

The logo for Capgemini Invent, featuring the word "Capgemini" in a white serif font, followed by a circular icon containing a stylized leaf or drop shape, and then the word "invent" in a white sans-serif font.

Capgemini  invent

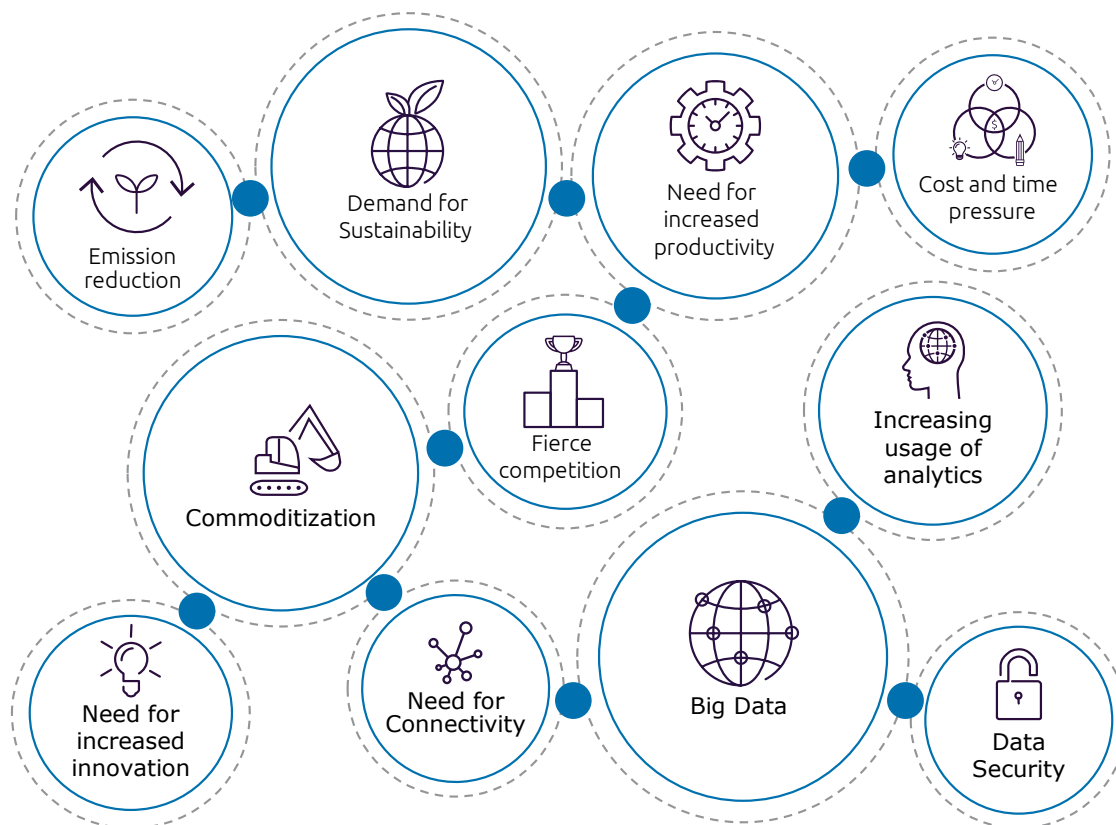
HEAVY MACHINERY

Opportunities for new business models and
artificial intelligence on the construction site



THE DEVELOPMENT TOWARDS CONSTRUCTION 4.0 IS ACCELERATED BY VARIOUS CHALLENGES

Challenges for construction machine manufacturers



NEW TECHNOLOGIES HELP TO ESTABLISH A FLEXIBLE AND OPTIMIZED VALUE CHAIN

Heavy Machinery Opportunities

Construction Management Software

Software allowing engineers to more efficiently manage their resources, construction progress, machinery, etc.

