



Leading the digital transformation in chemicals

 **BASF**
We create chemistry

BASF 4.0 team – a close partner of BASF Venture Capital

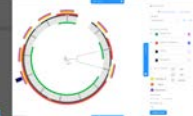


We unlock new innovation opportunities with the help of data



Predict catalyst lifetime performance

- Intuitive structuring of all data relevant for catalyst research.
- Performance ranking after 840 hrs in high throughput setup well correlated with 2700 hrs miniplant test.



Augment enzyme discovery by big data

- More than 50 million enzyme sequences (internal and external), including patent status and properties can be explored interactively.
- Intuitive interface developed with users.



Augment biological entity discovery by literature mining

- Artificial Intelligence filtered 29 relevant out of 48,000 published documents.
- 3 months of manual search had only found 6.
- Continuous literature surveillance with live relevance filtering for specific questions.



Accelerate formulation adjustment

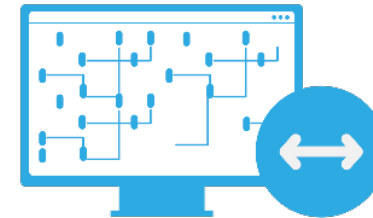
- First formulation batch adjusted using real customer application data. Positive performance in customer plant.
- Partnership definitions ongoing now.

