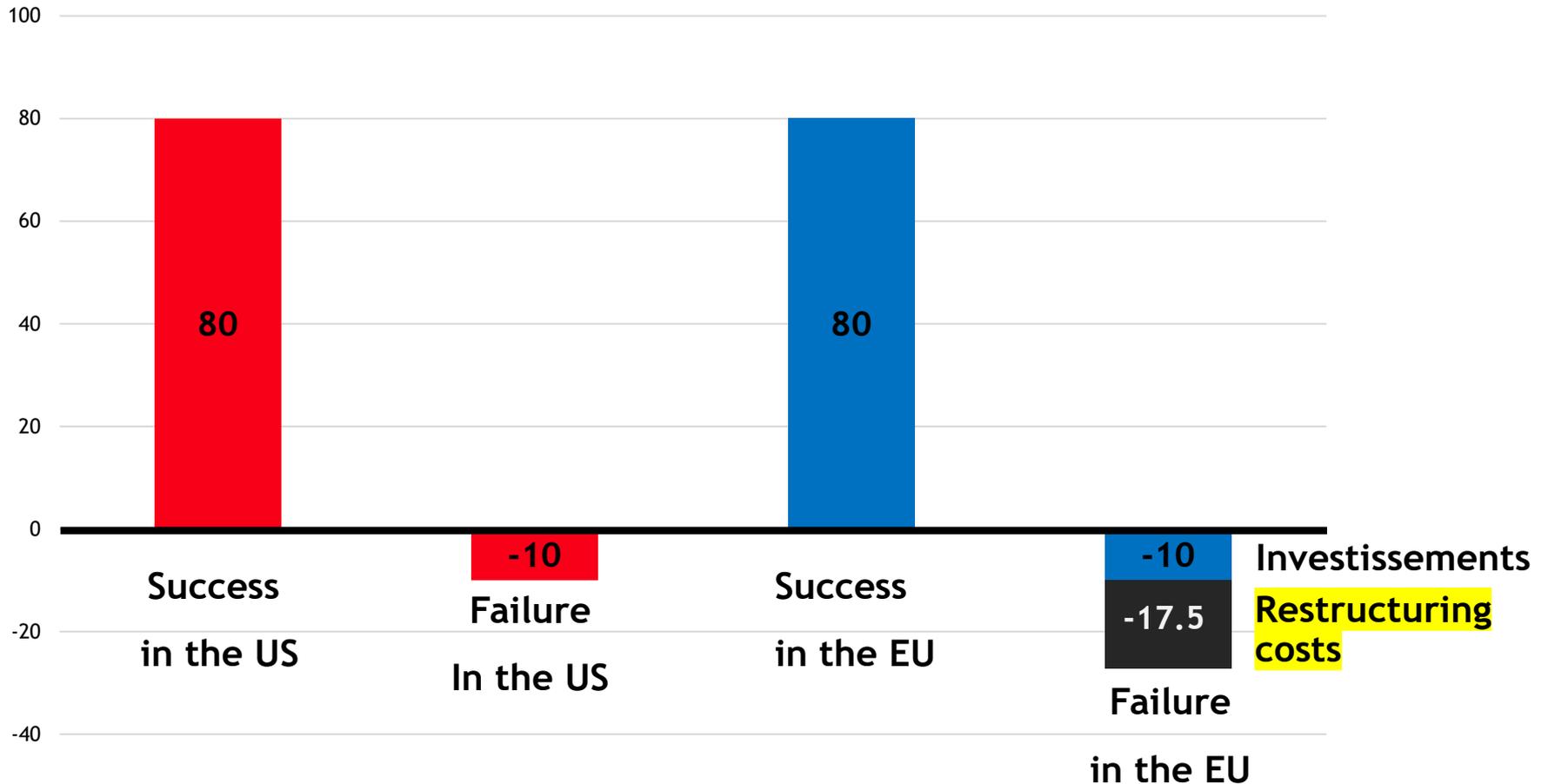
Innovation in Europe: poor R&D in tech only



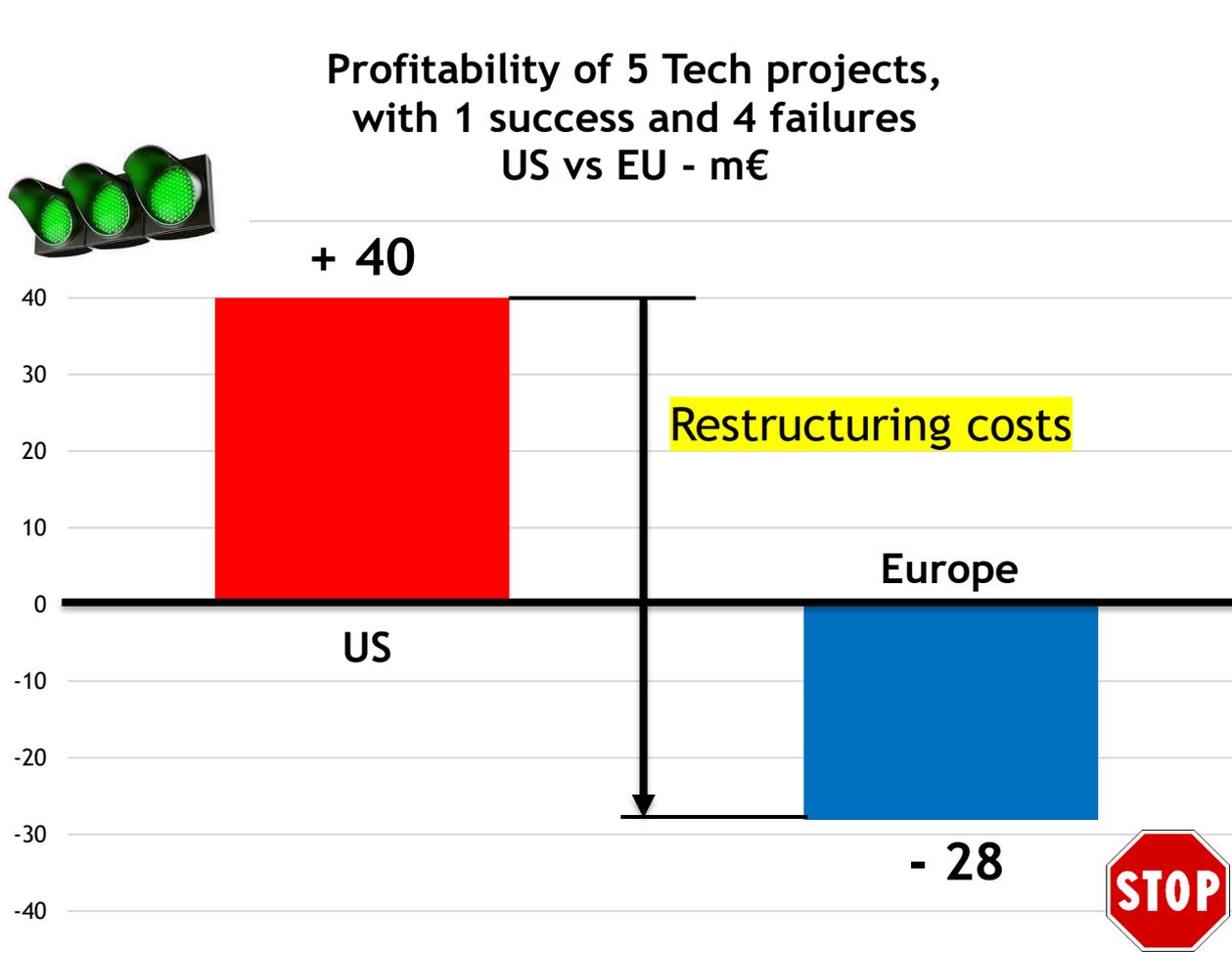
Companies R&D investments
2022 - European Commission

One tech project in large groups

Valuation of success or failure
of an innovative project - US vs EU - m€

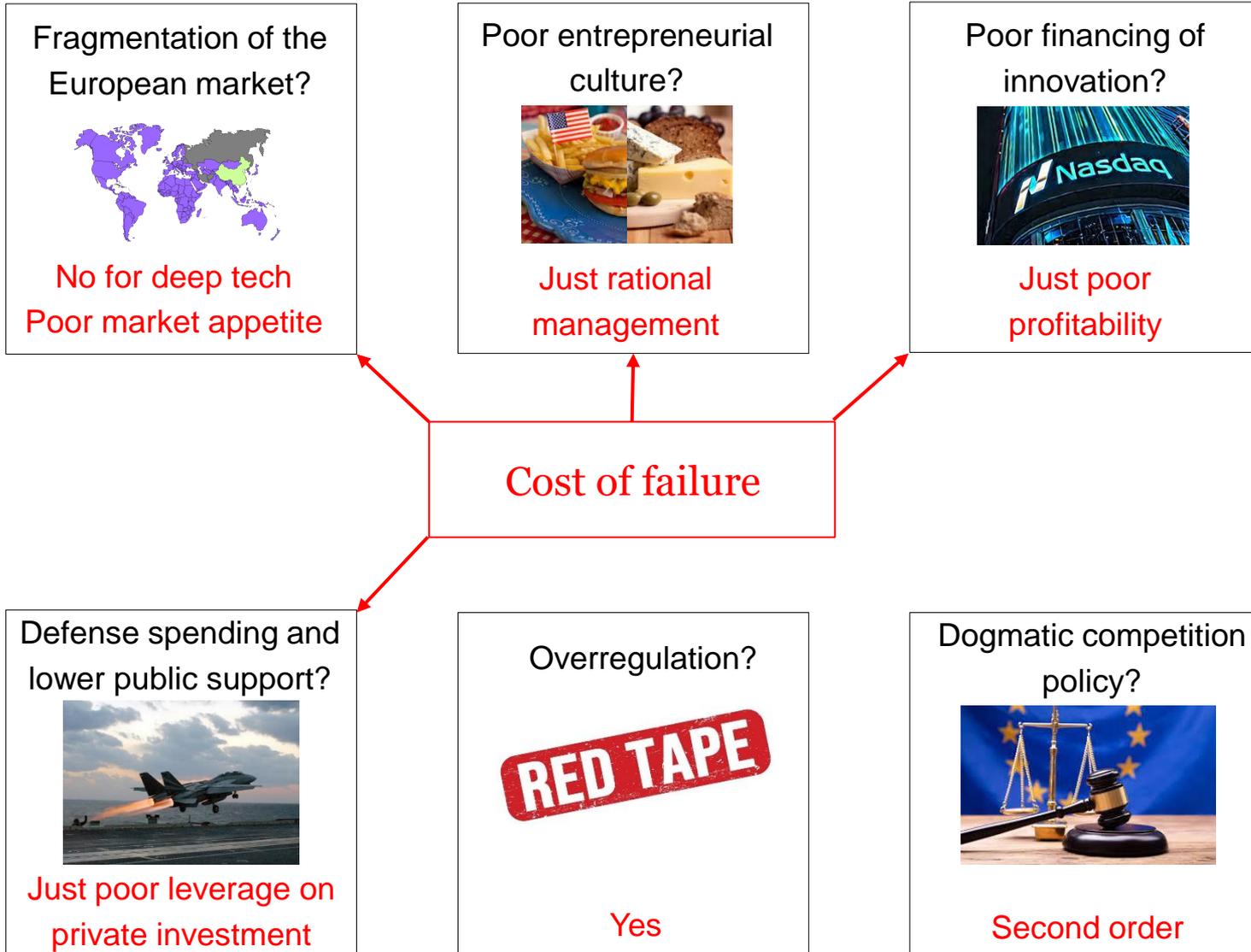


Five tech projects in large groups, with 4 failures



High Failure Rate
x
High Cost of Failure
=
No profitability
=
No investment

Causes for Innovation Deficit: the Usual Suspects

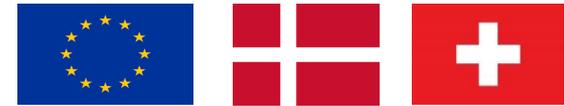


Proposal within the European social model

=> Flexicurity above ~50k euros / year (top 5% to 10%)

