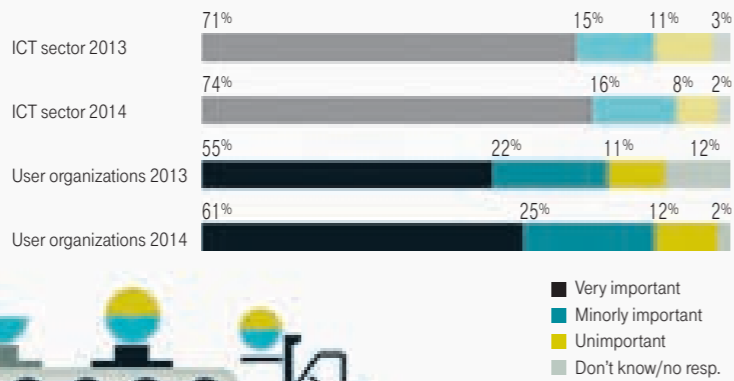


INTELLIGENT NETWORKS INDUSTRY 4.0

Merge the Internet with sensor-actuator systems and wireless technologies, and link the physical with the virtual world to create cyber-physical systems (CPS), and what do you get? A technological revolution. Now, machines are not only controlled by human operators – they talk among themselves, too. And by 2020, the Internet of Things (IoT) will connect something like 50 billion objects. Below, analysts describe the impact of the growing digitization of businesses and processes across a variety of industries and disciplines.

THE GROWING IMPORTANCE OF INDUSTRY 4.0

How important is the German government initiative Industry 4.0 for the ICT sector and for user organizations in general?



BITKOM, Aris Umfrageforschung, 2014

THE FOUR STAGES OF INDUSTRIAL REVOLUTION

Reaching for tomorrow: from the mechanical loom, to production-line manufacturing and programmable logic controllers, to smart factories.

German Research Center for Artificial Intelligence (DFKI)

1st INDUSTRIAL REVOLUTION
Late 18th century

Industry 1.0

Introduction of mechanical production facilities powered by water and steam

2nd INDUSTRIAL REVOLUTION
Early 20th century

Industry 2.0

Introduction of mass production based on the division of labor and powered by electricity

3rd INDUSTRIAL REVOLUTION
Early 1970s

Industry 3.0

Use of electronics and IT to further automate production

4th INDUSTRIAL REVOLUTION
Today

Industry 4.0
Use of cyber-physical systems

TAKE-UP OF M2M | IOT BY BUSINESSES



IoT: Internet of Things

IDC, European Vertical Markets Survey, 2013

IMPACT ON COMPETITIVENESS

Survey of businesses: how important is Industry 4.0 for the future competitiveness of German manufacturing? (In percent)



CRITICAL SUCCESS FACTORS FOR THE FUTURE OF MANUFACTURING

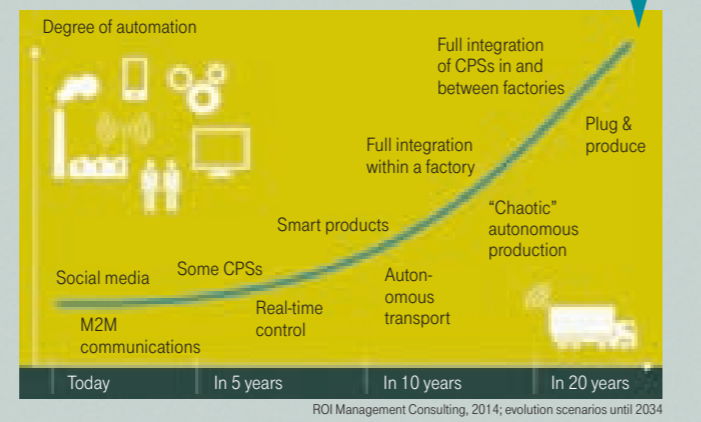
Intelligent ecosystems of partners who collaborate efficiently across organizational and national boundaries with the help of cutting-edge ICT technologies.

Data-centric product and service strategies based on **innovative applications**, social media, and cloud-based services.

Increased use of **big data technologies** as the technical basis for rapidly processing unstructured, complex and high-volume data.

Detecon Management Report, CMR Markets, 2013 issue

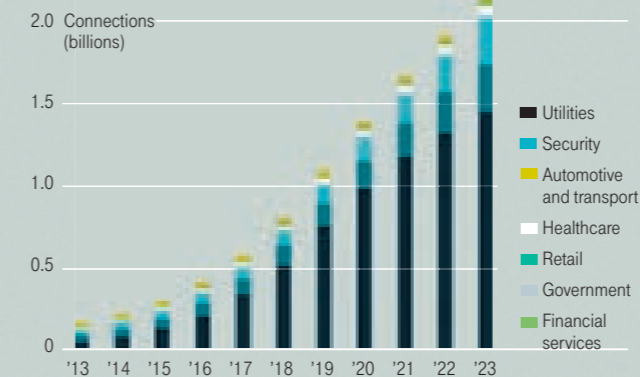
EVOLUTION OF INDUSTRY 4.0



ROI Management Consulting, 2014; evolution scenarios until 2034

THE CONNECTED WORLD

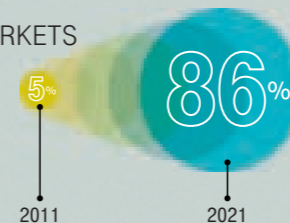
M2M connections worldwide will grow by a CAGR of 29% through 2023 to 2.2 billion.



Analysys Mason, M2M Device Connections, Revenue and ARPU: Worldwide Forecast 2011-2021, 2014

M2M IN DEVELOPED MARKETS

Growth of M2M connections as a percentage of overall population in developed markets.



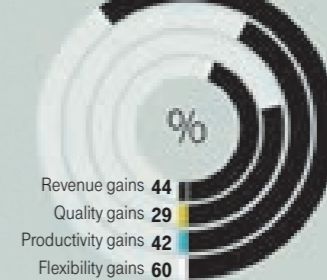
Analysys Mason, M2M Device Connections, Revenue and ARPU: Worldwide Forecast 2011-2021, May 2012

THE BENEFITS OF A SMART FACTORY

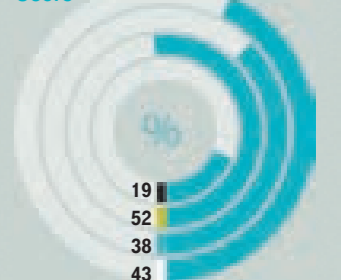
Existing users of smart factories see quality and flexibility improvements as the chief benefits. Enterprises still planning to implement connectivity are primarily looking for flexibility and revenue gains.



Planners



Users



PricewaterhouseCoopers, Smart Factories, November 2013

<Contact> MI-ECM@t-systems.com

<Link> www.t-systems.com/analysts