

Industrial Revolution 4.0





Industrial Revolution

What is industrial revolution?

How many “Industrial Revolutions”
have we had so far?

Major difference between
Industrial Revolution 4.0 and the
ones that came before?

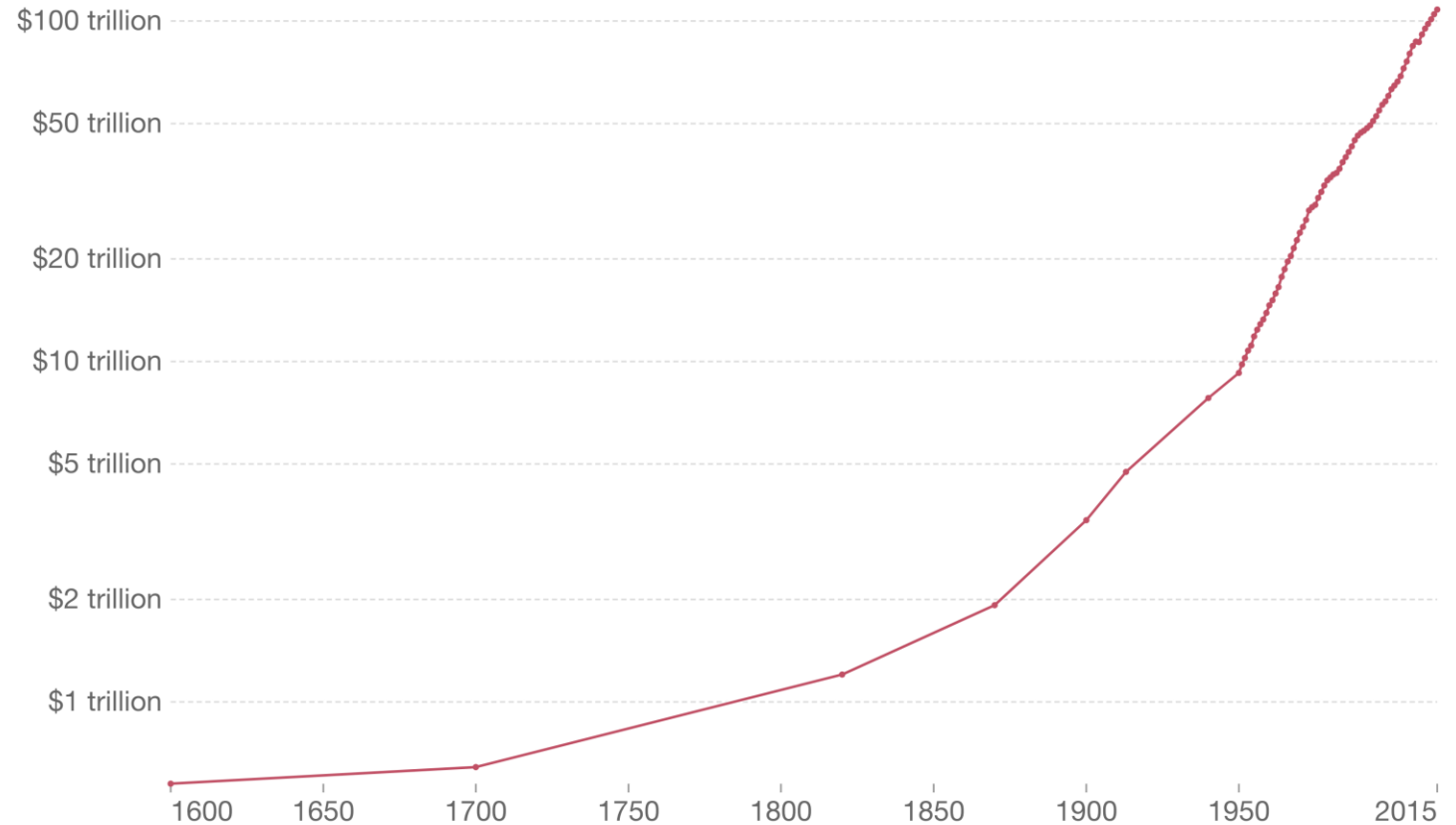
Navigating the next industrial revolution

Revolution	Year	Information	
	1	1784	Steam, water, mechanical production equipment
	2	1870	Division of labour, electricity, mass production
	3	1969	Electronics, IT, automated production
	4	?	Cyber-physical systems

Global GDP growth rate from 1600 - 2015

World GDP over the last two millennia

Total output of the world economy; adjusted for inflation and expressed in international-\$ in 2011 prices.