Only highly educated and well-paid employees

Reconciling Social Equity and Economic Efficiency



Allowing the scaling up from startups to world leaders

Trigger R&D investments in x100 bn / year

No additional public spending - Increase tax revenues



But: need for solid documentation and preparation of public opinions

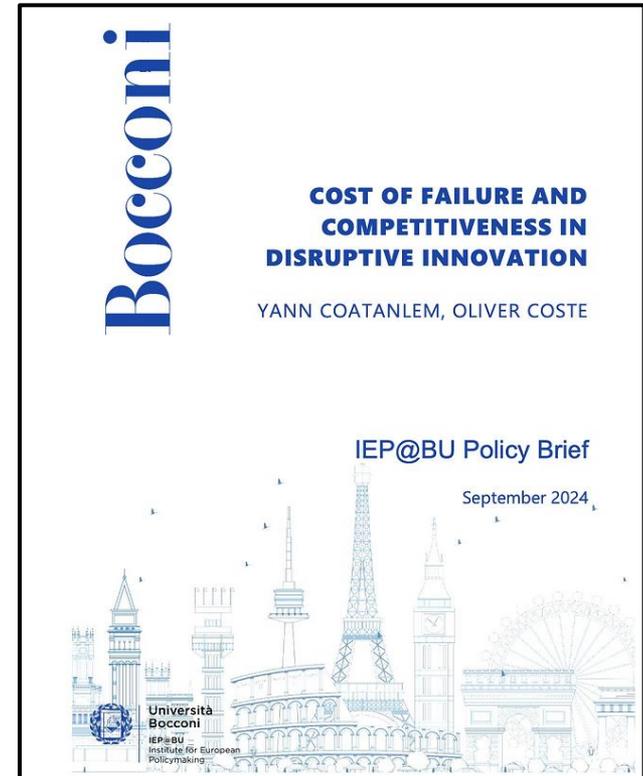
Academic Literature

Many Academic Papers Confirm that EPL is a First Order Factor in Europe's Lack of Investment in Disruptive Innovation (although usually based on Limited EPL Information, such as OECD High Level Indicators), in particular:

- Bartelsman, E., Gautier, P., & Wind, J. D. (2016). Employment Protection, Technology Choice, and Worker Allocation. *International Economic Review*.
- Berdugo, B., & Hadad, S. (2008). How Do Firing Costs Affect Innovation and Growth When Workers' Ability Is Unknown? Employment Protection as a Burden on a Firm's Screening Process. *The European Journal of Comparative Economics*.
- Bozkaya, A., & Kerr, W. (2014). Labor Regulations and European Venture Capital. *Journal of Economics & Management Strategy*.
- Cette, G., & Lopez, J. (2018). Employment Protection Legislation Impacts on Capital and Skills Composition. *Economie and Statistics, INSEE*.
- Griffith, R., & Macartney, G. (2014). Employment Protection Legislation, Multinational Firms, and Innovation. *The Review of Economics and Statistics*.
- McGowan, M. A., Andrews, D., Criscuolo, C., & Nicoletti, G. (2015). *The Future of Productivity. OECD (Section 4.3)*
- Saint-Paul, G. (2002). Employment protection, international specialization, and innovation. *European Economic Review*, 375-395.
- Samaniego, R. (2006). Employment protection and high-tech aversion. *Review of Economic Dynamics*, 224-241.

Question: How do we Confirm our Diagnosis on a Large Scale, so that we can move to a more operational stage?

The Goal is to Compare Restructuring Costs to Average Compensation and to Document Homogeneously Cost of Failure in Terms of Months of Employee Compensation



Thank you!

EuropeTechandWar.com

Publications



Contributions & Mentions



Press (Selection)



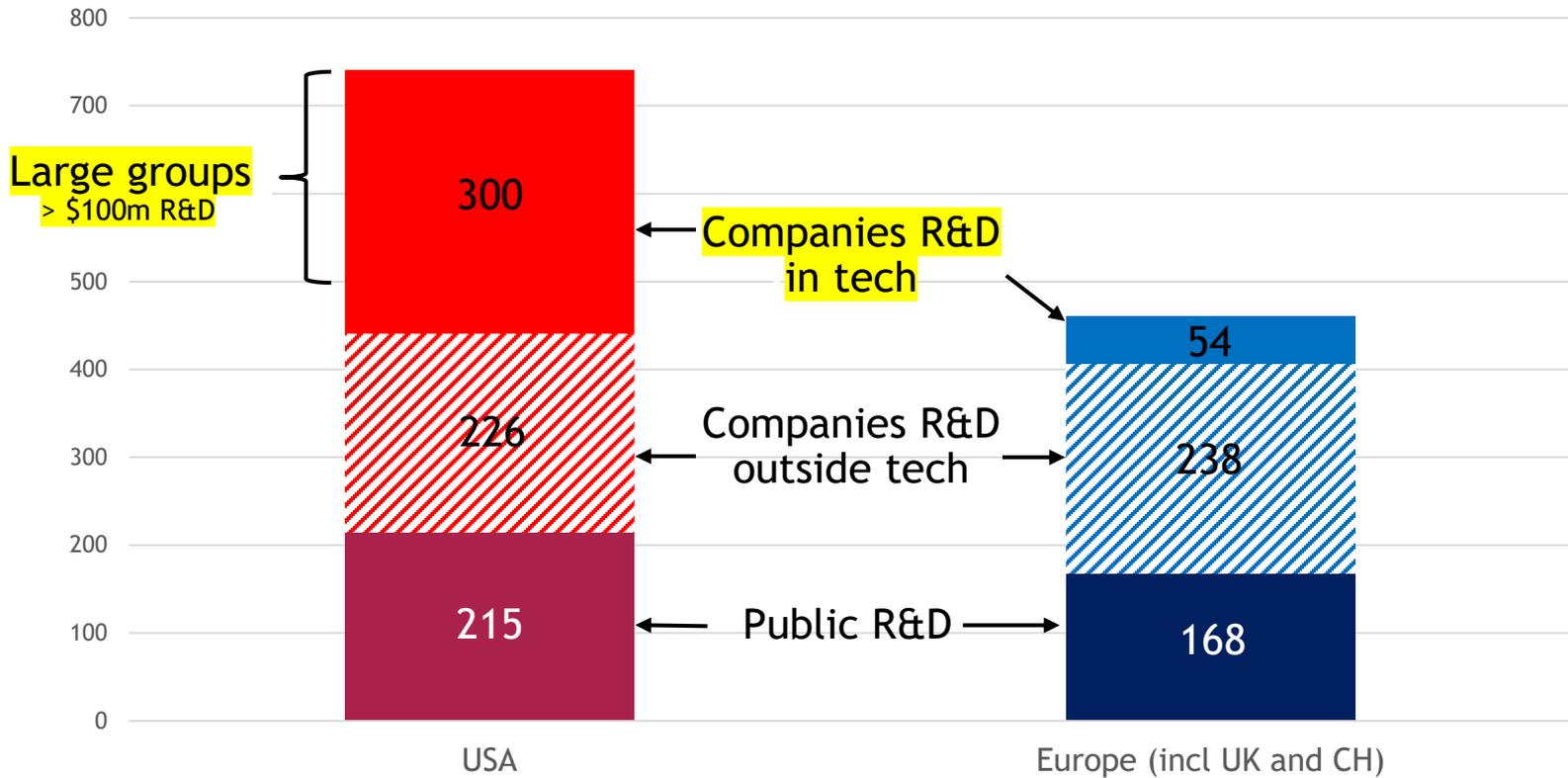
FT on 9/24/24: "A paper by Oliver Coste and Yann Coatanlem, published by Bocconi University in Milan, makes another important and still broader point about regulation: new and dynamic companies have to be able to adjust their costs quickly in the light of market developments."

Backup

A. Europe's R&D gap is in tech



R&D per continent - 2022
Sources: OECD and European Commission



B: Tech experiences – large groups



Fixed to Mobile



Data Centers to Cloud



Metaverse to AI



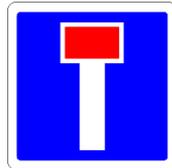
B. Tech experiences – startup companies

Clients



“Is it proven in the US?”

No hiring



Clients



“Let’s try!”

Hiring dedicated teams



Restructuring costs 10x higher in Europe

Restructuring Costs includes severance pay, operational losses during negotiation, training, re-industrialization – in months of compensation



NOKIA



Cost: 18 to 49 months
in Europe

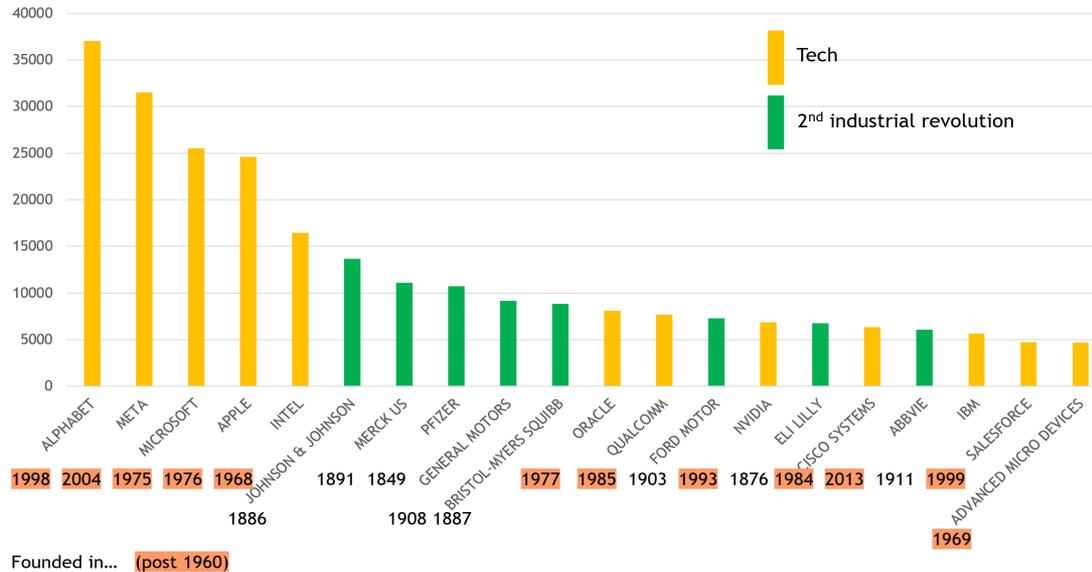
Cost: 3 to 7 months
in the U.S.

