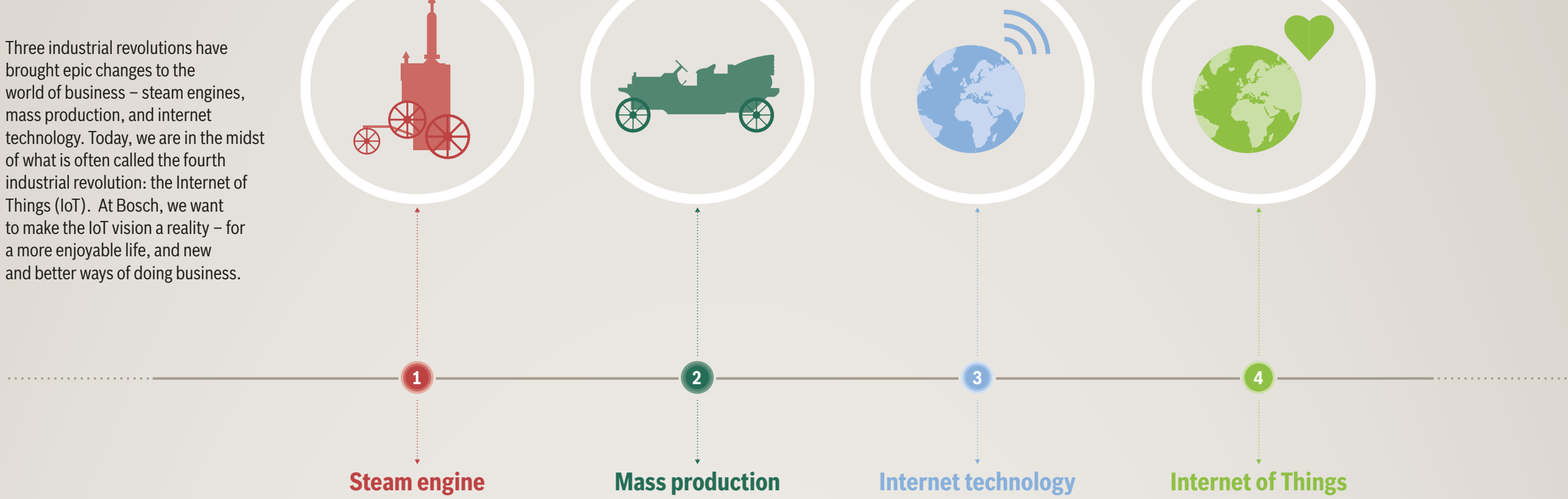


CAPITALIZING ON THE INTERNET OF THINGS

HOW TO SUCCEED IN A CONNECTED WORLD

How will you capitalize on the Internet of Things?
Download the IoT strategy white paper.
www.bosch-si.com/strategy-iot

01 FOURTH INDUSTRIAL REVOLUTION



02 BUSINESS MODELS AT STAKE

SIT AND WAIT: NO LONGER AN OPTION

The internet has transformed the communications business, the media landscape, retailing, and the music industry. Digitization and new technological developments have made big, unprepared players disappear – even market leaders and long-standing companies. As consumers, we have all seen how quickly things change, and how new technologies appear that challenge well-established products and standards. Nobody carries a Walkman and cassettes these days; instead, we stream music with our smartphones.

For many companies, the mere prospect of remaking traditional products into smart and connected ones is daunting. But embedding them into the digital world using services-based business models is much more fundamentally challenging. The new business models impact core processes such as product management, operations, and production, as well as sales and channel management. And given the dynamism of the net, innovations will have to come more quickly.

03 DEVICES BY 2022 – MORE THAN A NUMBERS GAME

14 billion
connected devices

3 billion
user interfaces

We do not consider smartphones and tablets as connected devices. Even if smartphones and tablets are connected to the internet, they are interfaces integrating the user into services of IoT-based business models, for example through apps or alerts.

According to the research database of the analyst firm Machina Research, there will be approx. 14 billion connected devices by 2022 – ranging from IP-enabled cars to heating systems, security cameras, sensors, and production machines. These numbers are based on the assumption that a device connected directly or indirectly with the internet is a connected device. That means a connected car is one connected device, which can itself consist of numerous connected things such as sensors, entertainment or navigation units.

04 POTENTIAL BY 2022 – FIVE KEY MARKETS

596 billion euros
IoT-based revenue by 2022

Managers need to envision the valuable new opportunities that become possible when the physical world is merged with the virtual world. Machina Research estimates IoT-based revenues by 2022 at around 596 billion euros, covering all players of the ecosystem. The five key markets are connected buildings, automotive, utilities, smart cities, and manufacturing.

Manufacturing 17 billion euros Smart cities 21 billion euros Utilities 44 billion euros Automotive 176 billion euros Intelligent buildings 213 billion euros

4 million terabytes
IoT-based traffic by 2022

To make the trio complete, the IoT is not just about connected devices and revenue – IoT-based traffic will also increase tremendously. To get a feeling for terabytes: Imagine a digital library of all the world's catalogued books in all languages; this would only amount to 480 terabytes. Or for the music lovers: One terabyte of audio recorded at CD quality will contain around 2,000 hours of audio.

