

# A.I., Law and Ethics Session 2

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# Innovation in Digital Ecosystems: Challenges and Questions for Competition Policy

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# Questions

- What are digital ecosystems and what are the challenges for modern competition policies?
  
- => What are the **new market dynamics**?

### 3. From the Platform Economy to the Hub Economy

# The A.I. revolution

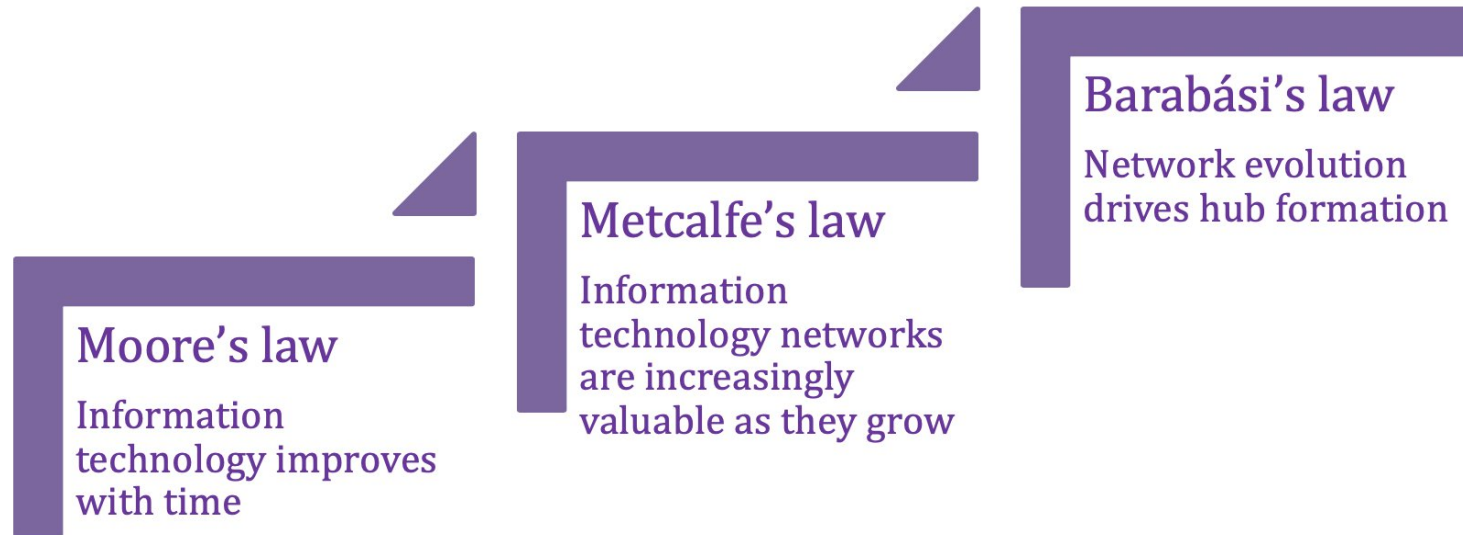
- The term Artificial Intelligence (AI) was coined by John McCarthy in 1955 in a proposal for a summer research project to be held in Dartmouth in 1956 (McCarthy et al. 1956).
- AI constitutes a major form of scientific and technological progress, which can generate considerable social benefits as well as economic benefits (Agrawal, Gans, and Goldfarb 2018).
- AI can be understood as a general-purpose technology (Brynjolfsson, Rock, and Syverson 2018).

# The A.I. revolution

- But, beyond the “simple” toolkit approach, AI and machine learning techniques can help deconstruct whether we are in an **uncertain environment or an ambiguous one**.
- These new techniques are leveraged by data accessibility, being structured and unstructured data. The latter is the new addition to our decision process.

# The A.I. revolution

- Through AI, **time** is – even more – of the utmost importance. In a way, time is “expanded” through the convergence of algorithms, computing power and data.
- As a result, **information gets to a point closer to where a decision** can be made.
- **Predictive power** is gained and uncertainty is transformed into “ambiguity.” Somewhat like a radar that is able to read through a thick cloud cover.
- AI will add \$13 trillion to the global economy over the next decade (Fountaine, McCarthy, and Saleh 2019).

