

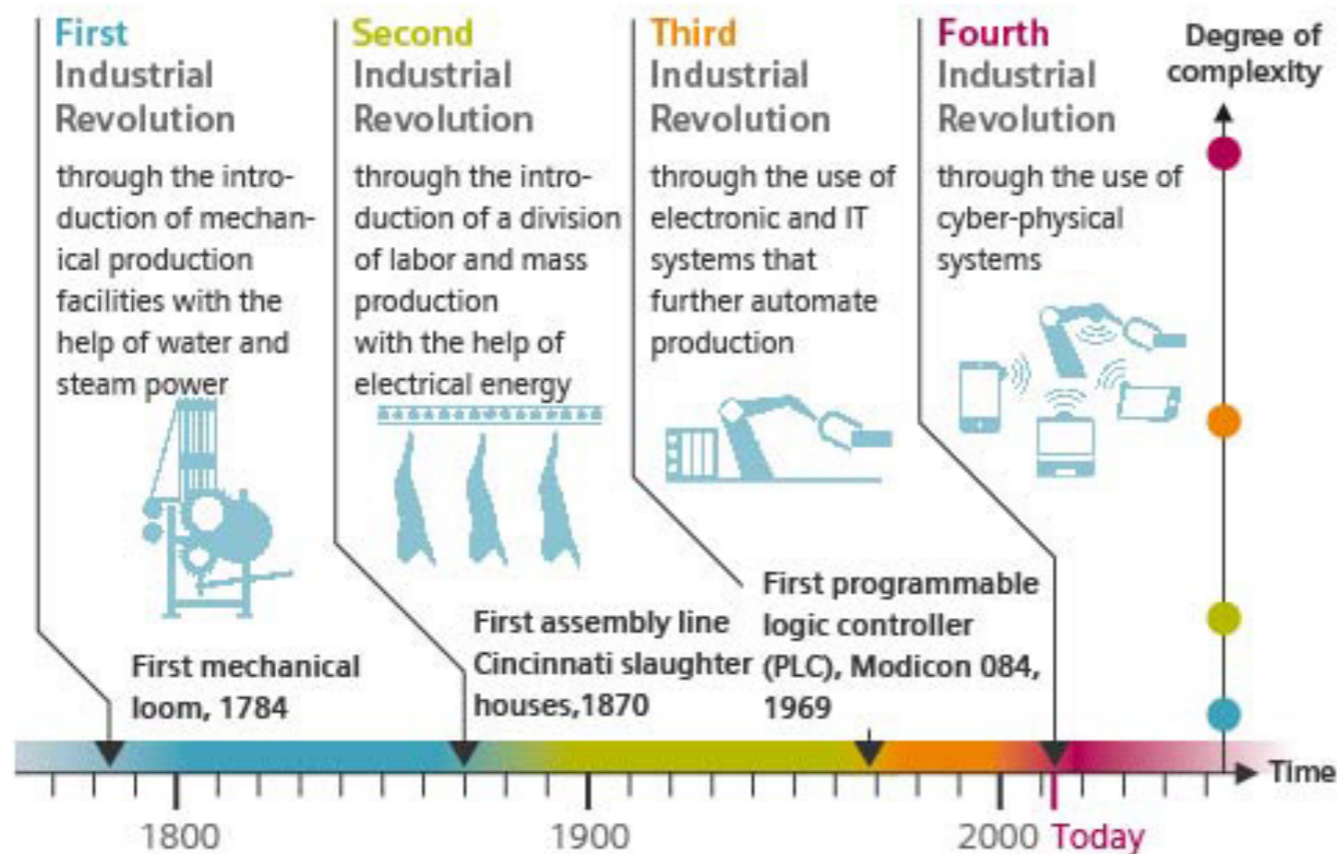
# Industry 4.0 – il Framework

Gian Paolo Balboni  
Digital Transformation Evangelist

# Industry 4.0 – La nuova rivoluzione industriale

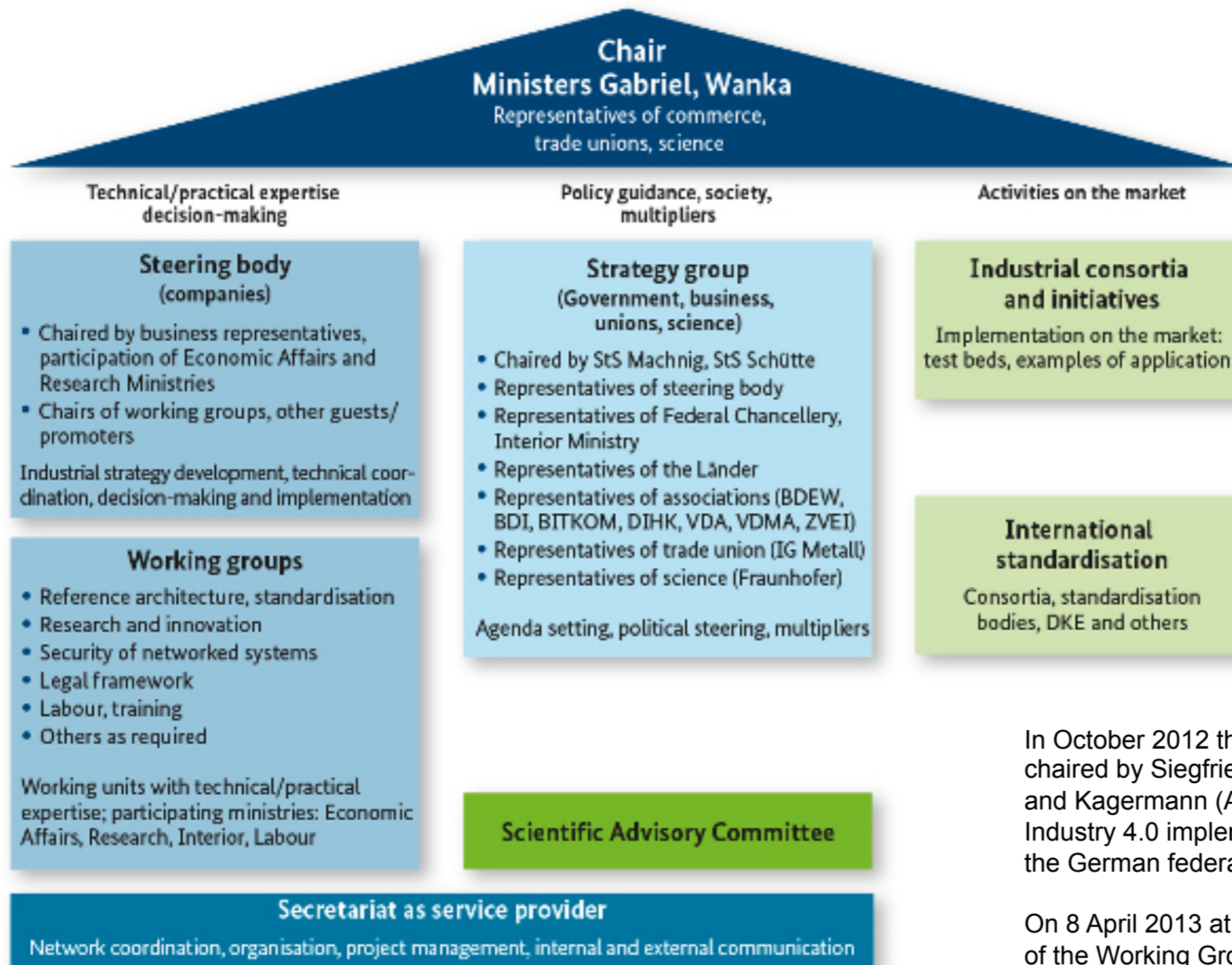
Il termine Industry 4.0 è stato coniato in Germania nel 2011 per indicare il nuovo percorso di automatizzazione spinta che quel paese stava lanciando per restare alla guida della produzione industriale Europea.