X 10

Source: Provisions for restructuring in public announcements and in financial reports, with assumptions on Europe's share of the workforce

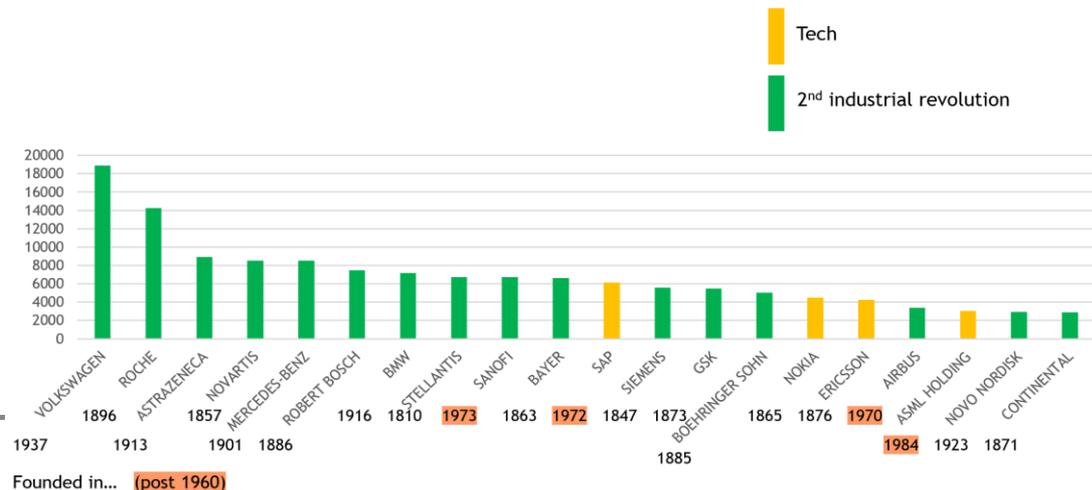
C. Impact : specialization of continents

USA - Leading investors in R&D
European Commission - meuros - 2022



Tech

Europe - Leading investors in R&D
European Commission - meuros - 2022



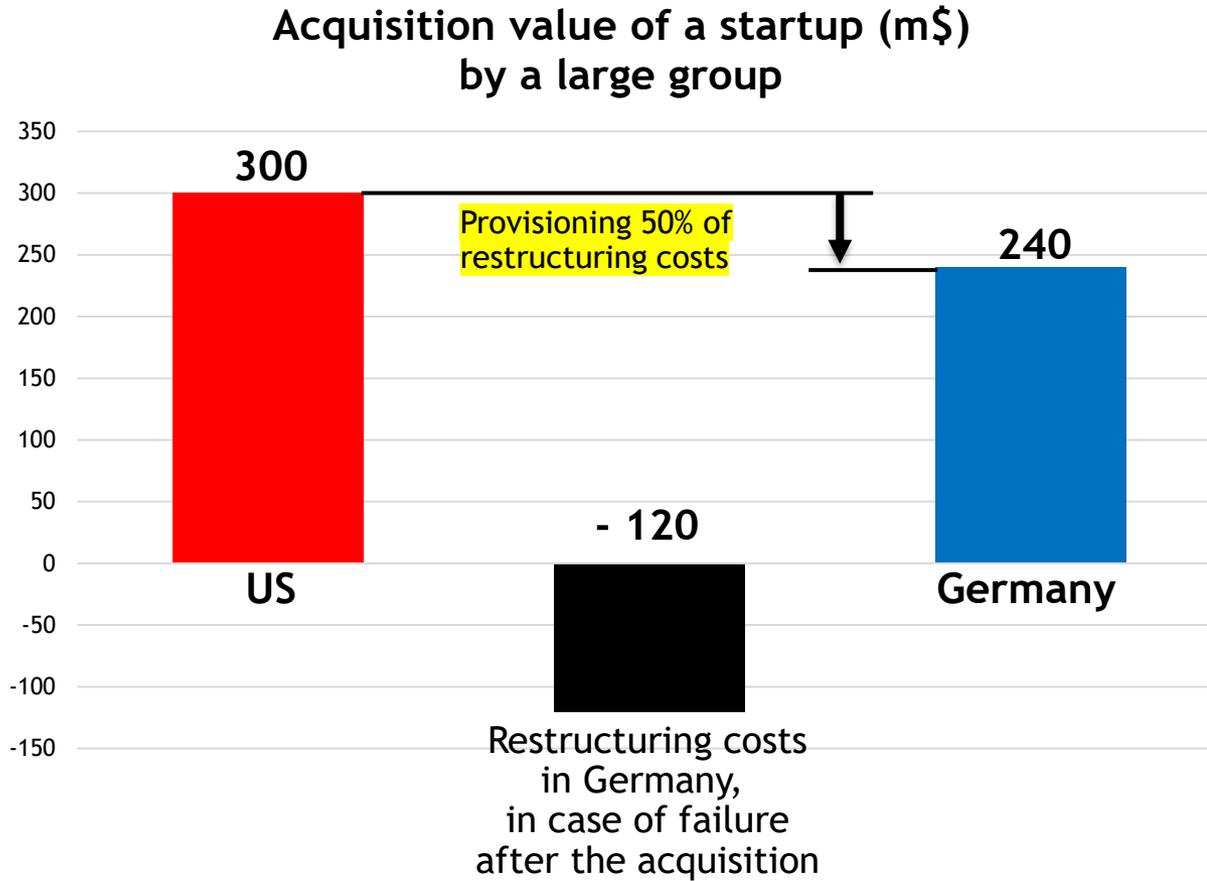
Automotive

Chemicals / Pharma

Aeronautics

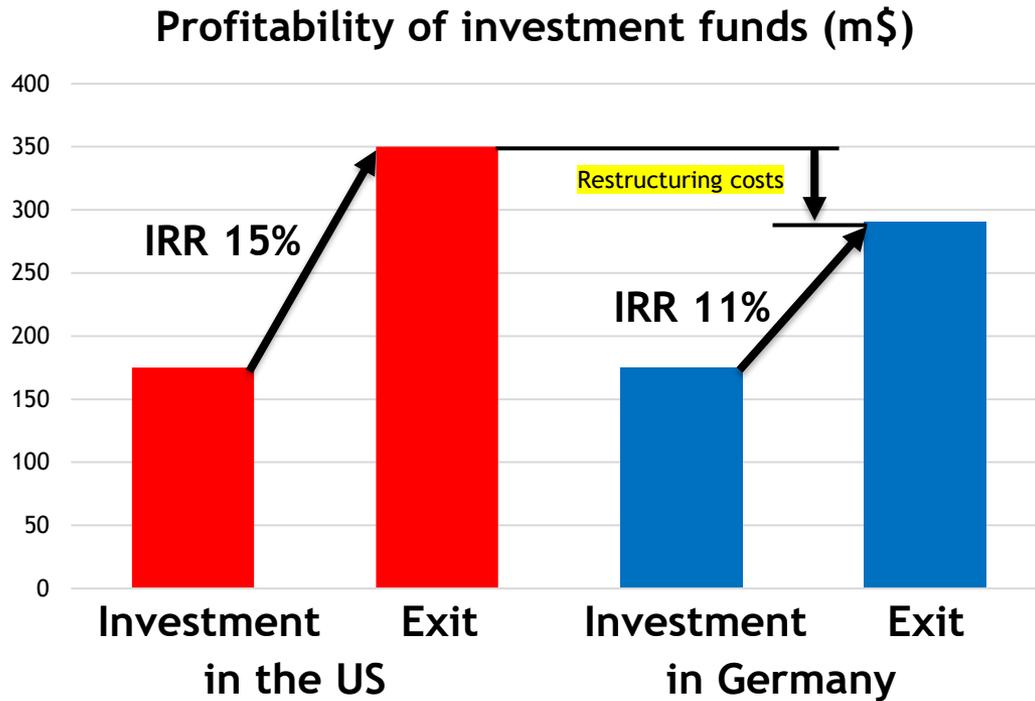
Energy

D: VC funds - cost of failure and exit strategy



Potential restructuring costs in case of failure have an impact on acquisition prices by large groups, therefore on exit prices for VC funds.

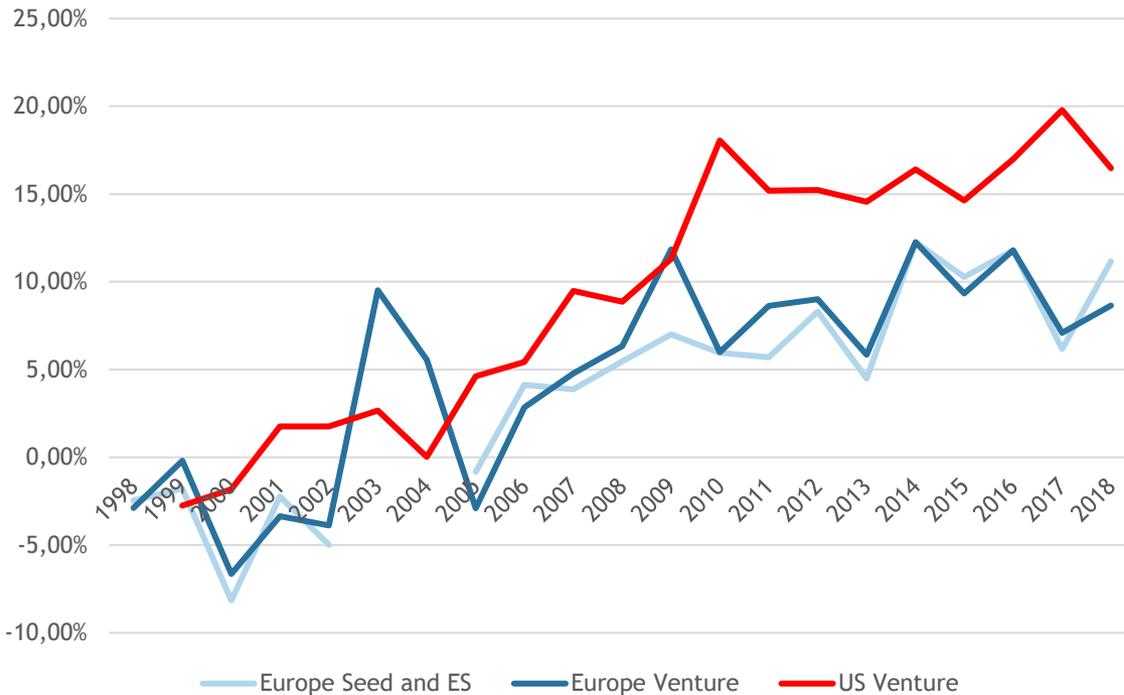
D: VC funds - lower profitability in Europe



Predicted Gap due to cost of failure:
4 points of IRR

D: VC funds median IRR

Median IRR since inception by vintage year

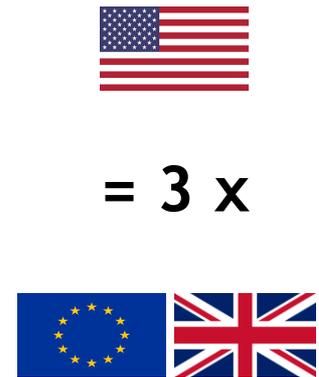
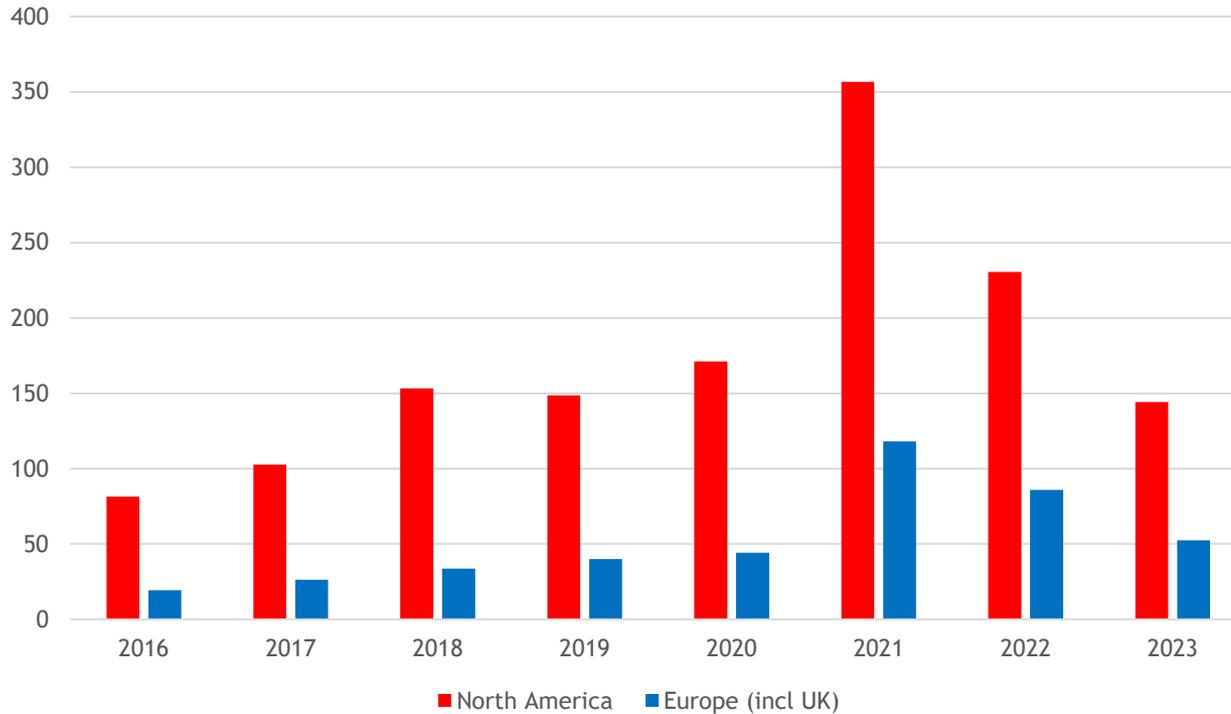


