Digital Farming
Opportunities for a new way of agriculture
CHALLENGES IN THE AGRICULTURE SECTOR

The development to agriculture 4.0 is accelerated by natural as well as technological challenges.

- Inferior water quality
- Reduced access to land
- Need for increased productivity
- Increasing demand of Big Data
- Big Data
- Data Security
- Climate change
- Soil degradation
- Water scarcity
- Soil degradation
- Climate change
- Water scarcity
New technologies of agriculture 4.0 help to establish a flexible and optimized value chain

**Connected Services & Farm Management Software**
Software allowing farmers to more efficiently manage their resources, crop production, farm animals, etc.

**Predictive Analytics**
Big data usage & predictive analytics helps making better decisions, saving energy, increasing efficiency & optimizing pesticide application

**Market Places**
Connecting farmers, suppliers and consumers directly without any middlemen

**Robotics Process Automation**
Automation of complex processes through the implementation of advanced software

**Servitization**
Service as a product enables new digital service business models

**Configurator**
Interactive customization platforms for agricultural machinery

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

**Connected Machines**
Seamless communication between farm machines and other related systems

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

**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

# = deep dive information on following pages
FUNCTIONS ON DEMAND

Offering individual on-demand vehicle services for a limited, need-based period of time

“Imagine there is a seat for each of our models, which has all functions available today”

Use case

- Purchase of low-cost special functions as one-time order (e.g. stronger headlights)
- Unlock specialized harvest or seeding equipment on demand for a certain amount of time

Benefits

- Customer-oriented service as a business portfolio
- Strong sales opportunities for add-on functions through pay per order
- Increased customer connectivity & insights

Capabilities

- End-to-end implementation, incl. tool and vendor selection
- Development of a customized sales concept covering new service portfolio
- Collaborative design of the FoD customer journey in our innovation lab
**FUNCTIONS ON DEMAND**

The innovation through “functions on demand” opens up new sales opportunities for your business

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Usage</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard</strong></td>
<td>One-time configuration (incl. special equipment)</td>
<td>Usage of initial configured special equipment</td>
</tr>
<tr>
<td><strong>With FoD</strong></td>
<td>Broad range of (not activated) special equipment</td>
<td>Appropriate activation of special equipment</td>
</tr>
</tbody>
</table>

**Benefits for your client**
- ✓ No final fixing of special equipment needed
- ✓ After-sales customizing of machinery possible
- ✓ Testing of products possible
- ✓ Needs-oriented usage of services
- ✓ Optimized fixed costs by “pay-as-you-go” service offer

**Benefits for you**
- ✓ Establish service as a business
- ✓ Innovative market leader
- ✓ Strong customer experience
- ✓ Increased customer insights
- ✓ Increased customer connectivity
- ✓ New sales opportunities
FUNCTIONS ON DEMAND (FOD) SET UP

We support our clients in the end-to-end FOD setup as well as in the development of a tailor-made go-to market approach.

End-to-end FOD setup

1. Registration
2. Purchase
3. Activation
4. Usage

Go-to market

Precision
✓ Position with precise FOD technology within market

Performance
✓ Convince by excellent FOD performance within market

Convenience
✓ Get closer to customer through acquired convenience

Capgemini Capabilities

Customer Journey
Vendor Selection
Tool Selection
TPP*
Functional Requirements
Technical Requirements
Proof of Concept
Functions Selection
IT Implementation

Use Cases
ROBOTICS PROCESS AUTOMATION

Automation of complex processes through the implementation of advanced software

Use case

- Automate order management process to increase process speed and reliability as well as customer satisfaction
- Robotize finance processes to reduce operating costs and increase process efficiency

Benefits

- Quality: RPA reduces human error
- Efficiency: RPA is scalable
- Innovation: RPA creates space for innovation
- Compliance: RPA follows rules
- Investment: RPA can start small

Capabilities

- Global RPA Center of Excellence (CoE)
- End-to-end delivery (conception/implementation) and maintenance services
- Strategic partnership with leading RPA product vendors