La prima volta che è stato usato in pubblico risale all'Hannover Fair del 2011



Source: DFKI 2011

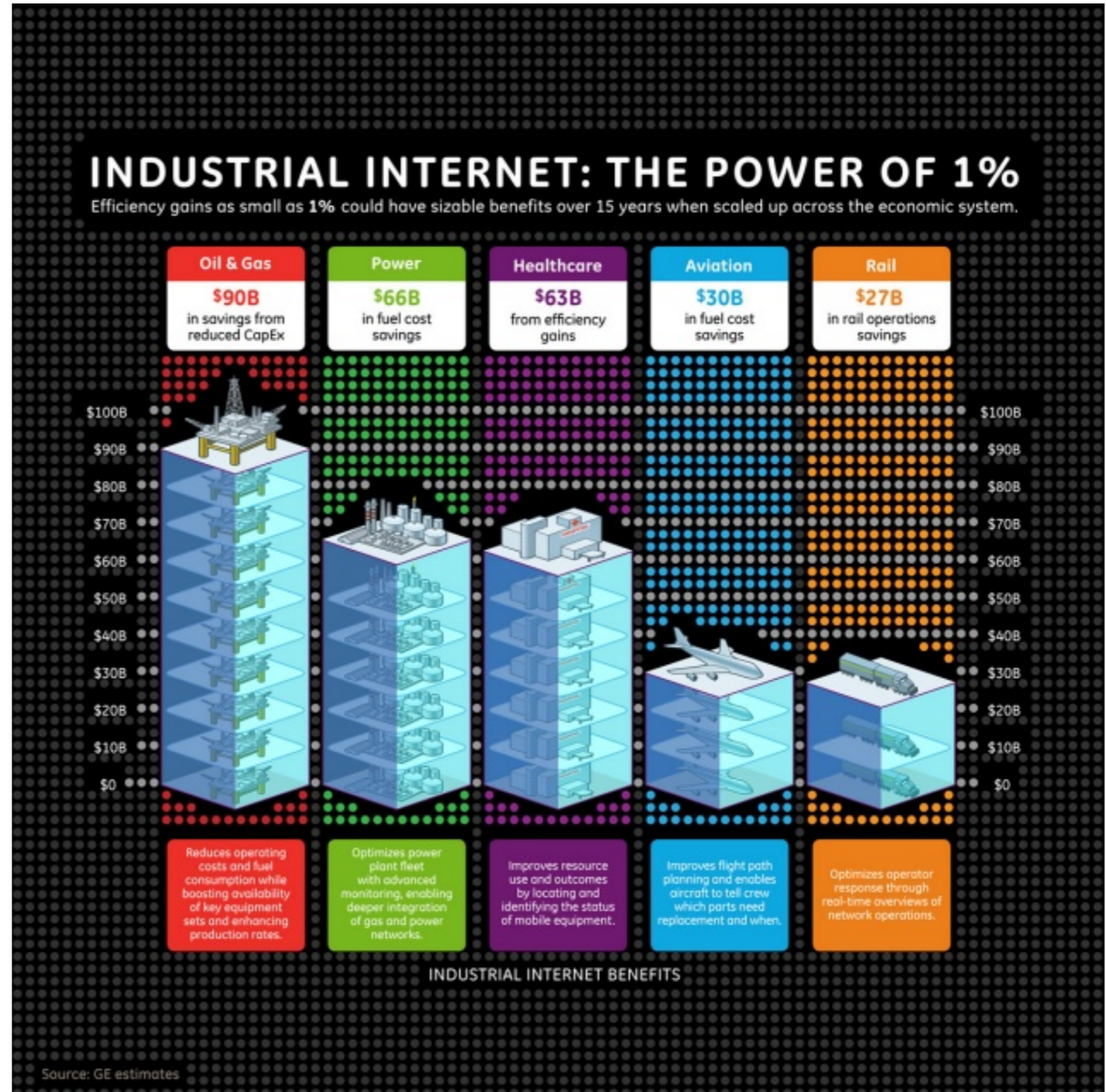
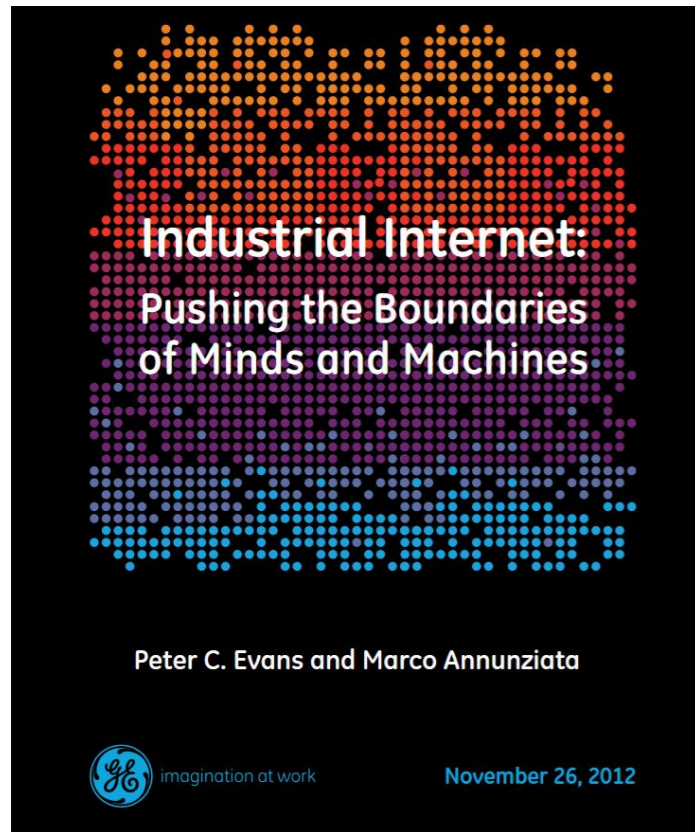
# Industry 4.0 come iniziativa del governo tedesco