Measured Gap
1998 - 2018:
5 points of IRR

IRR: Internal Rate of Return since inception per vintage year as per Pevara for European funds (800 funds) and Cambridge Associates for US funds (2500 funds)

D: VC Funds investments: US = 3 x Europe

Investments in startups
Crunchbase - \$ bn



A. ECB: declining relative productivity since 1995

Euro area started to lose competitiveness at the turn of the millennium

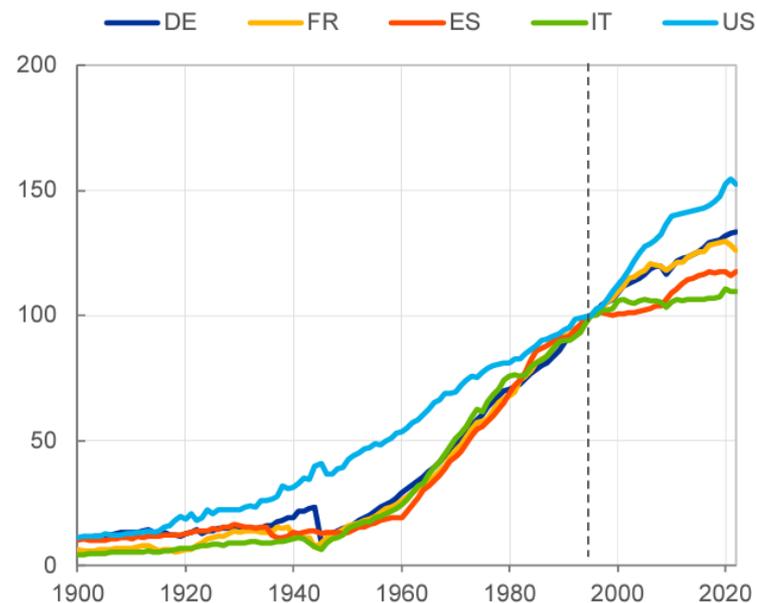
Long-term developments in productivity per hour worked

Ratio of EA-4 to US



Source: Long-Term Productivity Database and ECB calculations.
Notes: EA-4 is a weighted average of productivity developments in Germany, France, Italy and Spain.

Index: 1995 = 100



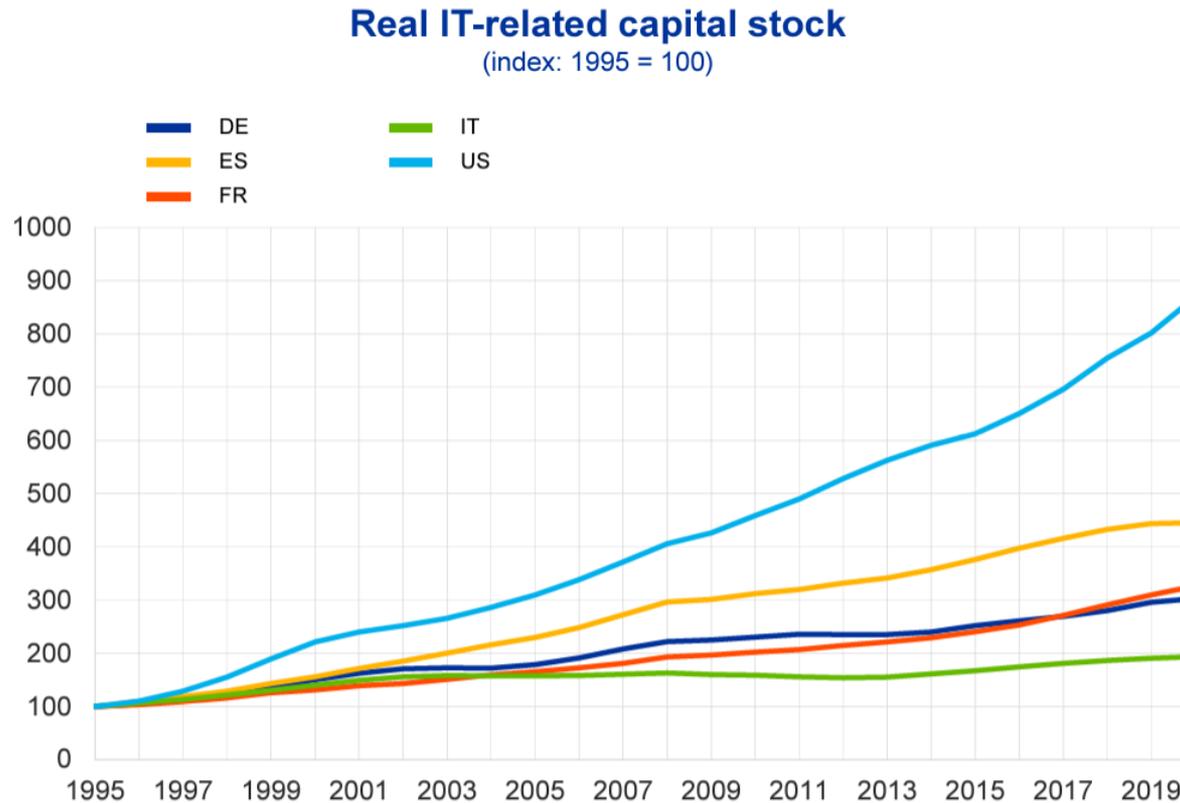
Source: Long-Term Productivity Database and ECB calculations.

16 February 2024

Isabel Schnabel, Member of the Executive Board of the ECB
Inauguration lecture, EMU Lab, European University Institute

A. ECB: the root cause is in poor Tech investment

Rising gap in IT-related capital stock between euro area and United States



Source: EUKLEMS.

Note: IT-related capital stock is the sum of computing equipment and computer software & databases for all NACE industries. See Schivardi, F. and Schmitz, T. (2020), "The IT Revolution and Southern Europe's Two Lost Decades", Journal of the European Economic Association, Vol. 18(5), pp. 2441–2486.

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16 February 2024

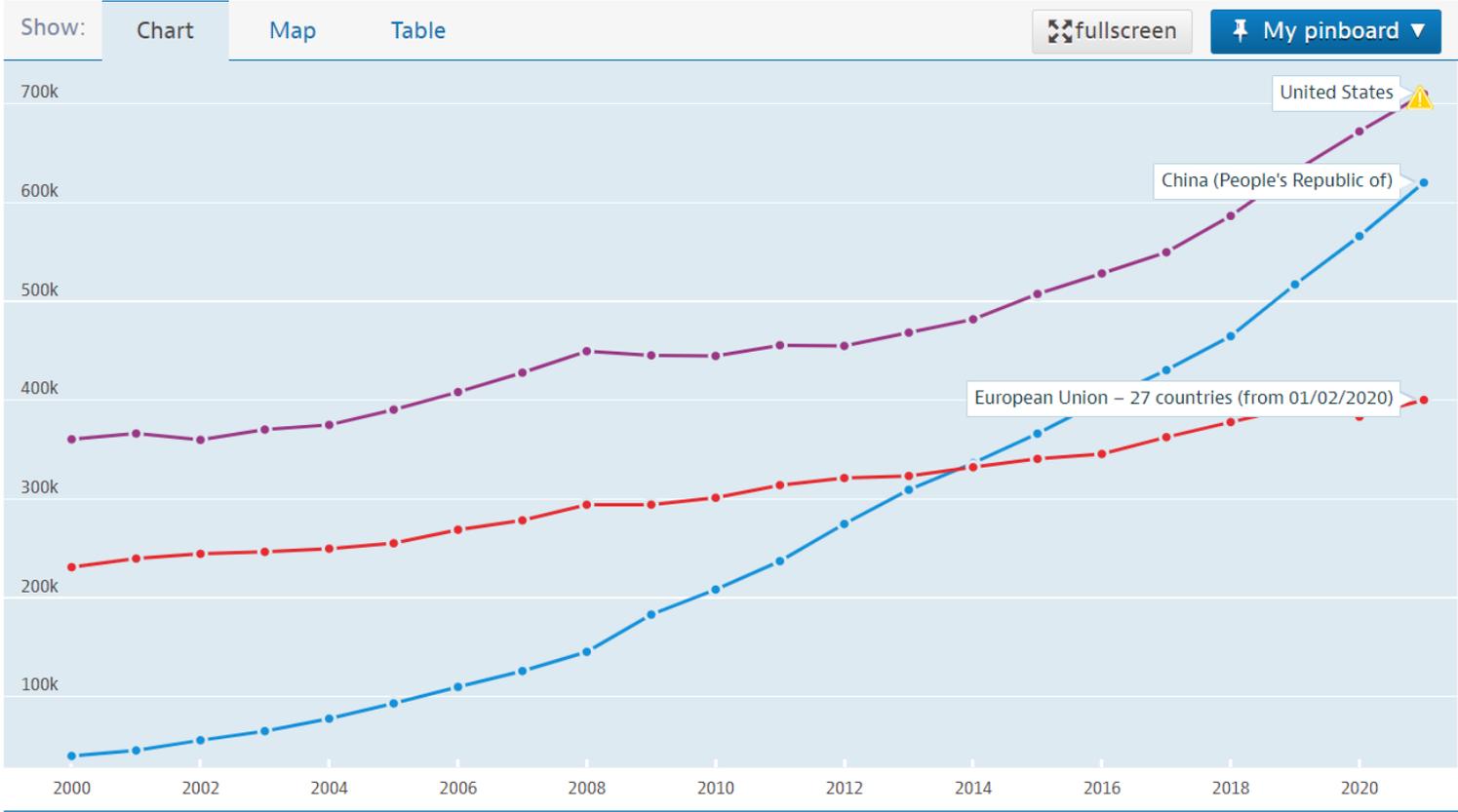
Isabel Schnabel, Member of the Executive Board of the ECB
Inauguration lecture, EMU Lab, European University Institute