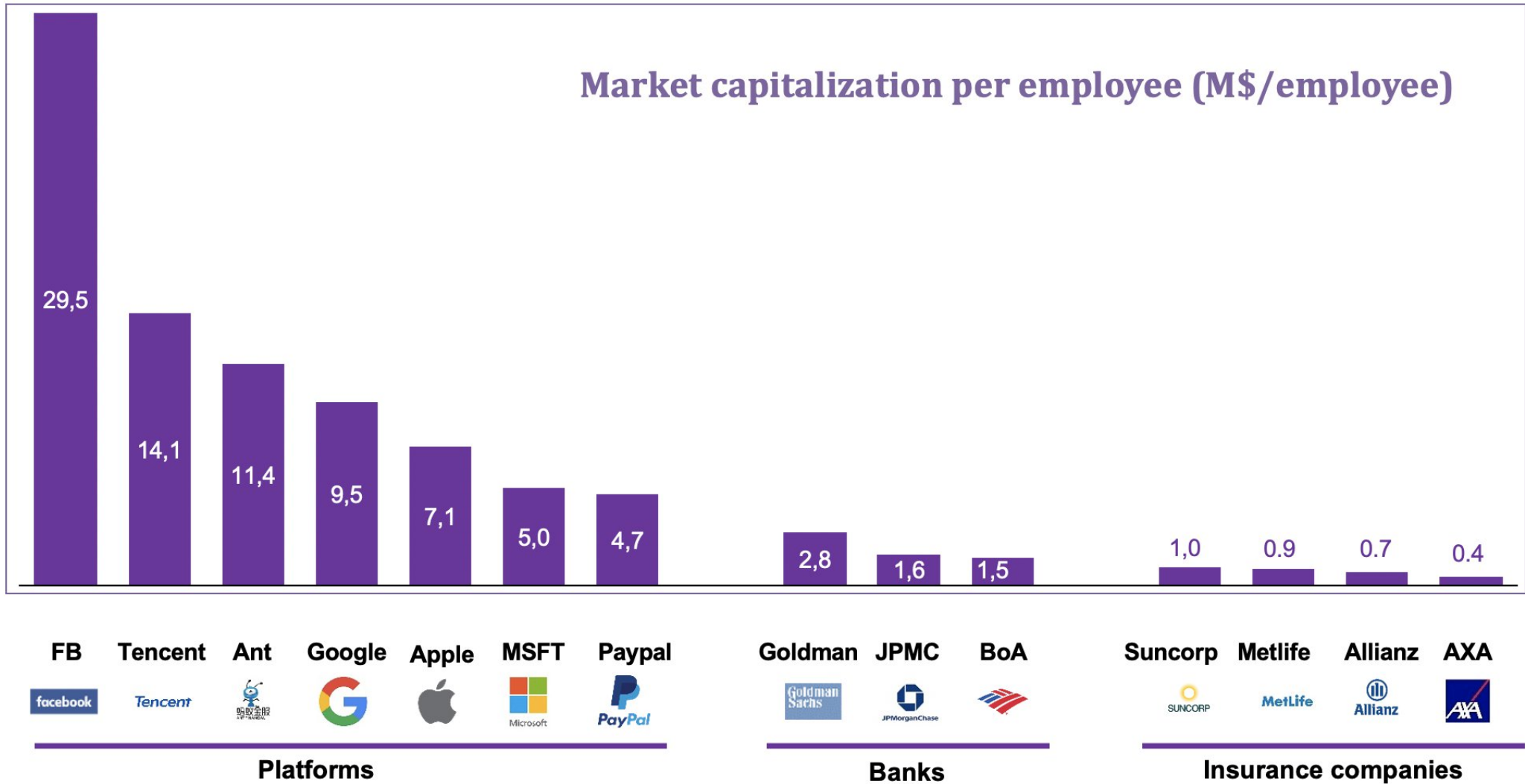


Source: Iansiti and Lakhani, 2020

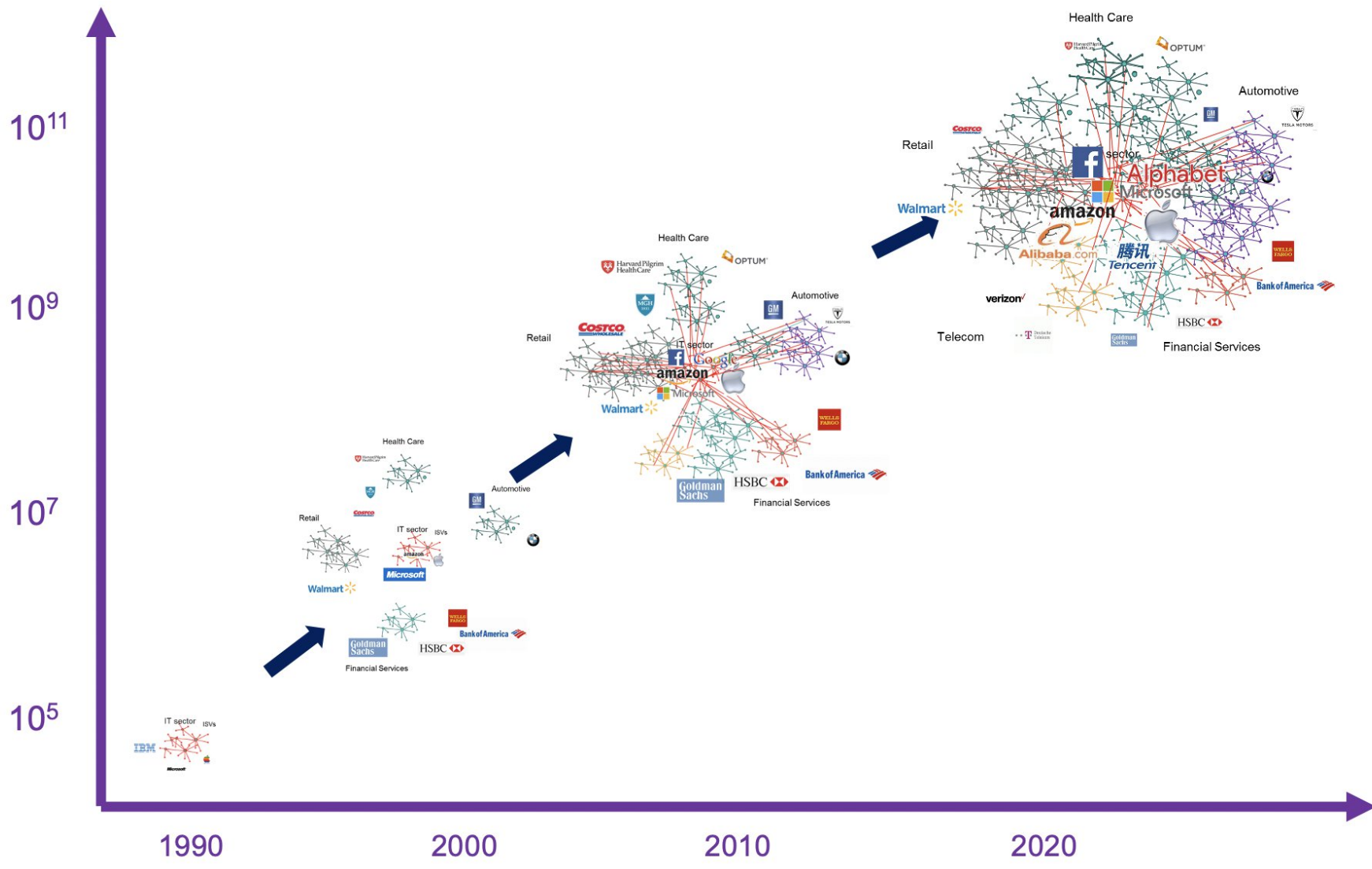


# From the platform economy to the hub economy

- The notion of the Keystone Player (Iansiti and Levien, 2004)
- Economies of scale + economies of scope + network effects + data network effects + ... = the new monopolistic power?