Digital Twin

Creation of a Digital Twin allows continuous and on-demand machinery insights as well as ongoing customer usage feedback

Automated Construction Forecast

Data collection & analysis of soil and other materials to improve research & development

Robotics & Drones

Robotic software, drones or intelligent construction machines performing various construction functions more efficiently

Insights Driven Operations

Intelligent data usage with AI & predictive analytics helps making better decisions, saving energy, increasing efficiency & optimizing planning

1

Connected Services

IoT services enable new digital business models

2

Intelligent Automation

Automation of complex processes through the implementation of advanced software

3

Market Places

Connecting directly manufacturer, suppliers and consumers without any middlemen

Configurator

Interactive customization platforms for construction machinery

Functions on demand

Individual machinery functions for a limited, need-based period of time (e.g. increased power)

Sensors

Smart sensors collecting data, helping workers to monitor machines, weather & materials quality

Connected Machines

Seamless communication between heavy machinery and other related systems



* = deep dive information on following pages

Digital Customer

...trends provide growth opportunities through increased customer understanding, customer touch points and a superior customer experience

Digital Operations




...trends create a momentum for operational efficiency through process automation, increased connectivity and production transparency

Digital Business

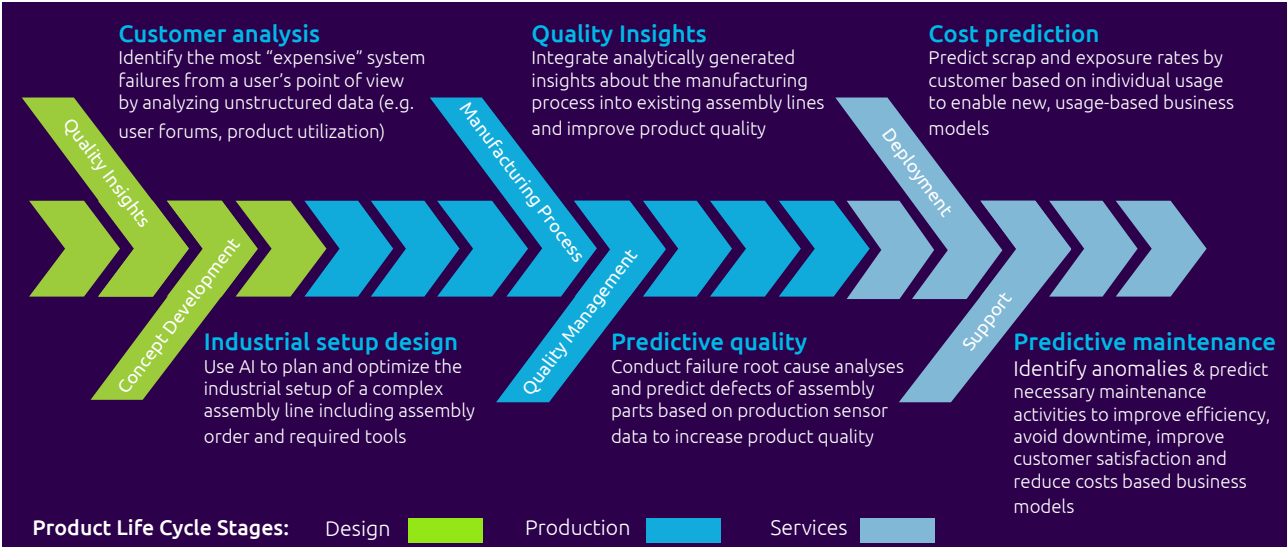
...trends enable digitally modified business or new business models based on disruptive innovations in the market

OUR INSIGHTS DRIVEN USE CASES CREATE SUSTAINABLE AND SCALABLE BUSINESS VALUE

1 Insights Driven Operations - Our Offering

|  Capgemini Approach |  Data Science Expertise |  Client Benefits |
|---|---|---|
| <ul style="list-style-type: none">• We combine data science capabilities with a business driven mindset• Our industry know-how enables tailored use cases to our clients specific needs• Our collaborative approach ensures sustainable integration into the client organization | <ul style="list-style-type: none">• Artificial intelligence for assembly line design or for predictive maintenance• Computer vision and machine learning for detection of quality problems• Natural language processing to enable analytics on written manufacturing documents | <ul style="list-style-type: none">• Business impact (improved quality, improved uptime, increased revenues, higher efficiency)• Scalability in delivery model and across value chain• Solutions embedded into organization, technology and processes for sustainable results |