In October 2012 the Working Group on Industry 4.0 chaired by Siegfried Dais (Robert Bosch GmbH) and Kagermann (Acatech) presented a set of Industry 4.0 implementation recommendations to the German federal government.

On 8 April 2013 at the Hanover Fair the final report of the Working Group Industry 4.0 was presented.

# Naturalmente non è un fenomeno solo tedesco



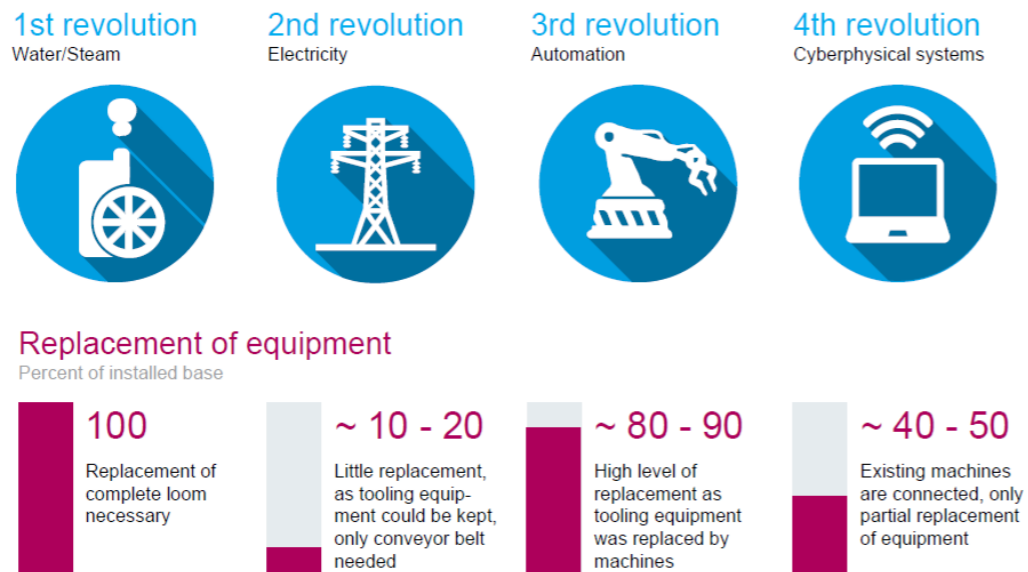
# McKinsey la focalizza nel manufacturing



McKinsey defines “Industry 4.0” as digitalisation of the manufacturing sector, with embedded sensors in virtually all product components and manufacturing equipment, ubiquitous Cyber Physical Systems, and analysis of all relevant data.

It is driven by four clusters of 4 disruptive technologies.

1. Data, computational power and connectivity (i.e. low-power, wide area networks)
2. Analytics and intelligence
3. Human-machine interaction comprising touch interfaces and augmented reality
4. Digital to physical conversion (i.e. advanced robotics and 3D printing)



Compared to the 3rd industrial revolution, the 4th revolution will have relatively **high impact** at comparatively **little replacement of equipment**

(Source McKinsey&Company «Industry 4.0: How to navigate digitalisation on the manufacturing sector » 2015)

# Ma il mercato esalta la centralità dell'IT

## THE LARGEST COMPANIES BY MARKET CAP

The oil barons have been replaced by the whiz kids of Silicon Valley



Top 5 Publicly Traded Companies (by Market Cap)