www.ecb.europa.eu

A. Total R&D, governments and companies

Gross domestic spending on R&D Total, Million US dollars, 2000 – 2021

Source: Main Science and Technology Indicators



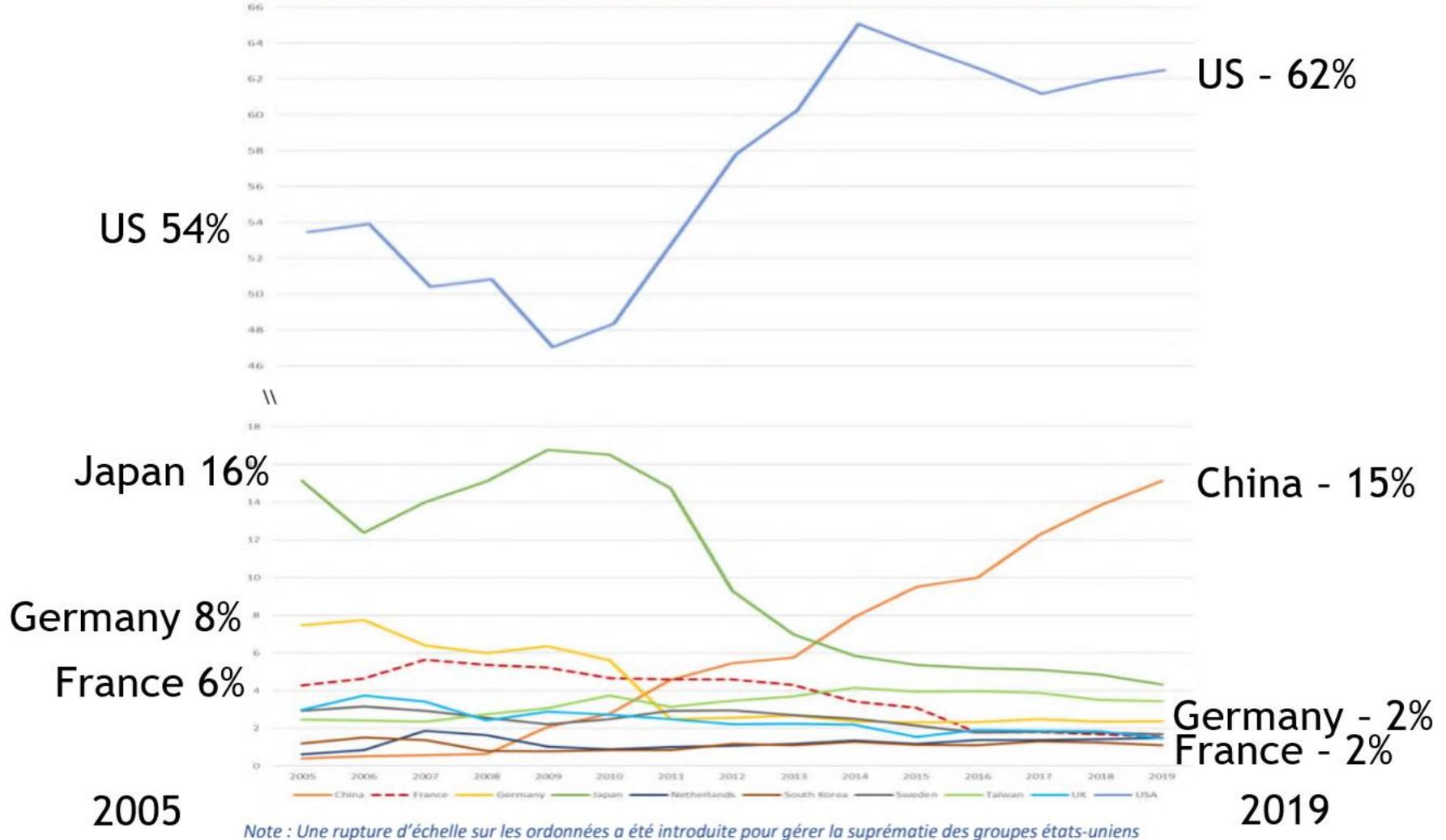
USA - \$710 bn

China - \$620 bn

EU - \$400 bn

A. R&D in tech: Europe's fall over 15 years

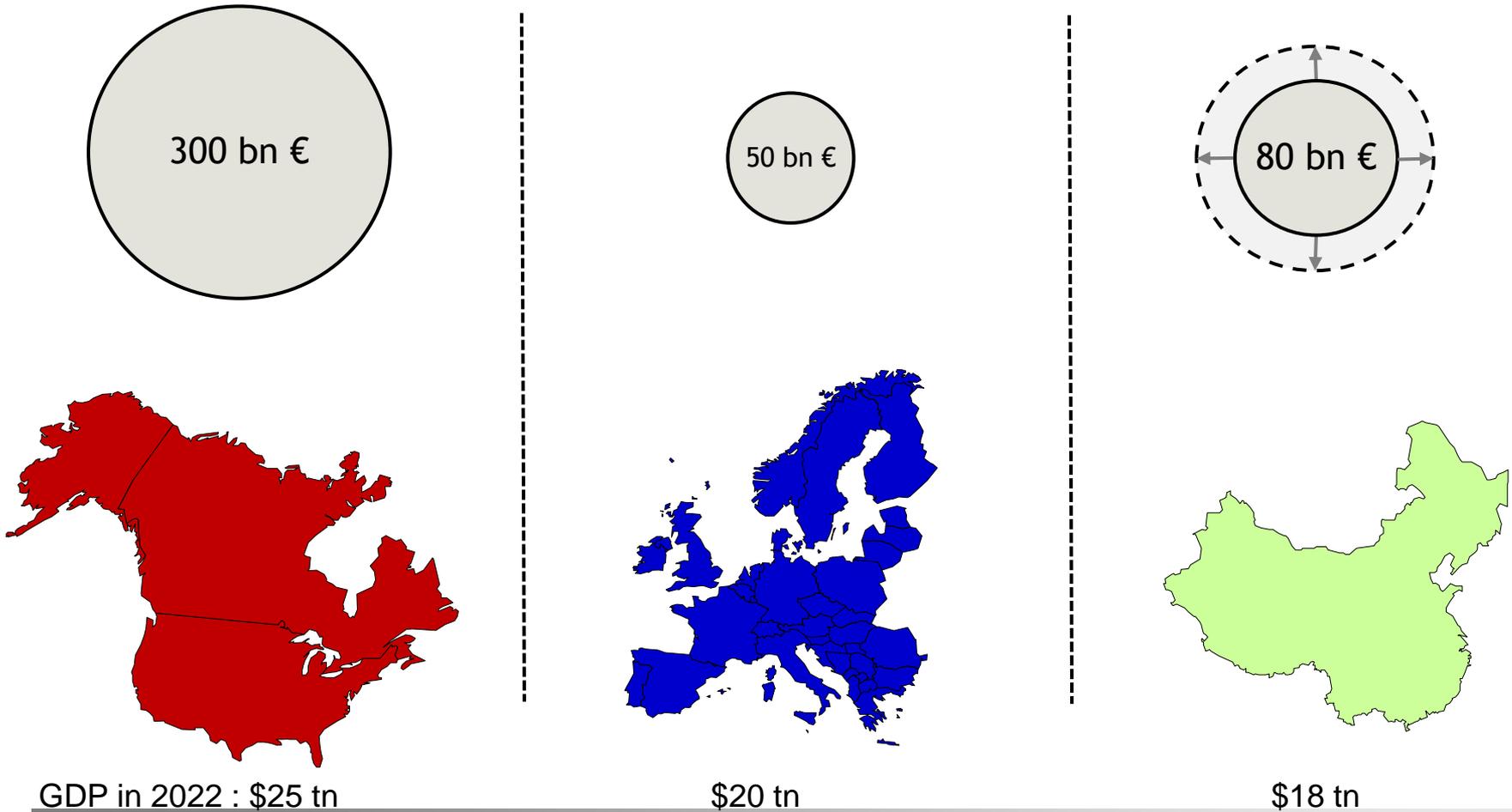
Figure 10 : Évolution du poids mondial des groupes dans le numérique, selon leur pays d'origine, en %



Europe is a laggard in tech

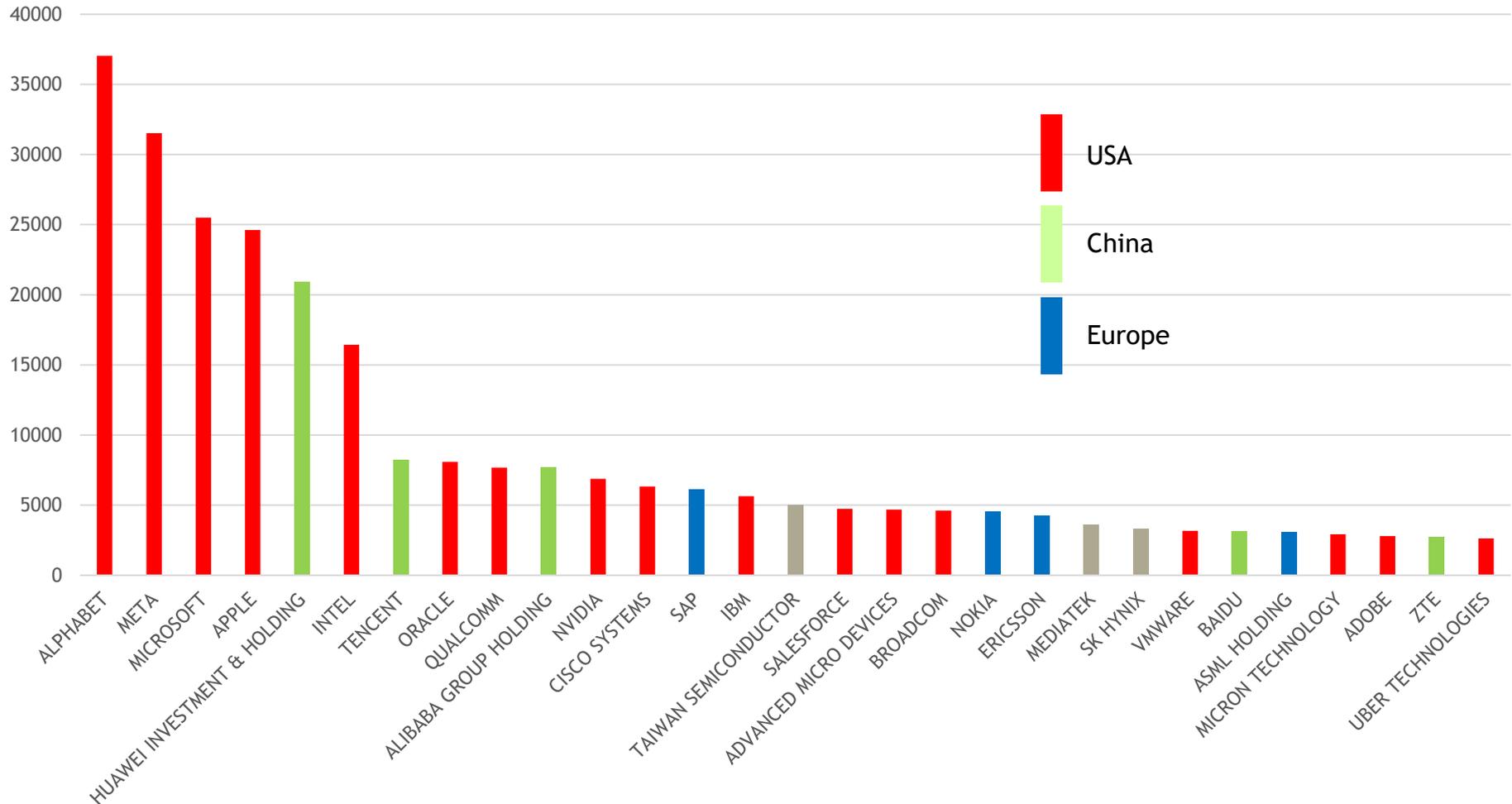
Tech R&D

2022 - European Commission



Tech leaders: Europe behind the USA and China

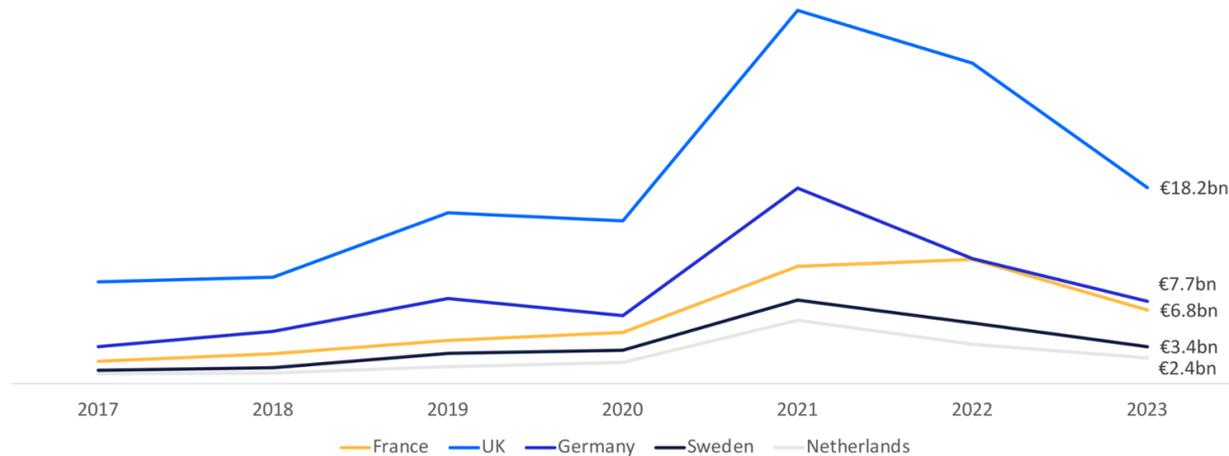
Leading tech investors - by R&D
2022 - bn euros - European Commission



Investments into startups in Europe

In 2023, the French Tech Ecosystem Did Not Manage to Maintain its Spot as Second European Hub. It's Now Behind Both the UK and Germany