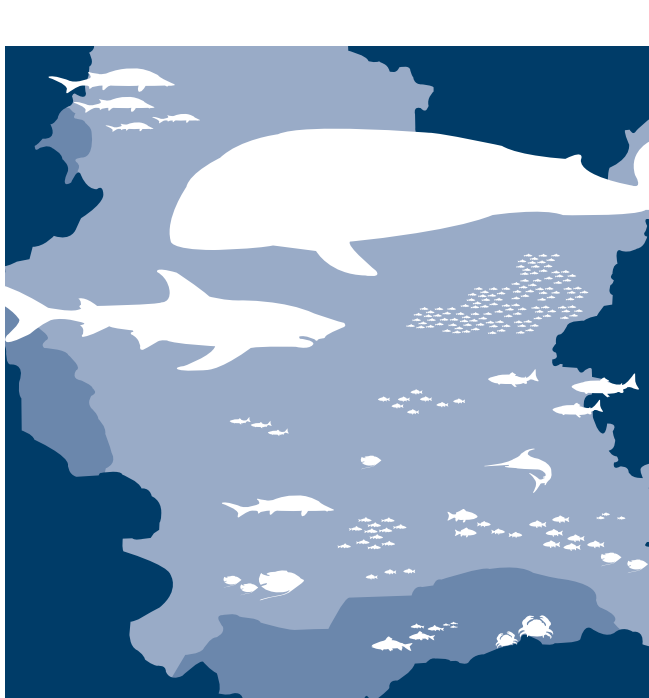
Intelligent buildings 47k terabytes Utilities 93k terabytes Manufacturing 118k terabytes Automotive 630k terabytes Smart cities 2,416k terabytes

THE NEW 'SALES ARENA' IN THE INTERNET OF THINGS

Today, the manufacturer relationship often terminates at the warehouse or, at the very latest, at the point of sale. The IoT will change this perspective significantly – from clearly allocated roles to what might be called a 'sales arena.' Suppliers and manufacturers are also targeting the customer with connected devices and new value-added services. Before the IoT, this was limited to other players on the market. This creates channel conflicts when approaching the customer – for selling the product, the service or both elements together.



05 SUCCESS FACTORS



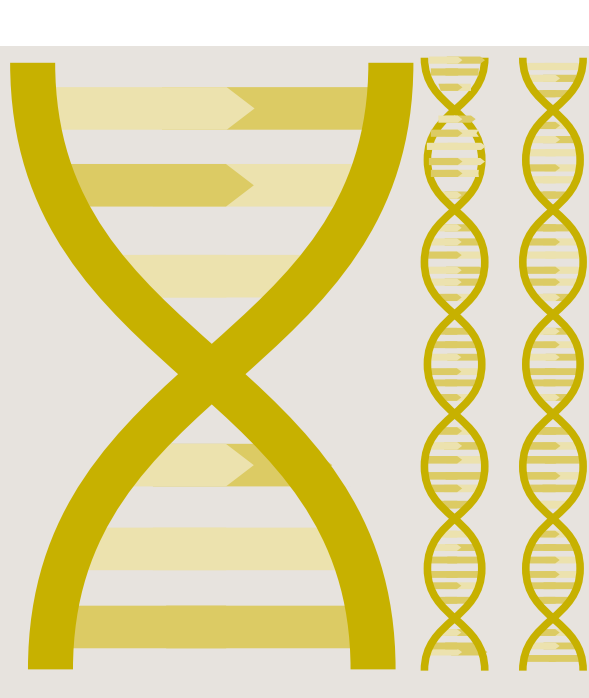
ECOSYSTEMS

In order to provide for the IoT's multifaceted challenges, the most important thing to do is develop business ecosystems comparable to a coral reef, where we can find diversity of species, symbiosis, and shared development. This doesn't mean a reef is necessarily a pleasant place; it has its share of predators and prey. Nevertheless, the reef infrastructure allows species to keep each other alive and adapt to changes. In such an ecosystem, there are many participants (companies and consumers), decisions are made collaboratively, and competitors are often partners at the same time, with a shared understanding of the market and values.



BUSINESS MODEL INNOVATION

To expand and intensify the relationships with existing customers is one of the main objectives for most companies. Value-added services and new business models are important methods for achieving this objective and are bringing fundamental new opportunities for enterprises. IoT technologies create new ways for companies to enrich their services, gain customer insights, increase efficiency, and create differentiation opportunities.



START-UP DNA

The connected world is a highly volatile and dynamic one, and the task for entrepreneurs is to actively shape this world and make the most of the opportunities it presents. This includes being ready to deal with high-speed change very much like in the start-up world. From what we have seen, IoT entrepreneurs also need to follow exploratory approaches as they face limited predictability and want to minimize risks, preferably in units that are small, agile, and independent.

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Software Innovations

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Sources
Cisco Visual Networking Index (https://www.cisco.com/web/solutions/sp/vni/vni_mobile_forecast_highlights/index.html)
Machina Research Database (<https://www.machinaresearch.com>)