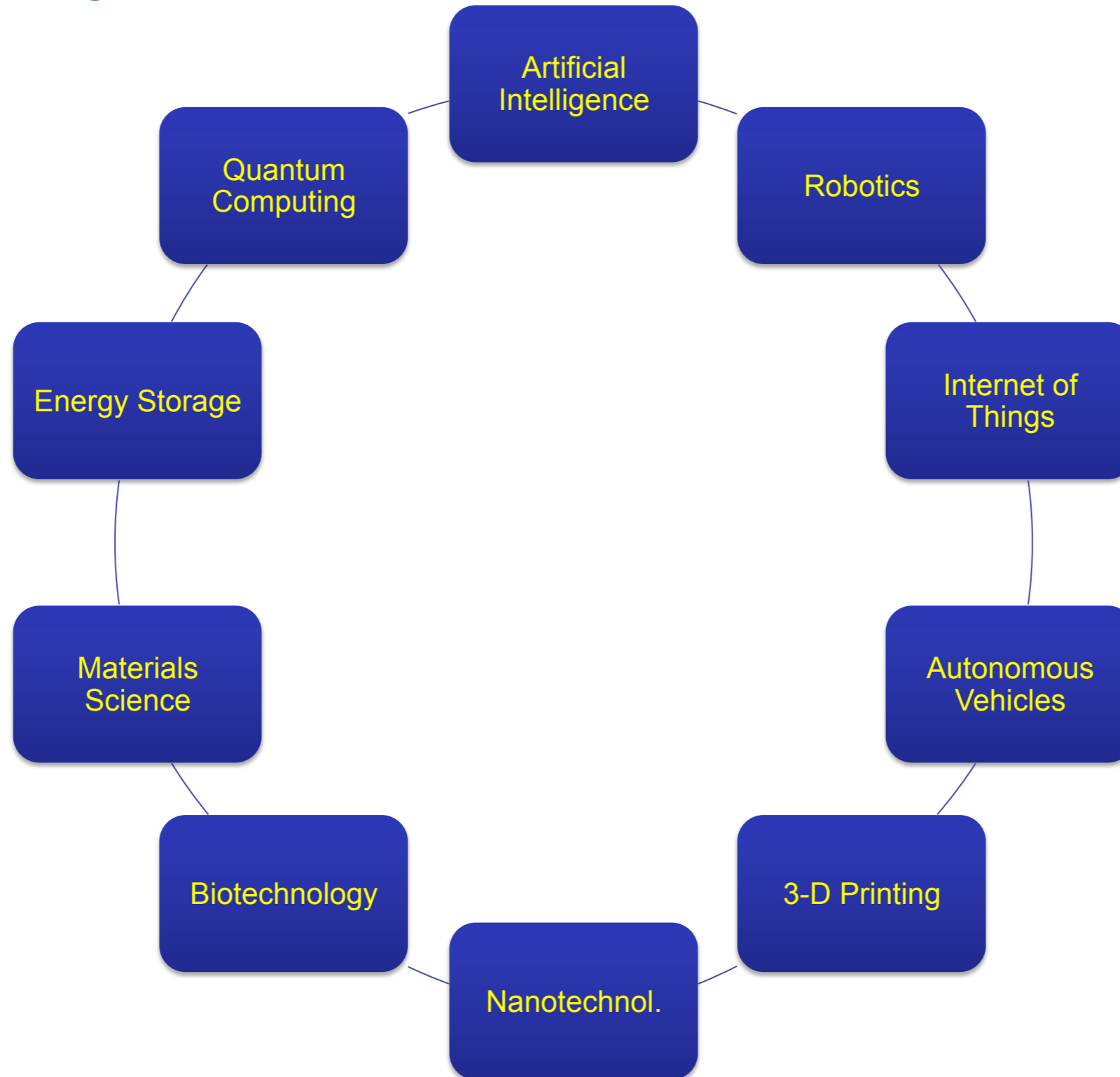
 Tech  Other



visualcapitalist.com

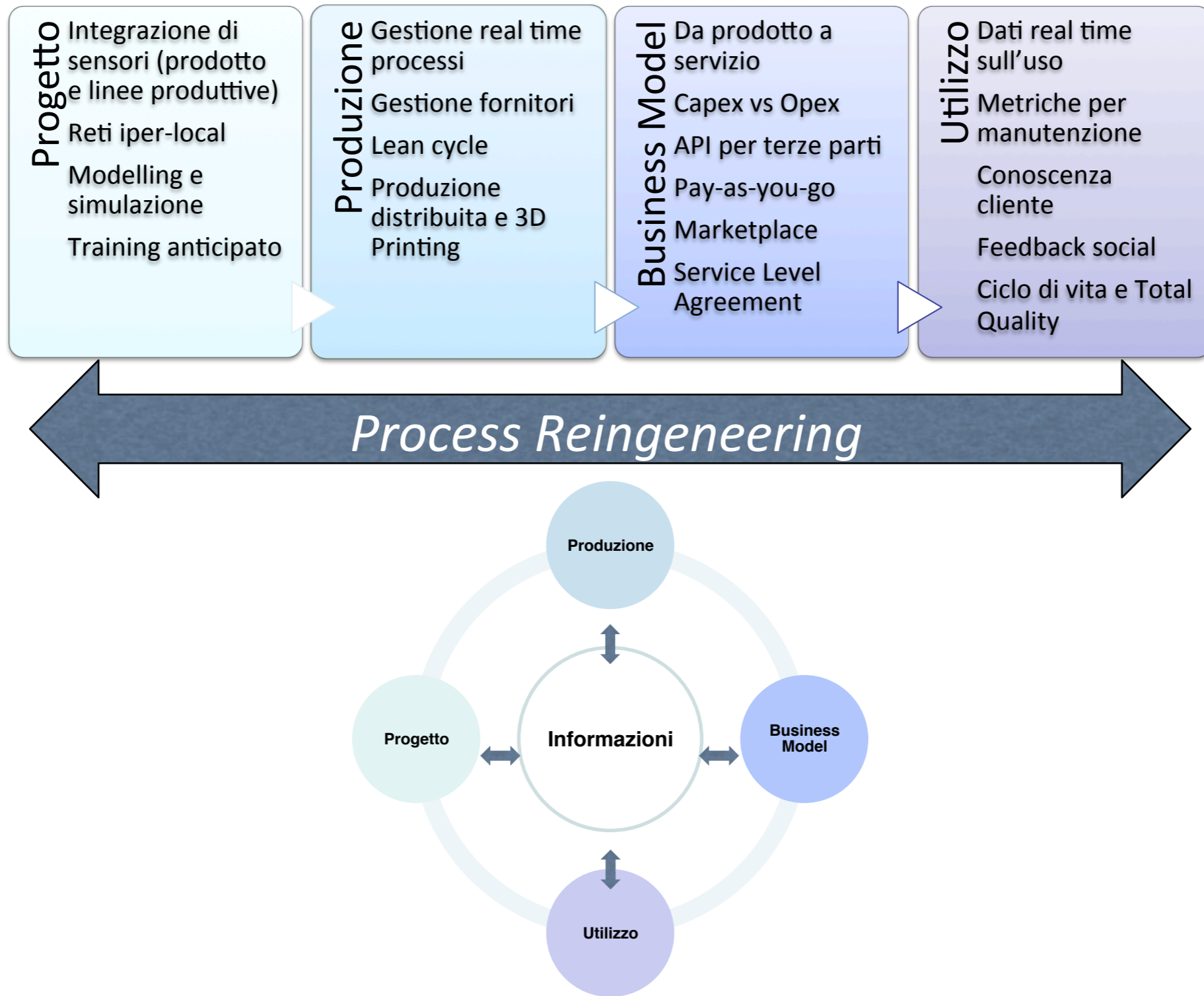


# Le tecnologie della trasformazione



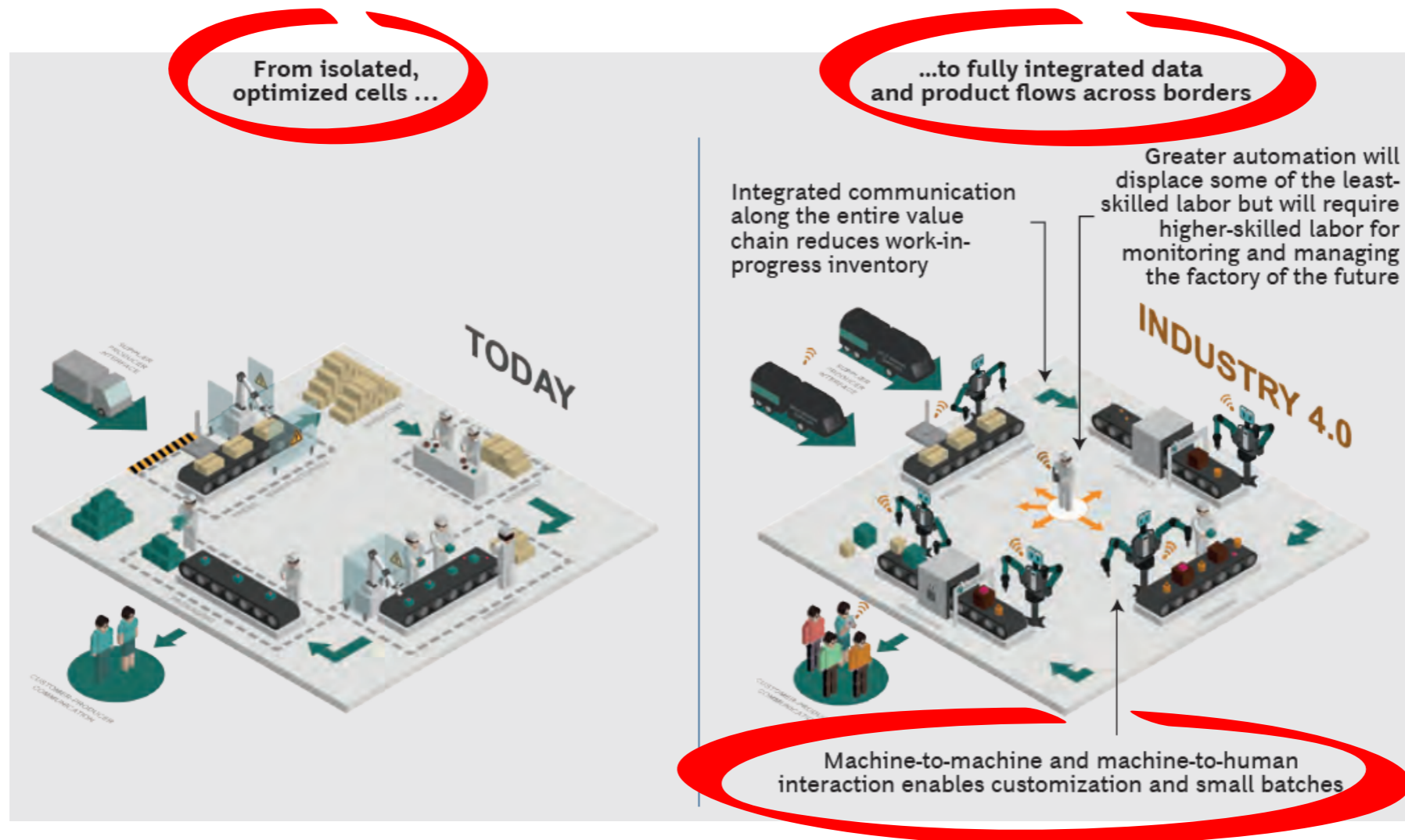
Source: WEF website  
<https://www.weforum.org/agenda/2016/01/the-fourth-industrial-revolution-what-it-means-and-how-to-respond/>