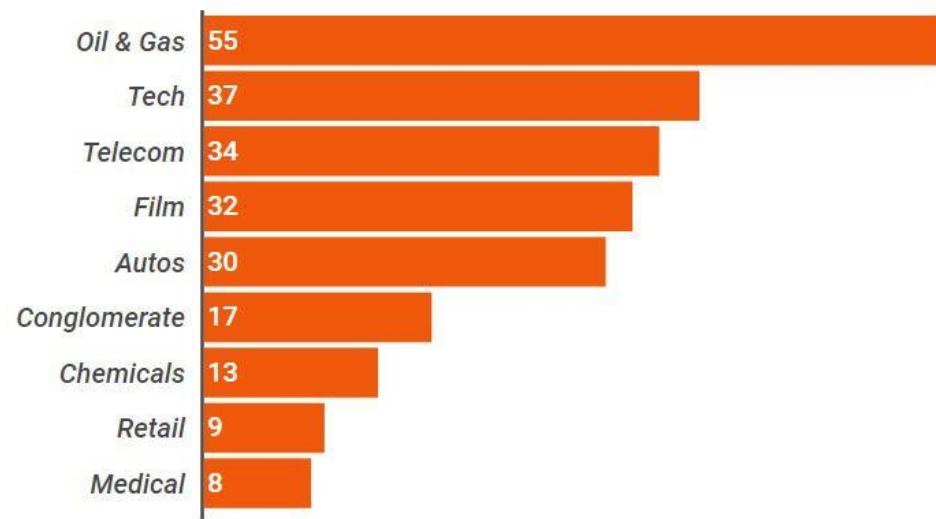
Source: World GDP - Our World In Data based on World Bank & Maddison (2017)

OurWorldInData.org/economic-growth • CC BY



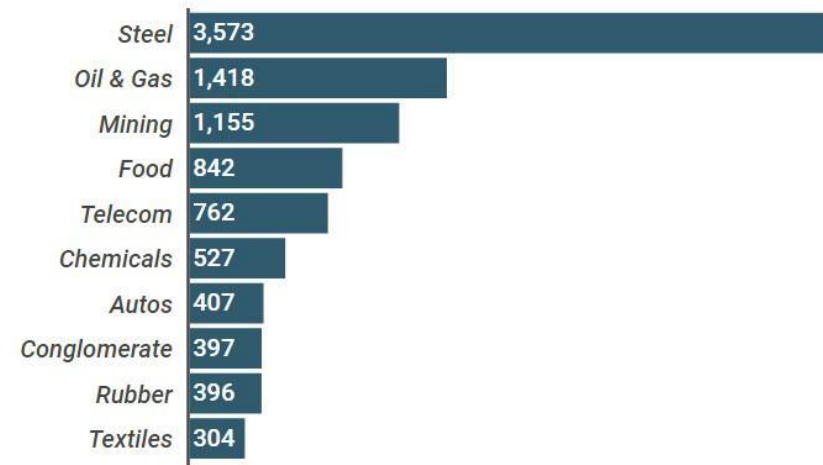
Most valuable industries – over time

The Largest Firms by Sector, 1967 (Market Value in \$ Billions)



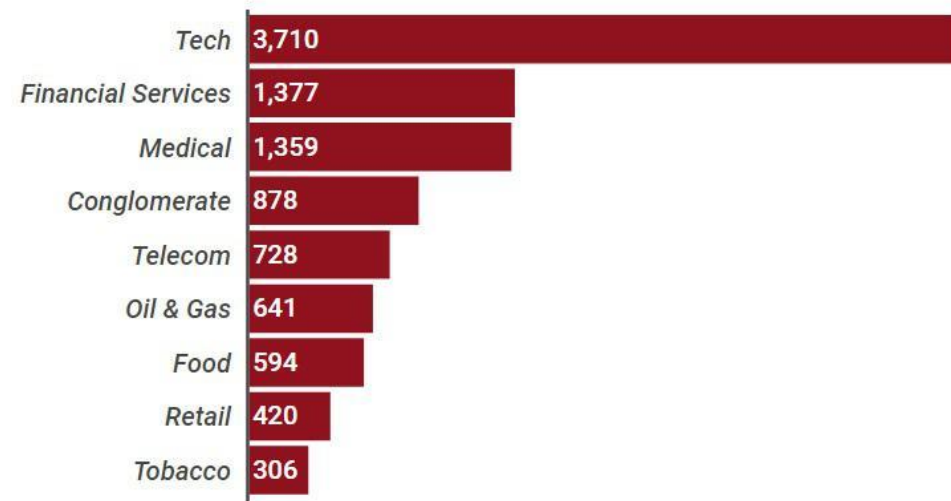
Industries not shown made up 2% or less of total market value among the top 50 companies.

The Largest Firms by Sector, 1917 (Asset Value in \$ Millions)



Industries not shown made up 2% or less of total assets among the top 50 companies.

The Largest Firms by Sector, 2017 (Market Value in \$ Billions)



Industries not shown made up 2% or less of total market value among the top 50 companies. Market values are as of July 31, 2017.

Industrial Revolution 4.0

- The term Fourth Industrial Revolution was coined by Klaus Schwab
- Klaus Schwab – Founder and Executive Chairman, World Economic Forum

Industrial Revolution 4.0

“We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before. We do not yet know just how it will unfold, but one thing is clear: the response to it must be integrated and comprehensive, involving all stakeholders of the global polity, from the public and private sectors to academia and civil society.”

The First Industrial Revolution used water and steam power to mechanize production. The Second used electric power to create mass production. The Third used electronics and information technology to automate production. Now a Fourth Industrial Revolution is building on the Third, the digital revolution that has been occurring since the middle of the last century. It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.”

What are these ‘New Technologies’?

- *“blurring the lines between the physical, digital, and biological spheres.”*
- Systems from the physical world, digital world, and biological world interact with each other. But how do the different systems talk to each other?
- What factors become important now?
- How do we measure the success of an economy based on Industry 4.0?
- In a developing country, how do we incentivize companies to pioneer research in this area?
- How do we ensure we don’t leave behind people without access to systems?
 - Concerns raised during the e-Krona trial run in Sweden