Amount Raised Evolution (in €bn) in Major European Countries



UK Flag
= 3 x
Germany Flag, France Flag, Netherlands Flag

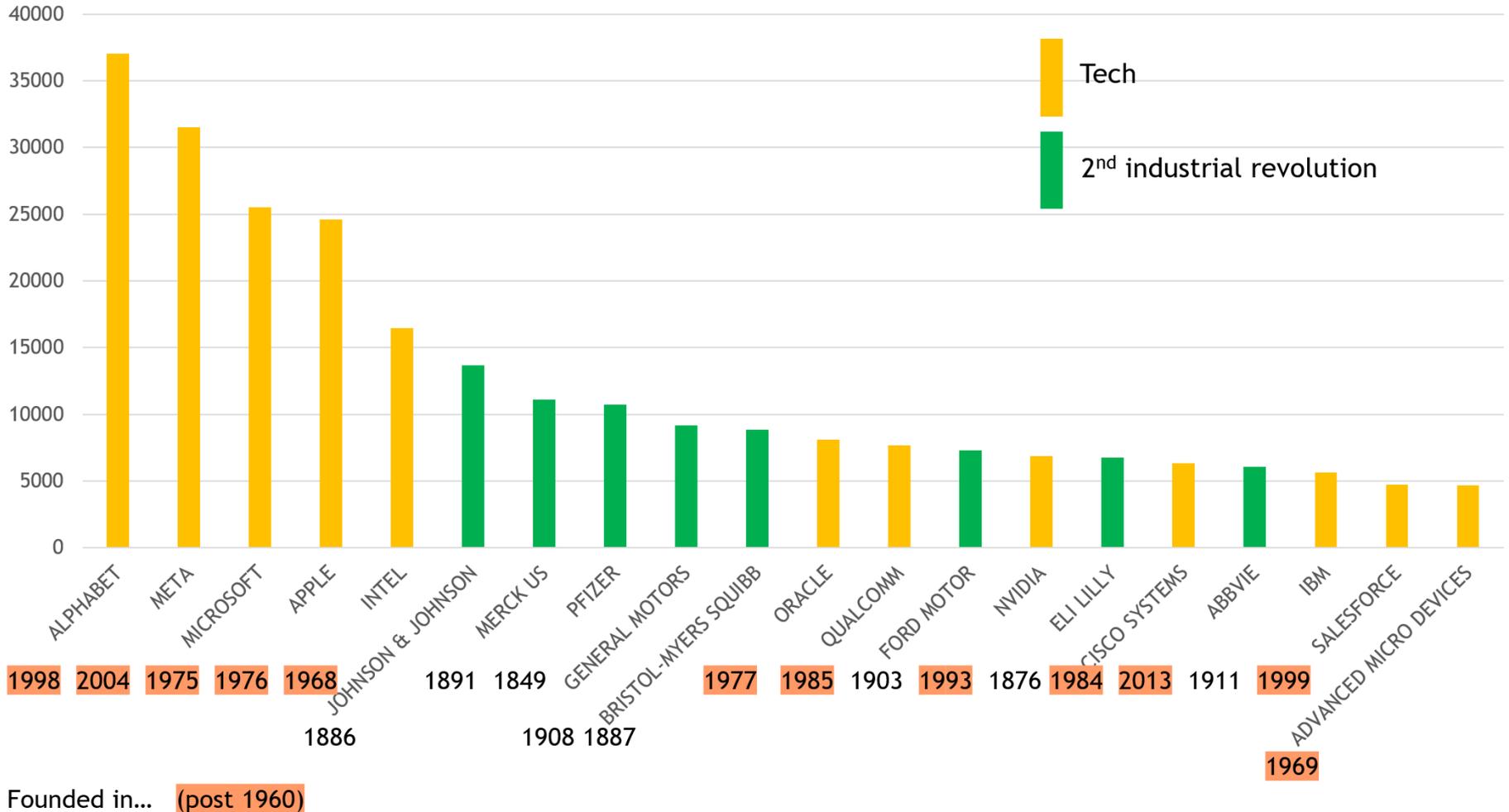
Source: Personal database aggregating data from Crunchbase, Dealroom & eCap.

Powered by Google Cloud &

Eurazeo, 2023 – the State of the French Ecosystem

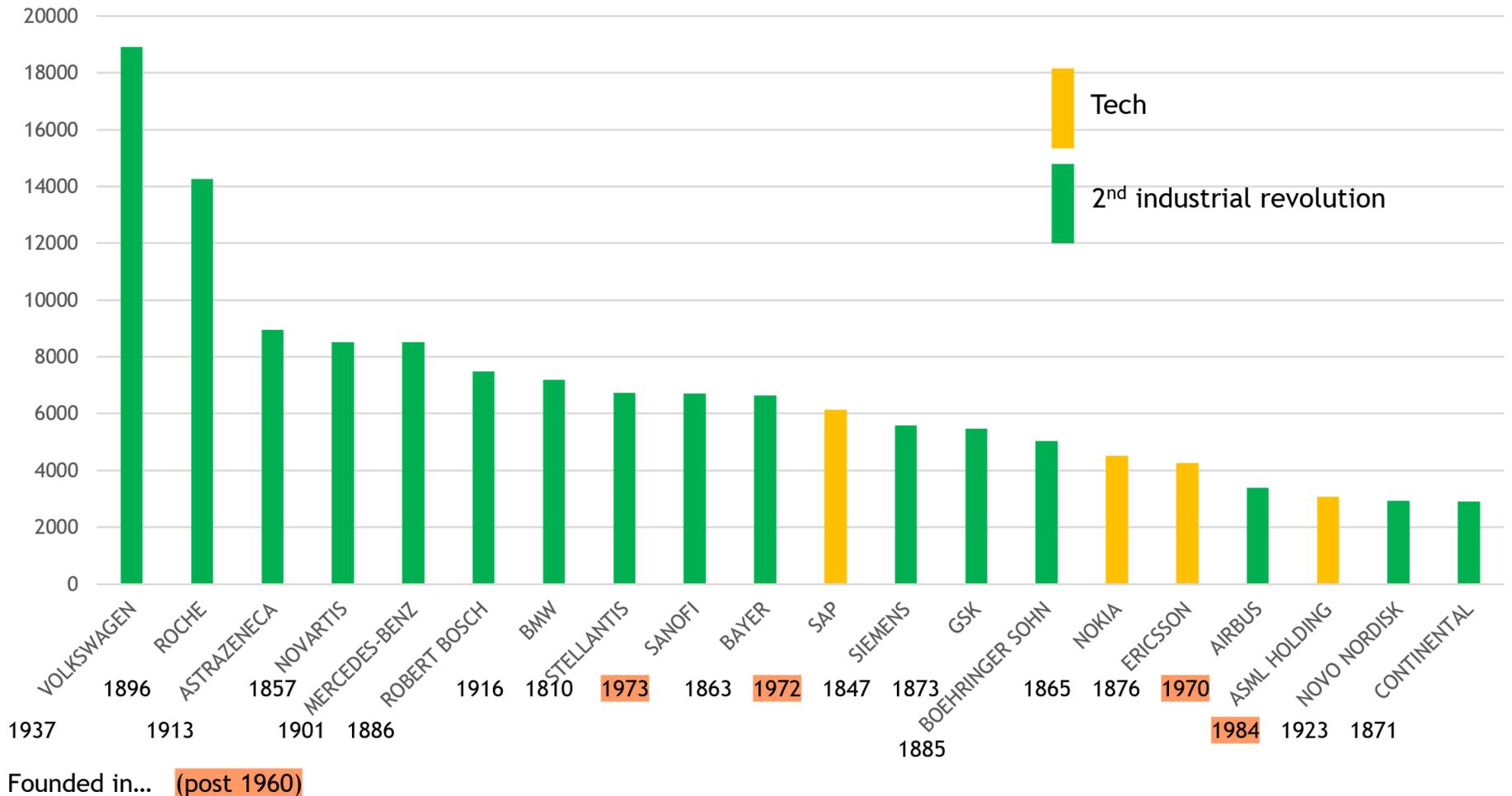
B. Impact on Large Groups: US specialization in tech...

USA - Leading investors in R&D
European Commission - meuros - 2022



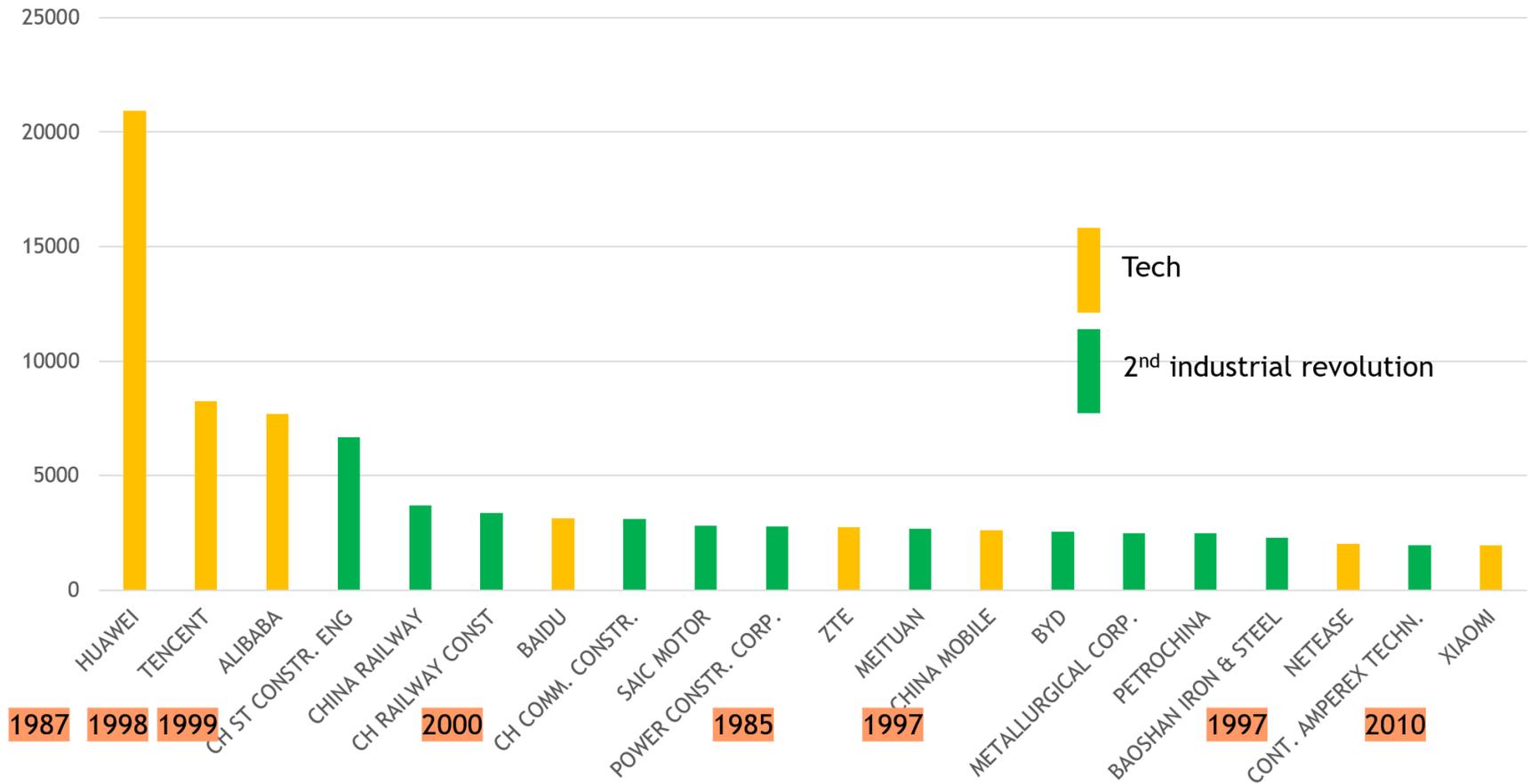
...Europe's specialization in 2nd industrial revolution