Source: Iansiti and Lakhani, 2020



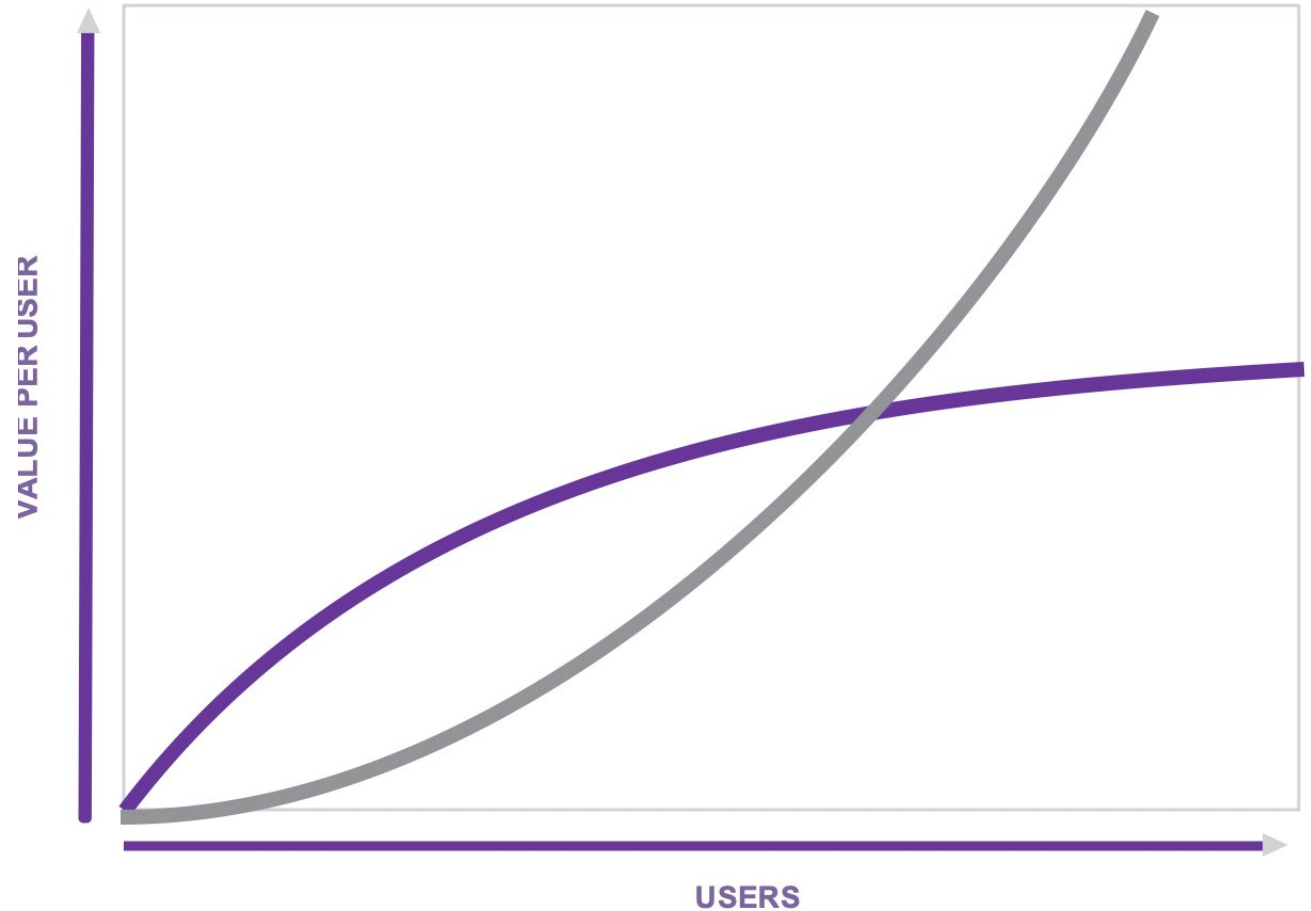
Source: Iansiti and Lakhani, 2020

# 4. From Disruption to Collision

# From Disruption to Collision

In purple: analog firms with diminishing returns to scale

In grey: keystone players / digital natives with increasing returns to scale



# From Disruption to Collision

- According to the French National Convention in 1793: “great responsibility follows inseparably from great power.”
- The question of the digital natives: the A.I. factories
- The question of network effects and data network effects

Conclusion

# Conclusion

The dynamics of digital markets reveal a paradox:

- On the one hand, digital ecosystems are characterized by **a pace of innovation rarely seen in economic history**. Indeed, an industrial revolution is underway with the development of breakthrough technologies such as artificial intelligence, advanced robotics, 5G and quantum computing, to cite just a few.
- Not only are innovations driven **by large companies** - the keystone players (Iansiti and Lieven, 2004) -, but they are also developed **by companies that are smaller** participants in their ecosystem, the so-called complementors. Thus, if innovations are produced by diversified players that can adapt to the various user profiles, they are compatible with each other.



# Considerations for the competition policy

- On the other hand, the same trends can also be understood with a **less optimistic perspective**.
- In the latter context, innovations developed by **keystone organizations in the technology sector would be mainly aimed at consolidating their dominant positions and extending them to adjacent markets**.
- The long-term counterpart of the gains for consumers would be a strengthening of the competitive foreclosure of dominant positions and their extension to related markets.
- This would be to the detriment of both competitors and firms participating in the ecosystems of the platforms themselves.

# References

# References

- Iansiti M. and Lakhani K.R., (2017), “Managing Our Hub Economy”, Harvard Business Review, September-October.
- Iansiti M. and Levien R., (2004), “Strategy as Ecology”, Harvard Business Review, March.
- Marty, F. and Warin, Th. (2020) “Innovation in Digital Ecosystems: Challenges and Questions for Competition policy” CINRAO, 2020s-10  
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