# Le fasi in cui porta cambiamento





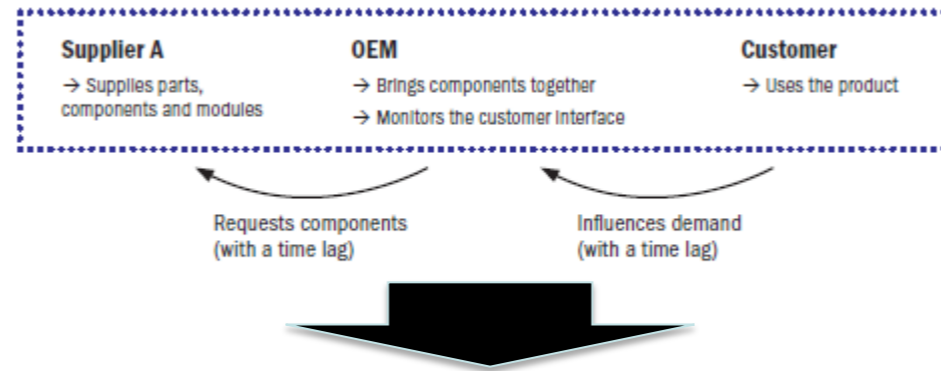
# Un sistema permeabile grazie al «data sharing»



(Source BCG – "Industry 4.0" April 2015)

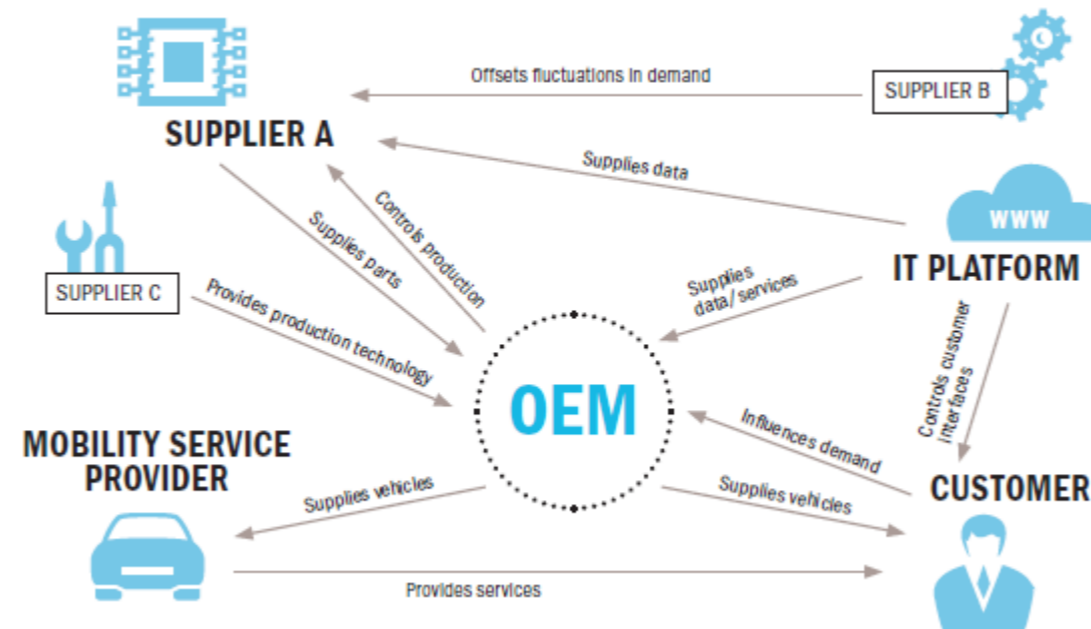
# Si modificano i rapporti cliente-fornitore

Da una catena del valore rigida...