Insights Driven Operations – Example Use Cases



WE CREATED ANALYTICAL QUALITY SOLUTIONS TO REDUCE COST AND BOOST PRODUCTIVITY

1 Insights Driven Operations - Project Reference

Situation



Our client, a leading avionics OEM, faces high cost of non quality along the complete value chain. Furthermore, manual evaluation and decision taking results in high workload

Solution



We supported the integration and linkage of quality data across units and locations to generate new insights by end-to-end KPI monitoring and search engines as well as AIs to predict and prevent quality issues

Benefit



Our tailored quality solutions reduced cost by easy access to quality knowledge including outcome predictions and reduces workload by automatization of complex analyses

Analytics product delivery approach



Review of analytics use case, business case & funding

Deep dive into product, business value, team sizing, data & architecture

Development of the product together with end users in agile mode

Maintain the product and associated service level

Our proven scalable (>100 use cases) agile delivery approach for analytical solutions, considering business needs, data and architecture, ensures user-centric solutions with high quality and success rate

Tailored digital solutions

Enterprise Search

Search all quality data like in Google to find problem solving procedures for your quality problem

Data Explorer

Explore and navigate the connected datasets to investigate quality issues and relationships

Quality Reporting and Alerting




Automatize report generation and steer quality processes with real time KPIs and notifications quality problem

Predictive Maintenance

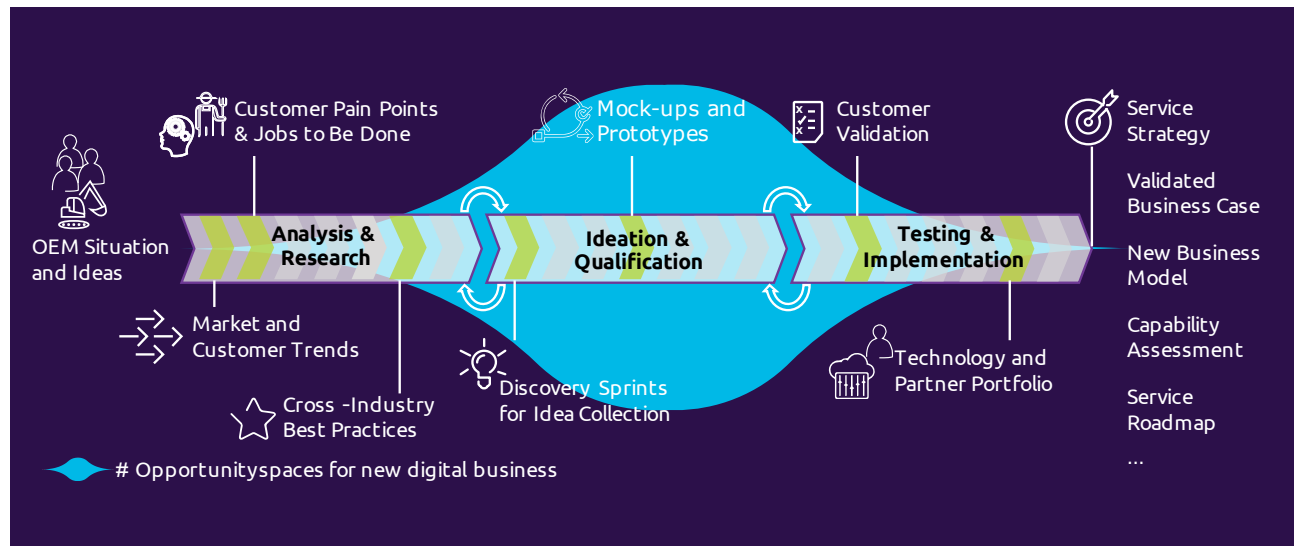
Lay the foundation for predictive and preventive quality use cases on shop floor or machine level