Europe - Leading investors in R&D
European Commission - meuros - 2022



China's specialization: tech

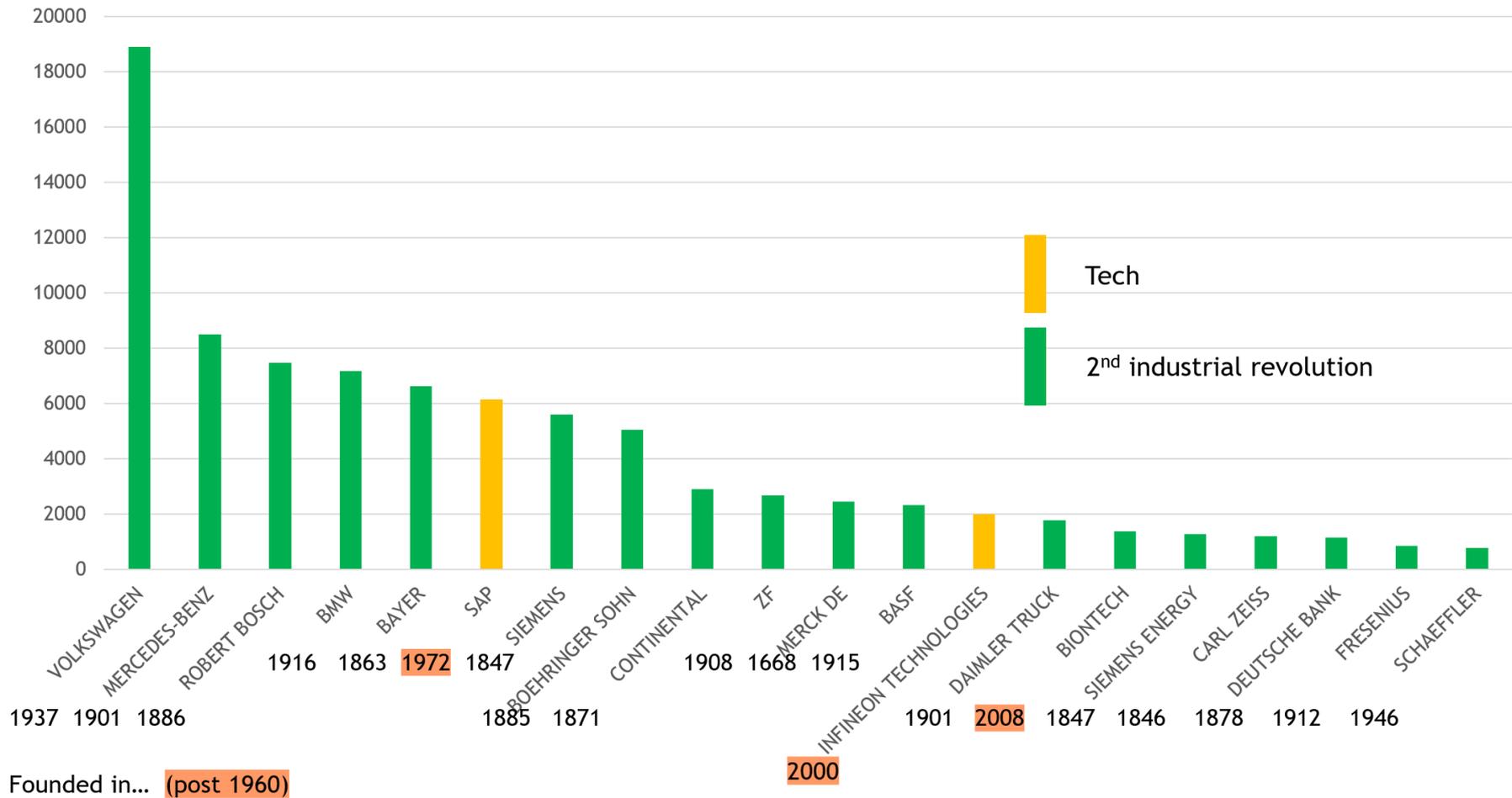
China - Leading investors in R&D
European Commission - meuros - 2022



Founded in... (after 1960)

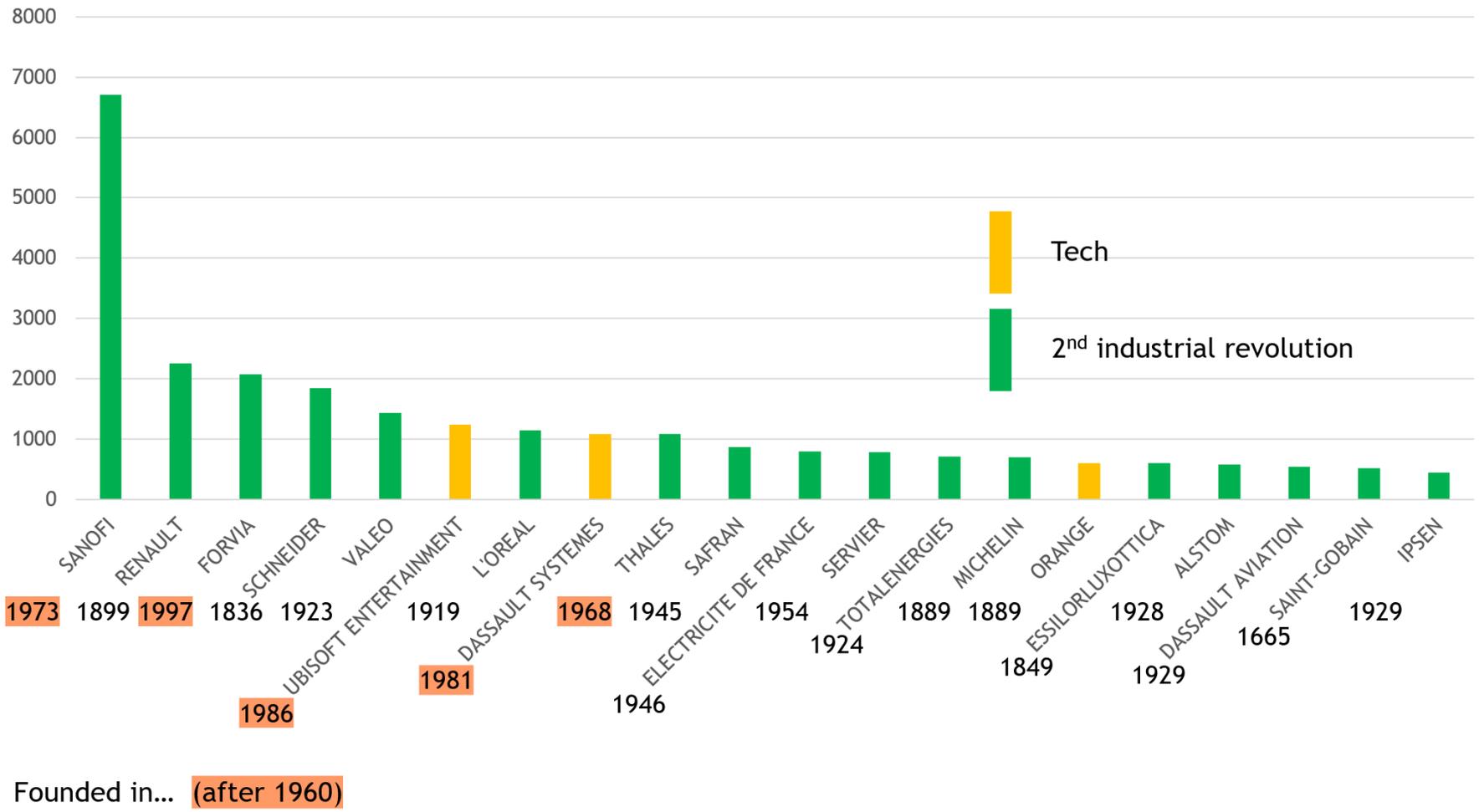
German specialization: 2nd industrial revolution

Germany- leading investors in R&D
European Commission - meuros - 2022



French specialization: 2nd industrial revolution

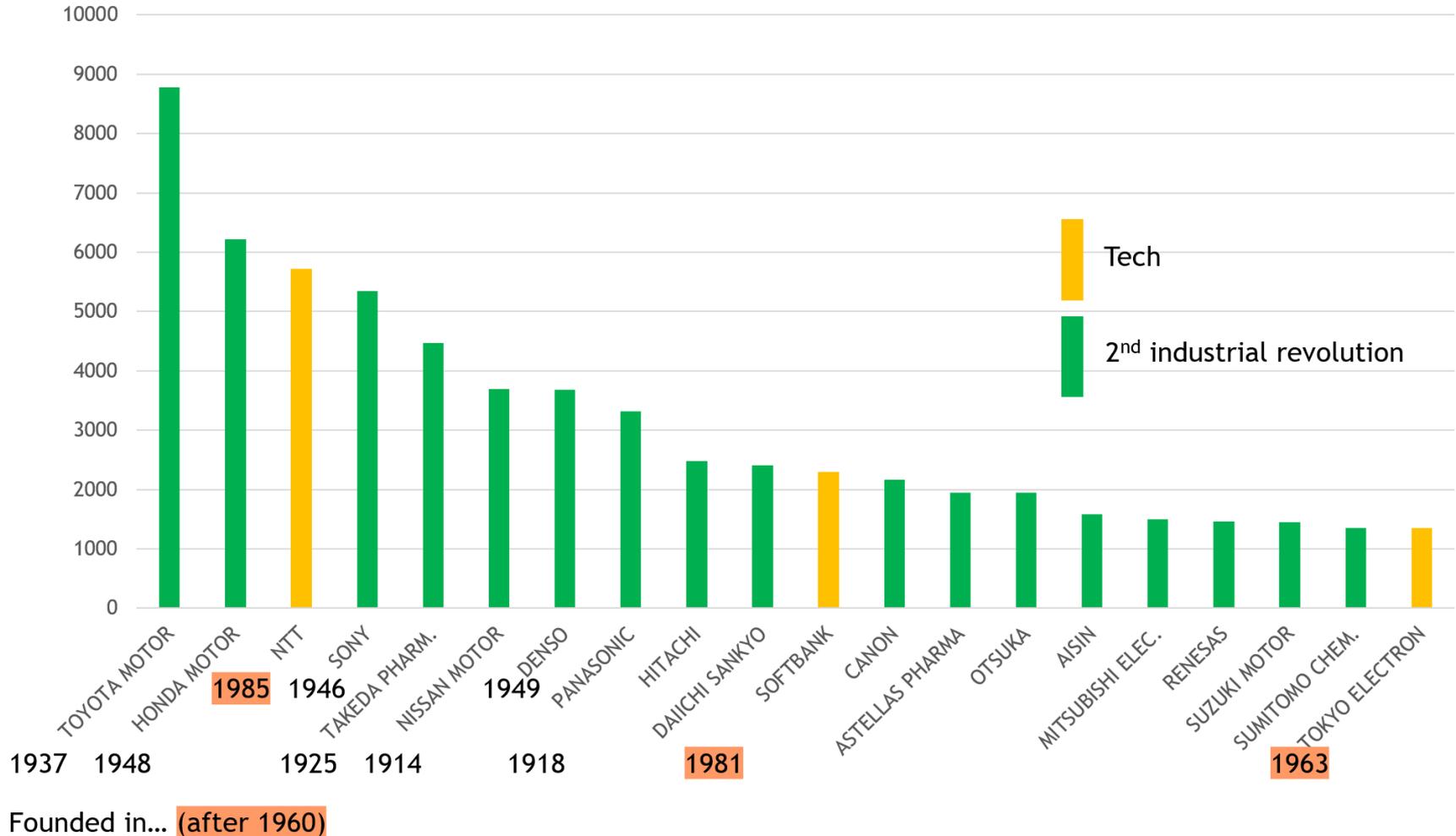
France - Leading investors in R&D
European Commission - meuros - 2022



Founded in... (after 1960)