**Roland Berger**  
Strategy Consultants

...a una rete dinamica di produttori di valore aggiunto



(Source Roland Berger «The Digital Transformation of Industry»)

# Il cuore della transizione è nella manifattura



## Characteristics of new Industrie 4.0

- |  |   |
|--|---|
| <b>1</b> FROM MASS PRODUCTION TO <b>MASS CUSTOMIZATION</b>                 | Flexible production, short production lead time enabling new business models emergence and affordable customization   |
| <b>2</b> FROM VOLUME SCALE EFFECT TO <b>LOCALIZED &amp; FLEXIBLE UNITS</b> | From large factories specialized per product in LCC to smart factories with high technological equipment enabling to produce at competitive cost everywhere |
| <b>3</b> FROM PLANNED MAKE TO STOCK TO <b>DYNAMIC MAKE TO ORDER</b>        | From an organized production, based on planning and forecast and supported by stocks, to dynamic production and yield management, on demand                 |
| <b>4</b> FROM PRODUCT TO <b>USAGE</b>                                      | Integrated conception, services being a key element of the business model/ decision factor  |
| <b>5</b> FROM COST DRIVEN TO <b>ROCE DRIVEN</b>                            | Higher ROCE for lower Capital employed as complexity is transferred on numeric  |
| <b>6</b> FROM TAYLORISM TO <b>FLEXIBLE WORK ORGANIZATION</b>               | Remote work (augmented reality, permanent connectivity), Tasks parallelism, flexible organization and management  |
| <b>7</b> FROM HARD WORKING CONDITIONS TO <b>ATTRACTIVE WORK SPACE</b>      | Development of complex artisanal production, with clean/ highly connected work space, white collars intensive   |



The Industrie 4.0 transition

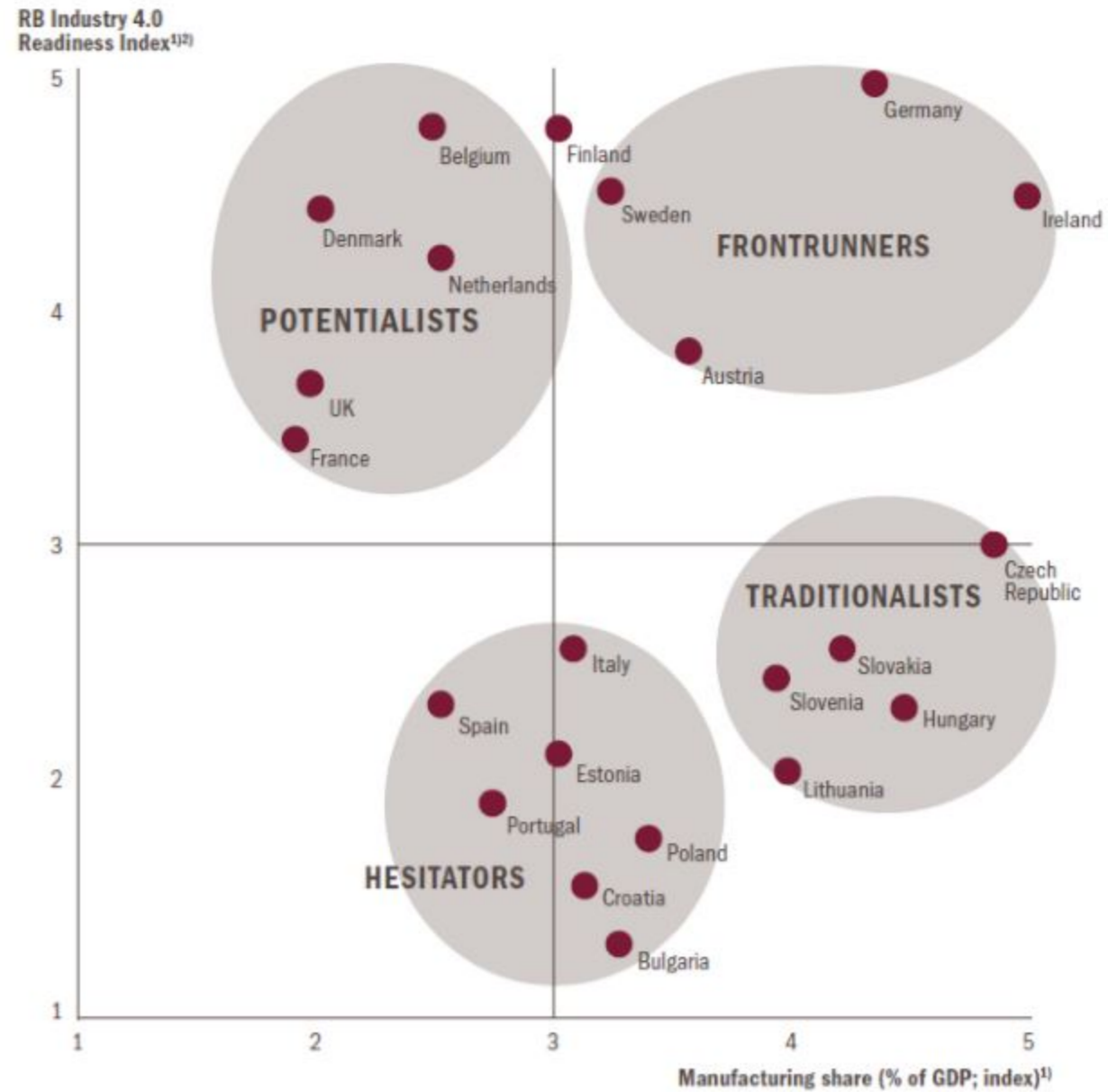
*How it reshuffles the economic, social and industrial model*