“Reducing human error by up to 20%”
ROBOTICS PROCESS AUTOMATION

RPA is an efficient solution to automate manual processes and realize benefits in a short time horizon

01 Effectiveness
- Transition to services through software from services-through-labor
- Improved process speed

02 Quality
- Significant reduction in error rates
- Better response time
- Improved process stability
- Better handling of unstructured data

03 Compliance
- Digital workforce that follow the runbooks 100% of the time
- Automation drives adherence to standards

04 Scalability
- Flexibility in peak periods
- Decoupling of labor from quantity of devices supported
- Ability to deliver superhuman capabilities

05 Proactive Risk Management
- Human error minimization
- Enhanced data accuracy
- Agility and forward looking focus

06 People Performance
- Productivity increases
- Humans become virtual team leaders
- Human resources can focus on high value activities
ROBOTICS PROCESS AUTOMATION

Our RPA solutions include implementation projects, “as-a-service” offerings as well as support/run models

RPA Experience
- Synergetic ecosystem with leading RPA and cloud providers
- Dedicated RPA specialists (i.e. Lead Developers, Senior Developers & Domain specialists)
- Global RPA Delivery Excellence team (CoE)

Comprehensive RPA Solutions
- Extensive RPA service catalog including establishment of RPA “as a service”
- Strong controls, real time dashboards / analytics
- Enterprise-level scalability & industrialized roll-out approach

Expert Support
- End-to-end delivery and maintenance services
- Flexible support from product specialists

Flexible Pricing Models
- Fixed price projects
- Service based pricing model
- Outcome/Gain-share based pricing models

Strategic Partnerships
- Strategic partnership with leading RPA product vendors including UiPath, BluePrism and InStream Celaton

Learn more about RPA – Download our study
**DIGITAL TWIN**

Creation of a Digital Twin allows continuous and on-demand insights combining intuition and algorithms.

**Use case**
- Quick win: Creation of a physical assets’ 3D replica for interactive product development
- Implementation of a digital twin for predictive maintenance and real-time product feedback

**Benefits**
- Real-time customer usage insights
- Continuous and flexible improvement of product concepts
- Reduced breakdown time and higher utilization
- Enablement for new service portfolio
- Real-time production simulation
- “One stop shop” delivery from concept development to implementation of digital twin into system landscape
- Update of business model, process setup and service portfolio to harvest new technology

**Capabilities**

“Operate the representation of a physical tractor in a virtual environment”
Digital Twin

Generate a digital twin of a specific machine to optimize product planning, development, production, and operations.

A digital twin is a digital representation of the product that is used to design, simulate, optimize, and improve the physical twin. It is a virtual representation of the product.

- Digital twin: a graphical representation of the machine enhanced by real-time sensor data to make contextual, technical information accessible.
- This concept of having a digital twin of a physical machine that communicates the use experience of the physical product via sensor data provides an opportunity to further enhance the machine servicing process (via virtual reality).
**DIGITAL TWIN**

A Digital Twin project will address the entire product life cycle to enable systematic optimization from Product Planning to MRO*.

- **Predictive maintenance** based on direct access to historical data
- **Fast repair work** leveraged by individual configuration data stored in the Digital Twin
- Optimized operating states lead to **reduced breakdown time and higher utilization**

- **Clearly defined requirements and focus on customer needs** based on field operating data
- Planning of new **business models** based on data analysis
- **Continuous improvement of product concepts** and flexible adaption of the product to the respective environment

- **Real time production simulation** (product & production line; e.g. digital factory)
- Incremental optimization of production processes based on historical production data
- **Seamless information flow** throughout the life cycle stages enables additive manufacturing and collaboration

- **Optimized design** based on customer requirements
- Optimization of simulation and testing of products with collected environmental & status data
- **Optimized operating states** of the product related to real operating conditions
- **Optimized product structure** for different life cycle stages

*MRO = Maintenance, Repair & Operations*
Capgemini Consulting leverages agriculture, farming and digital innovation expertise with deep knowledge and experience in effective business transformation.
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