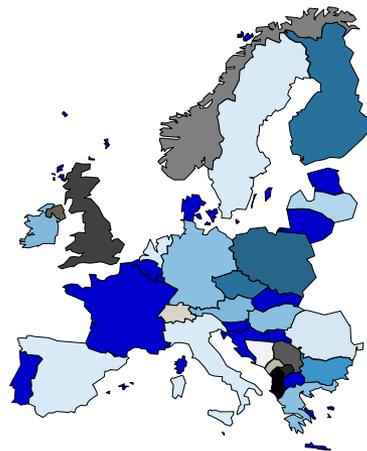
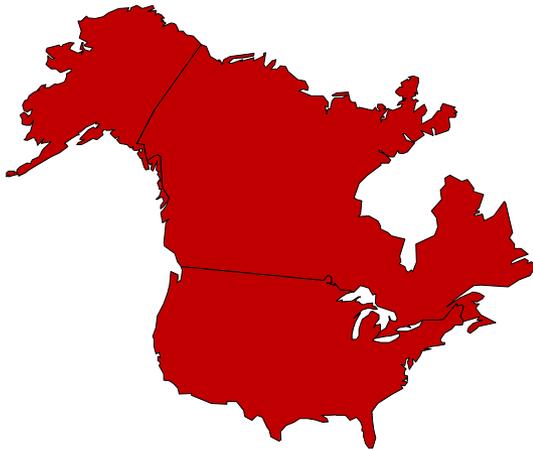
The Japanese specialization

Japan - Leading investors in R&D
European Commission - meuros - 2022



Fragmentation of the European market? (1/2)

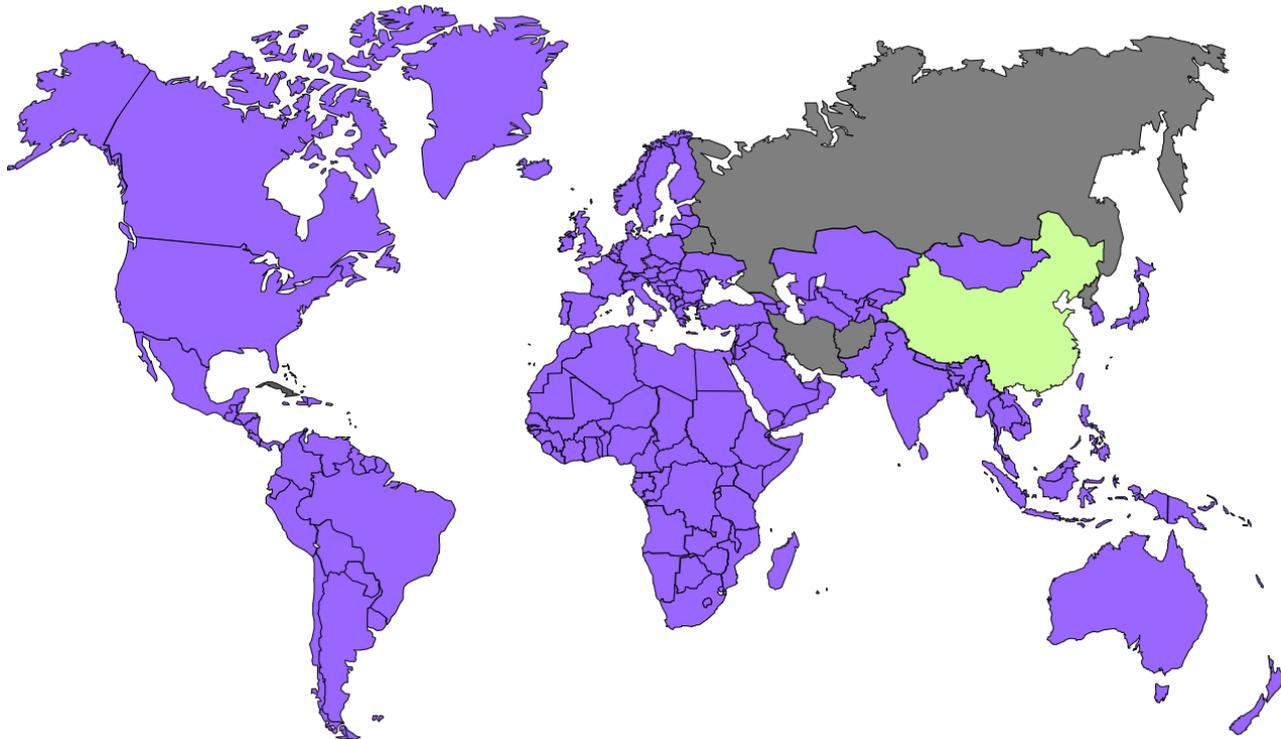
Is the fragmentation of the European market a major cause for Europe's lag in tech?



Yes for tech applications, namely on regulated markets like finance, healthcare, transportation

Fragmentation of the European market? (2/2)

Much less clear of deep tech, like semiconductor, software, OS, cloud, AI, telecoms, quantum computing... where the market is mostly the world



The tech markets are often worldwide, and not country specific

Industrial policies? (1/2)

1960 – 1970 in France : « Industrial policies »

Technological catch-up on US innovation



Concorde



High Speed Train



Nuclear Power Plants

1990 – 2000 in China : « Industrial policies »

Technological catch-up on Western innovation



High Speed Train



Nuclear Power Plants



Smartphones

Industrial policies? (2/2)

Possible Success

- For technology catch-up
(e.g. semiconductor)
- With a large enough market
(e.g. Europe)
- With legitimate political authority
(e.g. national governments)

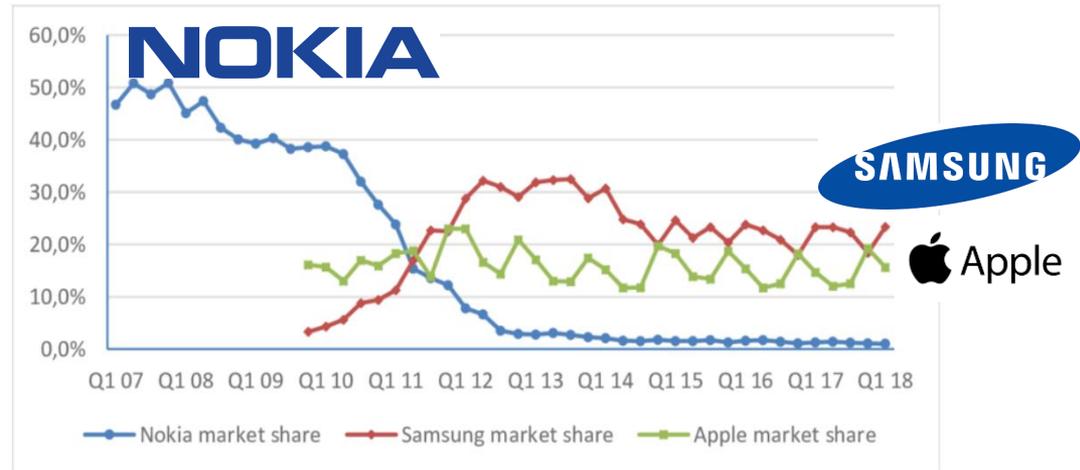
Probable failure

- For disruptive innovation
(e.g. the unforeseeable)
- With a too small market
(e.g. France)
- With insufficient political authority
(e.g. EU institutions?)

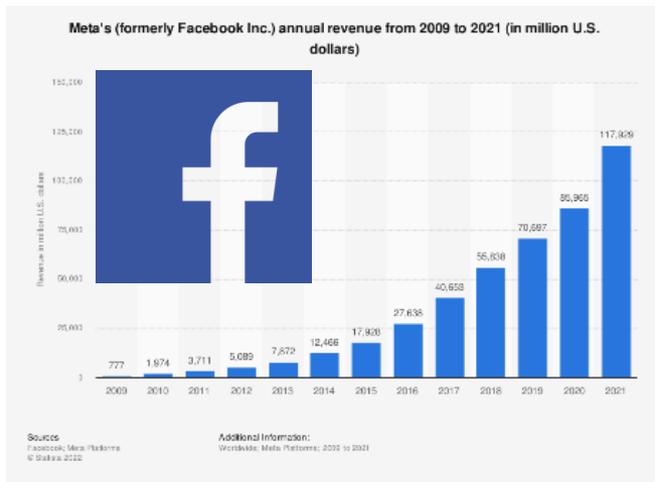
Disruptive vs Incremental innovation



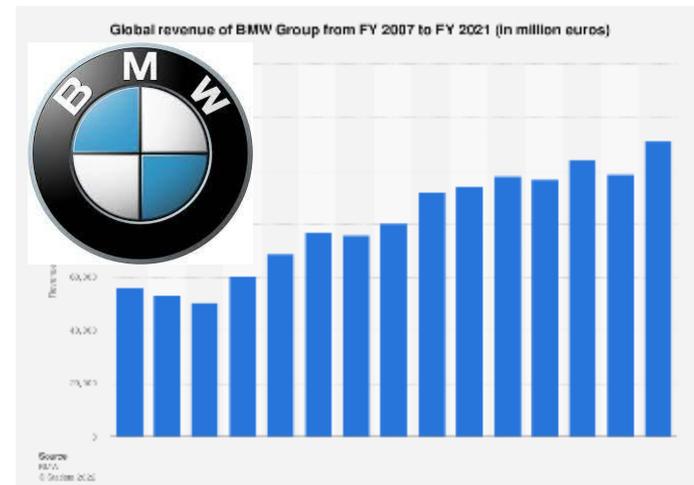
Disruptive innovation



Global market shares held by smartphones Nokia 2007-2017, Apple 2009-2017, Samsung 2009-2017 Source: Statista.com/statistics



Disruptive innovation



Incremental innovation

Innovation at GAFAM: 1 success for 5 projects

amazon

Google

Microsoft

Success



Failures



Authors Bios

Yann Coatanlem is an economist and entrepreneur.

A co-founder of GlassView, the inventors of Neuro-Powered Media™, he was previously head of several research departments at Salomon Brothers and Citigroup. He is currently the Chief Executive Officer of DataCore Innovations LLC, a Fin Tech start-up specialized in “antifragile” investment strategies.

Member of the board of the Paris School of Economics, he is the co-author of “Capitalism against Inequalities” (PUF, 2022), that received the “Prix Turgot” in 2023 and the “Prix Louis Marin” of the French Academy for Social Sciences (“*l’Académie des sciences morales et politiques*”). In 2018, he received from the same Academy the Special Prize of the Political Economy, Statistics and Finance section for his book “The government of citizens” (PUF, 2017), as well as for the work he has accomplished at the Club Praxis, the think tank of which he is president, and that promotes the use of Big Data in policy making, in particular in revamping the tax and welfare system.

Yann Coatanlem was part of a Commission of economists appointed in 2016 by the “*Académie des sciences morales et politiques*”, along with Olivier Blanchard and Thomas Philippon, to make recommendations on the teaching of Economics in High School. He is also a French Trade Advisor and head of an economic mission on France attractiveness in collaboration with Business France and the French Embassies in the United States, Canada and Mexico.

He graduated from ENSIMAG and HEC Paris. He is a recipient of the French National Order of Merit and of the Gold Medal of *La Renaissance Française*.

More at https://fr.wikipedia.org/wiki/Yann_Coatanlem

Olivier Coste is an entrepreneur and a corporate executive of the tech industry.

After working at the European Commission (DG Competition, then Cabinet of Commissioner de Silguy), he served as industrial advisor to the French Prime Minister Lionel Jospin, where contributed to the launch of Airbus as a company. He worked for Alcatel-Lucent where he managed several activities with European or worldwide presence and created a mobile television business which acquired customers in Europe, the USA and India. He co-founded and managed a video chat startup for e-commerce, which was adopted by Microsoft and IBM in the USA and by SoftBank in Japan. He led an Atos division in the US. Throughout all these experiences, he had to cope with both rapid growth and rapid decline of tech activities on both sides of the Atlantic.

He has lived in New York since 2014. He published “Europe, Tech and War” and “L’Europe, la Tech et la Guerre” (Amazon, 2022), that won the Strasser Prize by France’s Académie des Sciences Morales et Politiques, “Tech : quand l’Europe s’éveillera” in Commentaire in December 2023, and “La double surprise des télécoms” in Commentaire in Spring 2012.

He graduated from Ecole Polytechnique and Corps des Mines.

More at <https://www.linkedin.com/in/olivercoste/>