World Manufacturing Forum

Max Blanchet

14/4/2016

# Stato dell'arte nei paesi EU



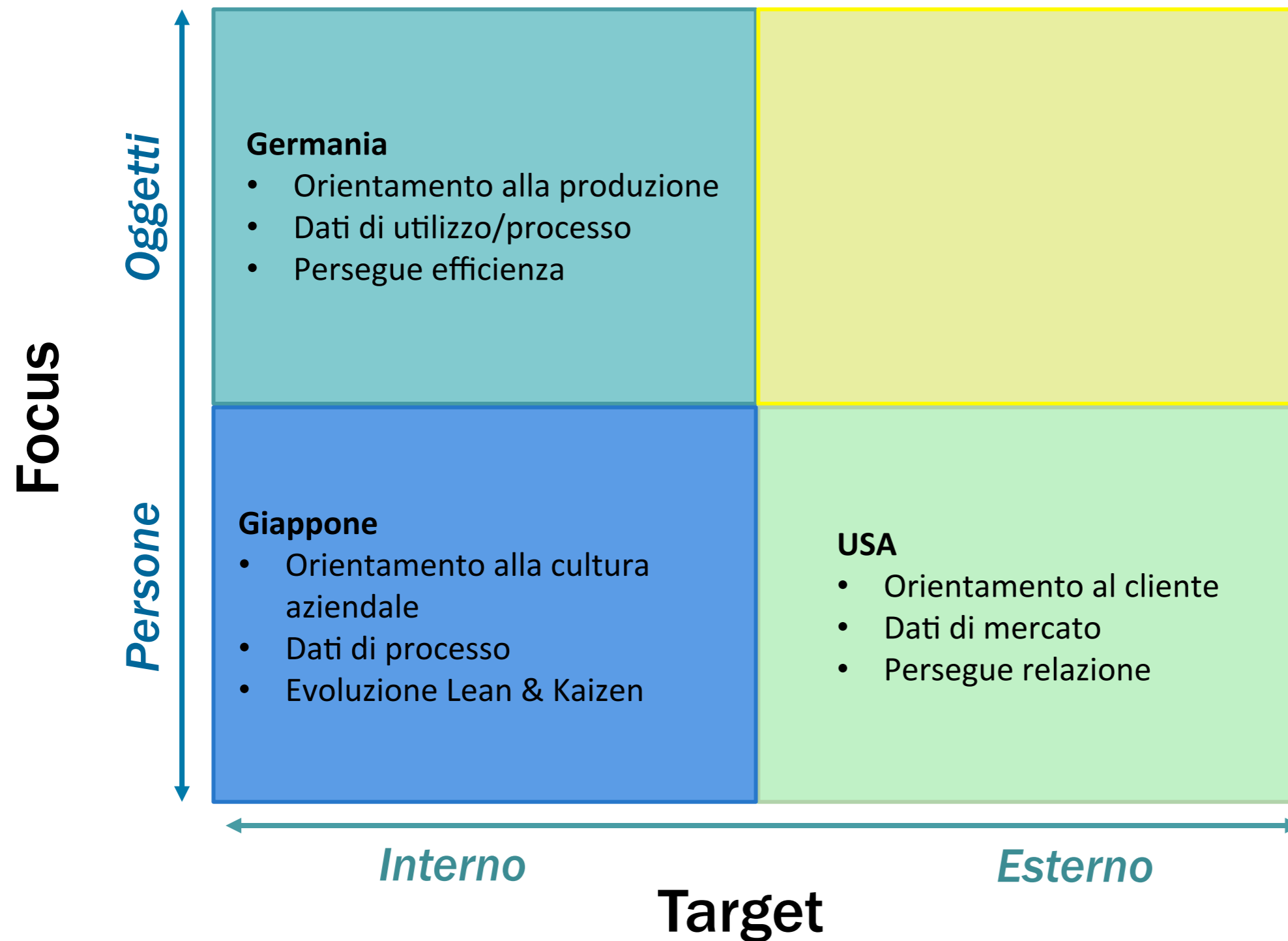
1) 1 - low, 5 - high

2) Adjusted for outliers Cyprus, Latvia, Luxemburg, Romania, Greece

# Le principali iniziative nel mondo



# Si vedono almeno tre diverse declinazioni nel mondo



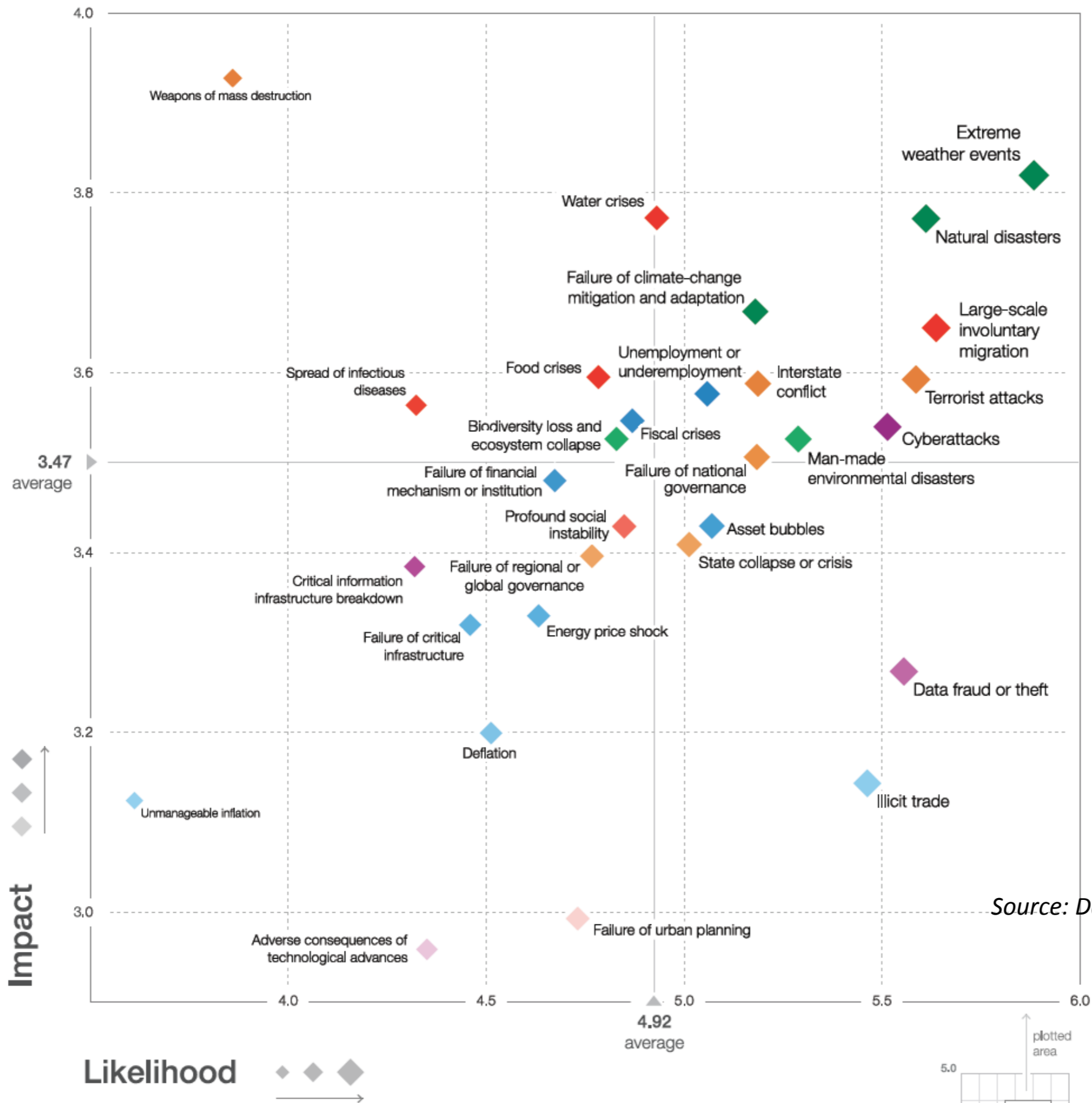
## Punti di attenzione

“We live in disruptive times where technological progress also creates challenges. Without proper governance and re-skilling of workers, technology will eliminate jobs faster than it creates them. Governments can no longer provide historical levels of social protection and an anti-establishment narrative has gained traction, with new political leaders blaming globalisation for society’s challenges, creating a vicious cycle in which lower economic growth will only amplify inequality. Cooperation is essential to avoid the further deterioration of government finances and the exacerbation of social unrest”

- Cecilia Reyes, Chief Risk Officer of Zurich Insurance Group.

*Source: Davos 2017 Global Risk Report*

# Punti di attenzione



Source: Davos 2017 Global Risk Report