We are transforming supply chain into an integrated ecosystem

Logistics Visibility

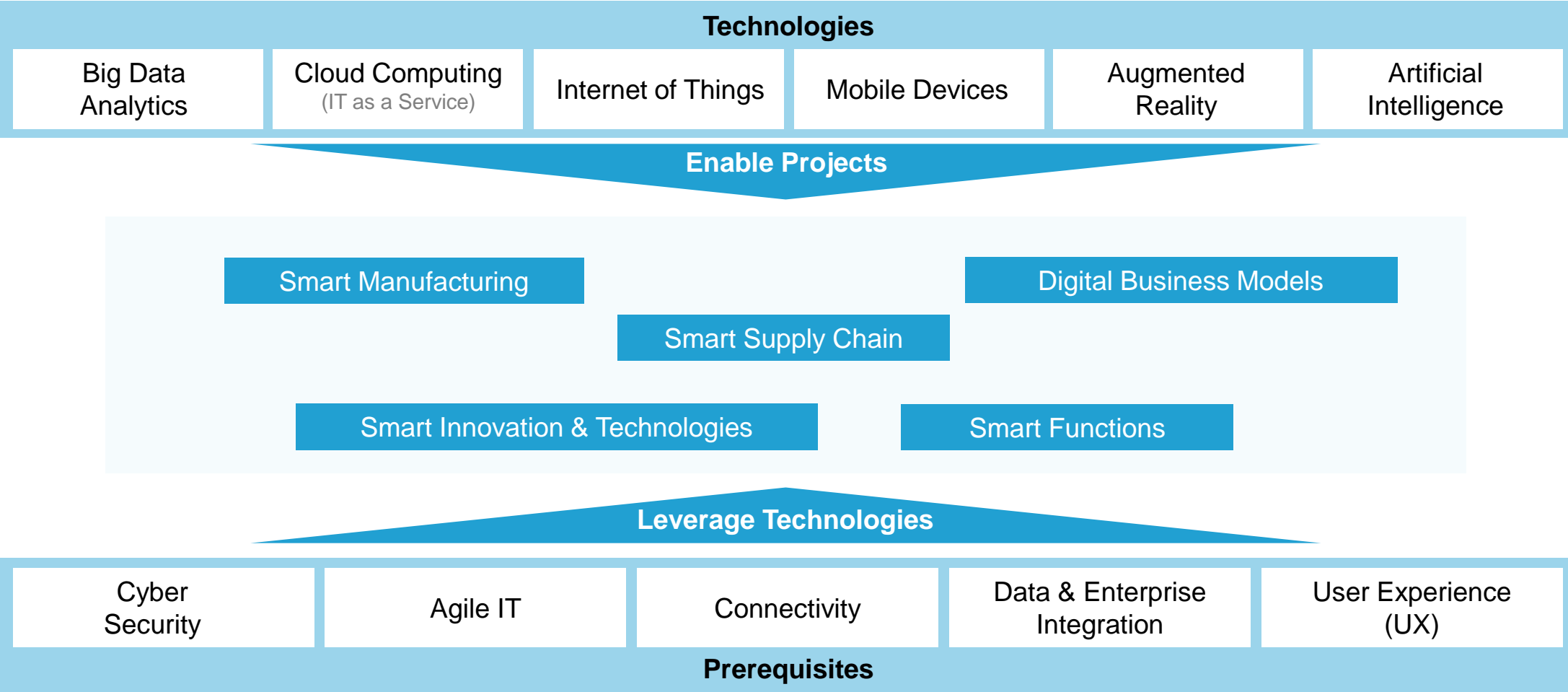


Horizontal Integration



**We are making our manufacturing processes
safer and more efficient**

We are enabling the digital transformation



We take all of our employees on our journey

Basic Capability Building



Learning events,
Exhibition,
Communication



Learning App

Tailored Capability Building



Digital Academy
of Mannheim
Business School
for Senior
Executives



Learning-App
for mobile
Devices in
Operations

Ecorobotix – Case Study



Company	Ecorobotix SA was founded in 2011 and is located in Lausanne, Switzerland. The company has 13 employees.
Technology & USP	Ecorobotix develops robots with autonomous navigation and spray application capabilities that operate with real time weed recognition tools based on Artificial Intelligence. The patented machine learning technology allows the highly accurate and individual application of different herbicides in the same passage without contamination of the value crop. Therefore, less selective and cheaper herbicides can be used. Besides, the precise application decreases damaging of the crops.
Markets	USD 2.0 bn annual weeding market. Driven by cost and demand for sustainable solutions, high development cost for new herbicides and regulatory pressure.
Business strategy	Enter the market through the High Value Added Crops (e.g. onion market) with a size of USD 0.5 bn.
Strategic fit	The company's precision farming technology is of strategic importance for RB and AP to evaluate new business models in the AgTech space.
Potential game changer	Ecorobotix technology platform could be a potential game changer in the methodology of weed control transferring the intelligence from the chemical molecule to the Artificial Intelligence of the robot.

Ecorobotix – Case Study



USP

- Reduction of herbicides by 95% per passage
- Reduce cost by 30%
- Raise yield by 15%
- Autonomous: no driver, 12/7 operation
- Lightweight: 130kg, no soil compaction, safety
- Solar: 100% of needed energy produced by the robot
- Smart: >90 % of weeds detected with vision
- Efficient: application of herbicide only on weeds
- Accurate: spot spraying with two robotic arms
- Simple to use with a smartphone
- Robust and easy to repair: lifetime of >10 years
- Able to weed up to 3 ha per day



Ecorobotix – Case Study



Video



Re'Flekt – Case Study

The logo for RE'FLEKT, featuring a stylized 'R' icon followed by the text 'RE'FLEKT' in a bold, sans-serif font.The BASF logo, consisting of a square icon with a smaller square inside, followed by the text 'BASF' and the tagline 'We create chemistry' below it.

Company

Reflekt GmbH, founded in 2012, 60+ FTEs at three different offices (Munich, Duesseldorf, San Francisco). Current customers include many companies in the automotive market due to a partnership with BOSCH, such as Daimler, Audi, BMW, but also 1&1, Siemens and ThyssenKrupp.

Technology & USP

Reflekt provides Augmented Reality (AR) software products for industry applications. They are offering two products, Reflekt One (Content creation) and Reflekt Remote (remote field service). Please see next slide for details.

Business Model

SaaS (Software as a Service), gain customers via remote field service product (Reflekt Remote) and explore integration into existing content management systems (Reflekt One).

Markets

USD 1 bn training, operations and maintenance in AR, growth predicted at >15% p.a. Growth drivers are demographic change, the need for optimization and expert knowledge availability 24/7 around the globe. AR is one of the core technologies to encounter loss of knowledge and efficiency losses due to personnel turnover as well as enabler for automated plants alongside AI.

Re'Flekt – Case Study

 RE'FLEKT

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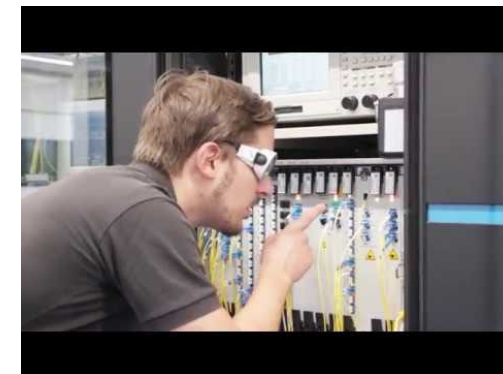
Reflekt ONE

Reflekt ONE is a authoring platform which enables users to adapt their existing content, e.g. CAD files, operation / maintenance manuals, instructions or training material for AR enabled devices such as Smart Glasses, Tablets and Phones. It integrates in the existing authoring environment and content management system already in use, lowering the barriers for new users significantly while offering scalable way to convert content. Interfaces for live data enrichment available.



Reflekt Remote

Reflekt Remote is a white label solution, which includes an intelligent routing to allows calling an expert by pushing just one button. The remote expert can then provide guidance and instructions from a central knowledge center directly to the engineer, internally and externally.






Strategic fit

Field service can not only be used internally for providing expert consulting to BASF engineers and thereby multiply the skillset by reducing travel costs and time, but also externally for customers and partners (ongoing project with EC/LMS), differentiating our service portfolio. Enables scalable conversion of content to be used with Augmented reality devices. Instant availability of expert know how to junior skilled personnel globally, for internal service as well as for customers. High potential for efficiency gains as well as new service models in customer interaction.

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