CONNECTED SERVICES CREATE NEW REVENUE AND HIGHER CUSTOMER SATISFACTION

2 Connected Services - Our Offering

|  Use cases |  Benefits |  Capabilities |
|---|---|--|
| <ul style="list-style-type: none"> • Digitally enable existing services e.g. usage-based insurance • New connected services e.g. monitoring and predictive maintenance • Farm-site related services e.g. drone monitoring | <ul style="list-style-type: none"> • Increased and sustained revenue by higher margins and automated processes • Better fulfillment of customers' needs and satisfaction • Differentiation from competitors and contrary to commoditization | <ul style="list-style-type: none"> • Create a customer centric portfolio of digital and non-digital services • Define how to deliver services with own and dealer capabilities • Design prototypes, develop rollout and how to go-to-market approach |

Customer Centric Approach for Connected Services / New Business Models



WE ENABLE NEW SERVICE REVENUE WITH A CUSTOMER-CENTRIC AFTERSALES BUSINESS

2 Connected Services - Project Reference

Situation



Our client, a leading multi-brand agricultural equipment manufacturer, decided to drive a shift from simply selling finished goods and parts towards providing digital after sales services

Solution



Capgemini supported the client in developing a comprehensive portfolio of their commercial services offer for connected and non-connected machines to boost customer loyalty

Benefit



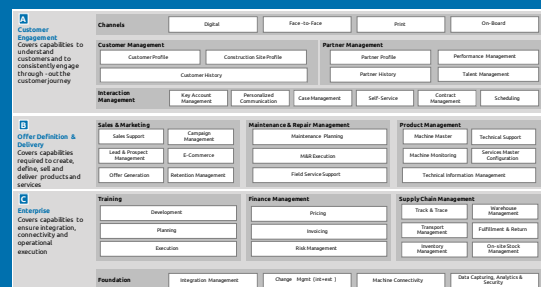
Together, we developed end-to-end processes and new service-based business models along the implementation roadmap, resulting in additional revenue streams

The service portfolio analysis adapts to company capabilities



- Inclusive digital service offering that is deeply connected with business cases
- Matching complexity with capabilities allows fast implementation of best-in-class after-sales service




Sustainable increase of customer loyalty with our capability model



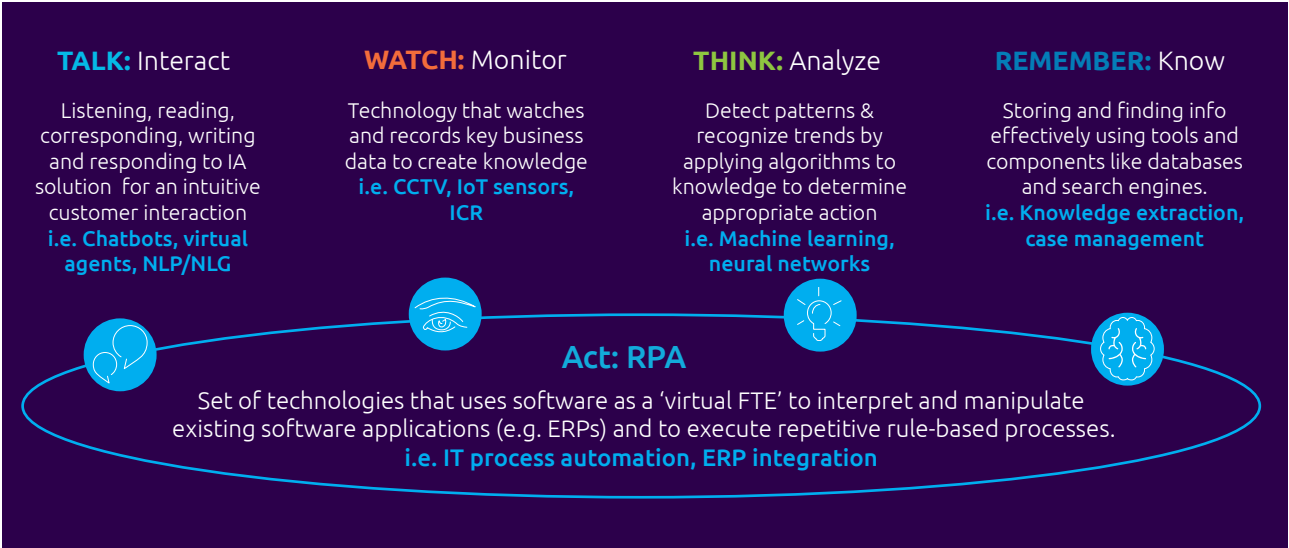
- Required key-capabilities throughout the organization to enable long-term competitiveness in delivering customer-centric solutions