# Punti di attenzione

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## Top 10 risks in terms of **Likelihood**

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- 1 Extreme weather events
- 2 Large-scale involuntary migration
- 3 Natural disasters
- 4 Terrorist attacks
- 5 Data fraud or theft
- 6 Cyberattacks
- 7 Illicit trade
- 8 Man-made environmental disasters
- 9 Interstate conflict
- 10 Failure of national governance

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## Top 10 risks in terms of **Impact**

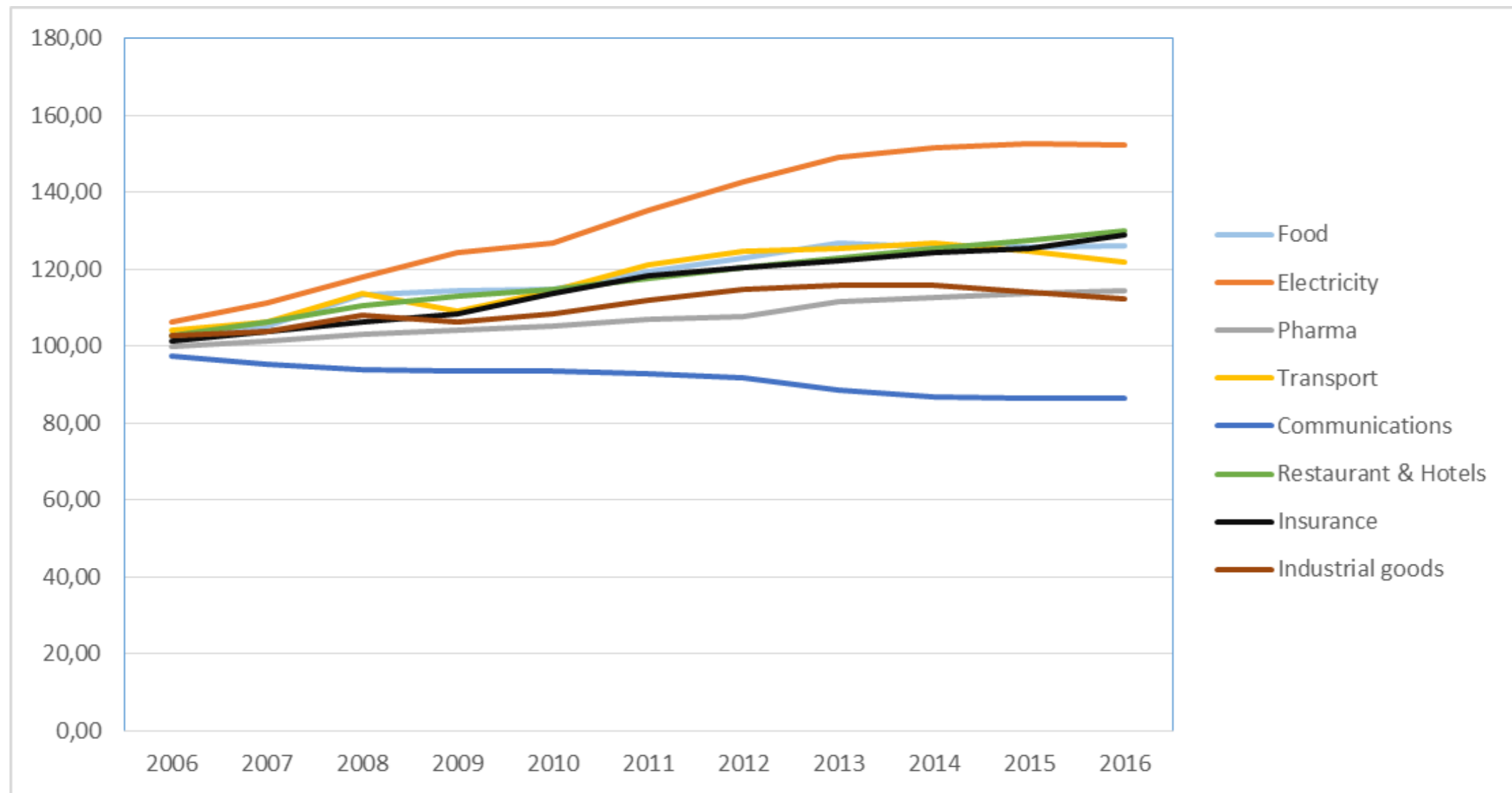
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- 1 Weapons of mass destruction
- 2 Extreme weather events
- 3 Water crises
- 4 Natural disasters
- 5 Failure of climate-change mitigation and adaptation
- 6 Large-scale involuntary migration
- 7 Food crises
- 8 Terrorist attacks
- 9 Interstate conflict
- 10 Unemployment or underemployment

*Source: Davos 2017 Global Risk Report*

# Le avvisaglie di un cambiamento disruptive

Andamento dei prezzi al consumo per diverse industry in EU 28



Source: elaborazione GPB su dati Eurostat 2016

# Parliamone

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