IDENTIFYING THE RIGHT PROCESS CHANGES & AUTOMATION SOLUTIONS FOR YOUR NEEDS

3 Intelligent Automation - Our Offering

|  Use cases |  Benefits |  Capabilities |
|---|---|--|
| <ul style="list-style-type: none">• Robotic Process Automation (RPA) to manage high-volume, repetitive tasks• Natural Language Processing (NLP) and Natural Language Generation (NLG)• Machine learning enables user-level automation without changing existing processes or systems | <ul style="list-style-type: none">• Lower error rate through supportive technologies• Revenue boost by identifying & maximizing (sales) opportunities as well as increased operational efficiencies• Superior customer experience due to better analytics insights | <ul style="list-style-type: none">• Mass automation of manual entries Implementation of Chat- & Voicebot with new user interfaces• Prediction of future customer actions and value as well as• Read-out and transformation of PDF into structured data |

Intelligent Automation Service Offering



WE DEVELOPED AN ACTIONBOT THAT UPDATES MASTER DATA AUTOMATICALLY

3 Intelligent Automation - Project Reference

Situation



Our client, a leading company of the manufacturing industry, decided to increase its customer experience by applying intelligent automation

Solution



We implemented a Chat- and Voicebot starting with the input channel chat and clients' wish to change their postal address. The scalability of AI and RPA thus allowed us to extend the complexity of the use case

Benefit



The AI and RPA capabilities and functions are scalable. Therefore, we combine the strength of AI and rule-based RPA. Approved data is entered without human error potential

Smart automation via Chatbot / Voicebot

Input Channel:



IBM Watson™

UiPath

SAP HANA

- Chat
- Phone

Human interaction

- Chatbot
- Voicebot

No Human interaction

- Robotic process automation

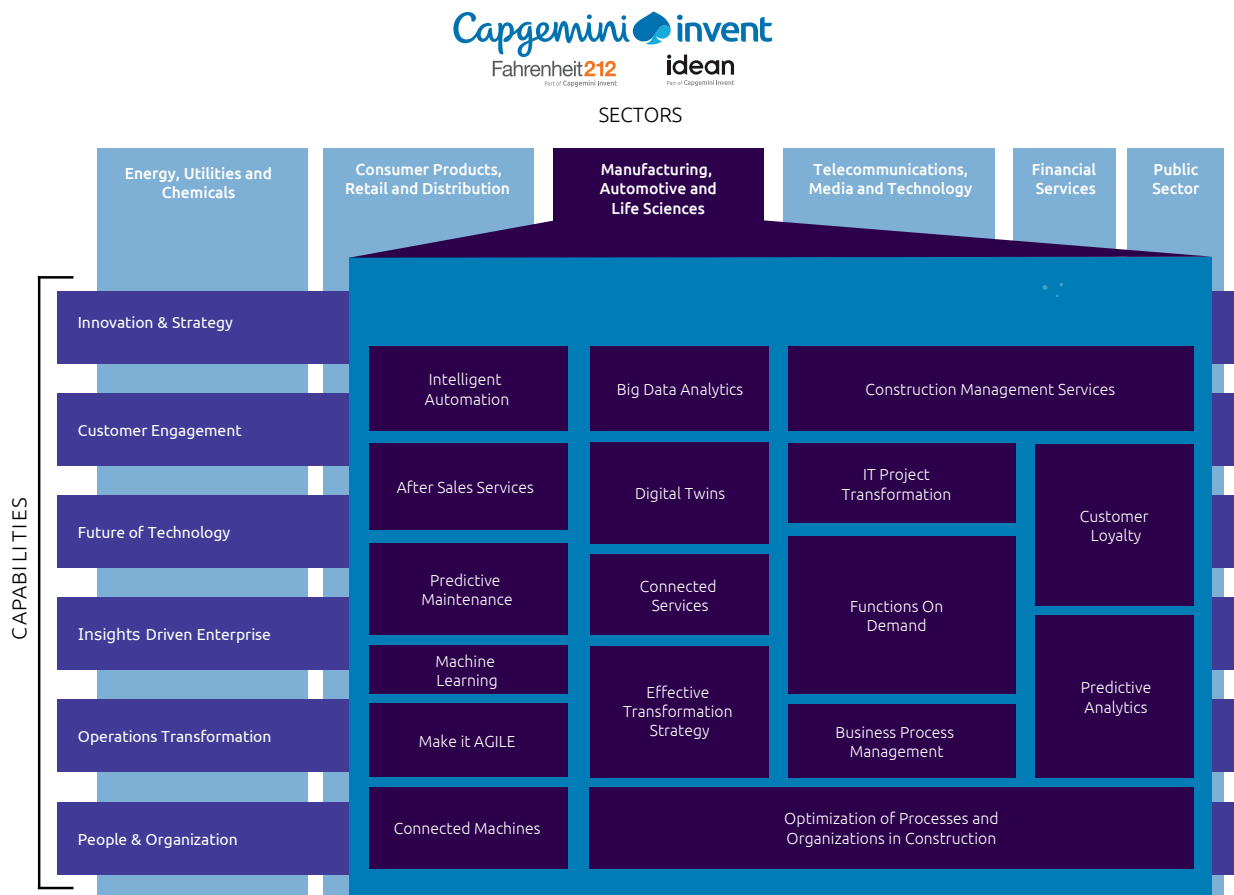
No Human interaction

- ERP-System

No Human interaction

CAPGEMINI INVENT COMBINES KEY DIGITAL CAPABILITIES WITH DEEP SECTOR EXPERTISE

Heavy Machinery @Capgemini Invent



WE ARE LOOKING FORWARD TO WORKING WITH YOU

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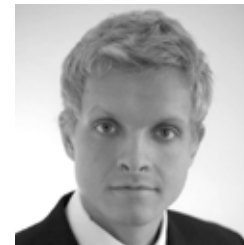
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ABOUT CAPGEMINI INVENT

As the digital innovation, consulting and transformation brand of the Capgemini Group, Capgemini Invent helps CxOs envision and build what's next for their organizations. Located in more than 30 offices and 10 creative studios around the world, its 6,000+ strong team combines strategy, technology, data science and creative design with deep industry expertise and insights, to develop new digital solutions and business models of the future.

Capgemini Invent is an integral part of Capgemini, a global leader in consulting, technology services and digital transformation. The Group is at the forefront of innovation to address the entire breadth of clients' opportunities in the evolving world of cloud, digital and platforms. Building on its strong 50-year heritage and deep industry-specific expertise, Capgemini enables organizations to realize their business ambitions through an array of services from strategy to operations. Capgemini is driven by the conviction that the business value of technology comes from and through people. It is a multicultural company of over 200,000 team members in over 40 countries. The Group reported 2018 global revenues of EUR 13.2 billion.

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People matter, results count.

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