CASE IH
AGRICULTURE 4.0

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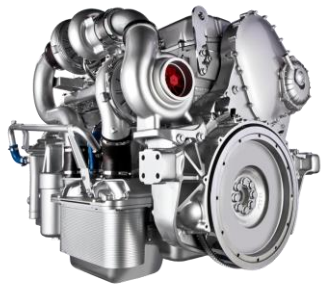
Industry Relations CNH Industrial

CNH INDUSTRIAL

CASE IH AGRICULTURE · STEYR TRAKTOREN · CASE CONSTRUCTION · NEW HOLLAND AGRICULTURE · NEW HOLLAND CONSTRUCTION · IVECO · IVECO ASTRA · IVECO BUS · HEULIEZBUS · MAGIRUS · IVECO DEFENCE VEHICLES · FPT POWERTRAIN TECHNOLOGIES

CNH INDUSTRIAL
PRODUCT PORTFOLIO



CNH INDUSTRIAL

OUR VISION

To be the preferred partner in bringing innovative products and market leading agricultural solutions and services to our customers around the world

OUR APPROACH

Serving Professional Farmers
Best-in-class total cost of ownership
Integrating high technology to maximise returns on every acre

OUR BRAND

Powerful.
Reliable.
Highly Productive.

CASE IH
PRODUCT RANGE

TRACTORS

FARMLIFT

COMBINES

BALERS

SEEDING & CULTIVATION

SPECIALITY CROP HARVESTERS

SPRAYERS

PRECISION FARMING

CUSTOMER SEGMENT
IN AGRICULTURE

Livestock

Fruit & Vegetable

Row Crop/Arable

CASE IH AGRICULTURE

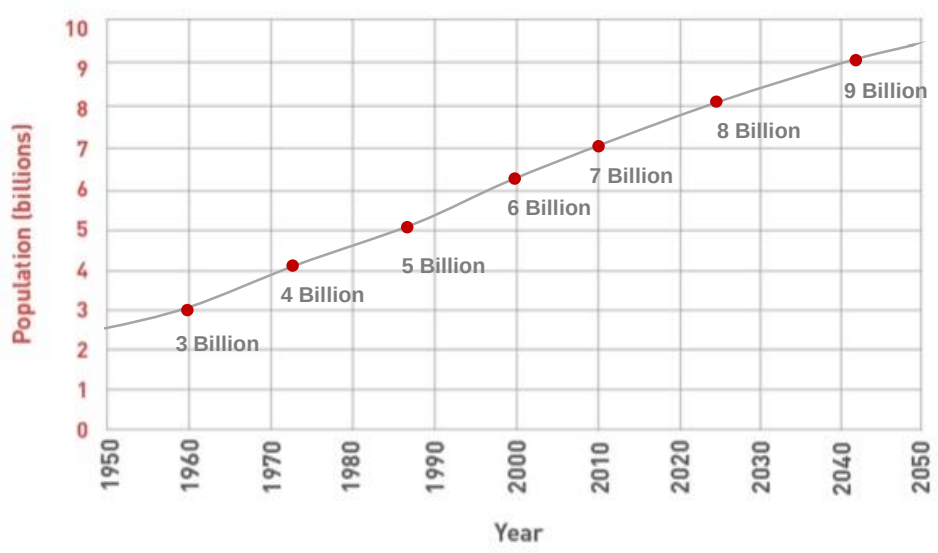
TRENDS & CHALLENGES
GLOBAL AGRICULTURE

- Securing food production
- Growing interest in sustainable farming
- Increasing regulations
- Limited availability of land and labour
- Increasing pressure for traceability
- Legal limitations for chemicals
- Seasonal production

CASE IH AGRICULTURE

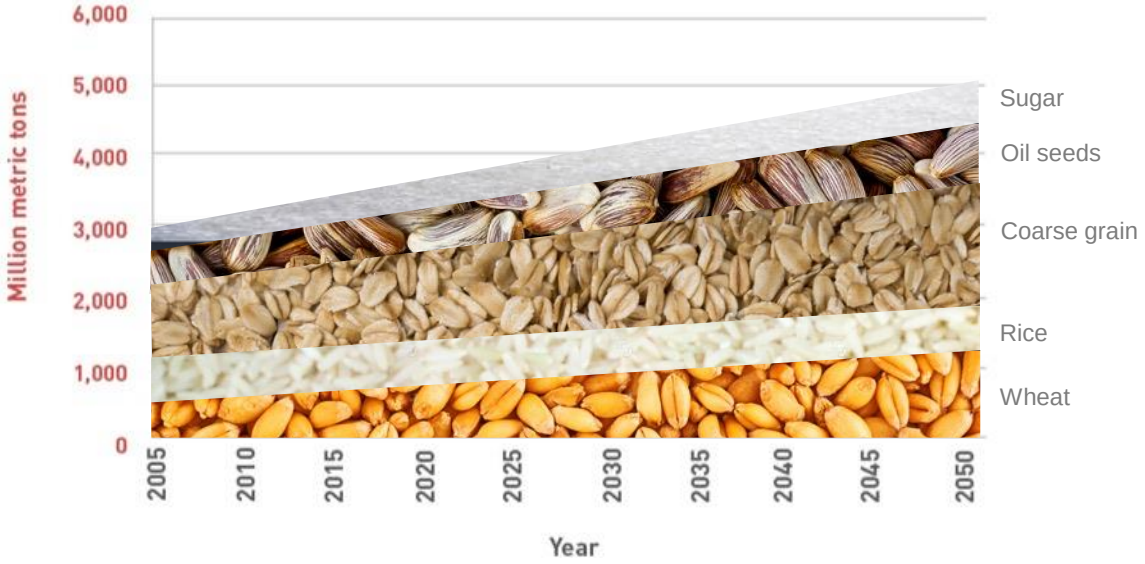
TRENDS & CHALLENGES
GLOBAL AGRICULTURE

World Population: 1950 - 2050



Source: U.S. Census Bureau, International Data Base, August 2016 Update

World consumption of major field crop is projected to increase 2050



Source: USDA, Economic Research Service using Future Agricultural Resources Model reference scenario

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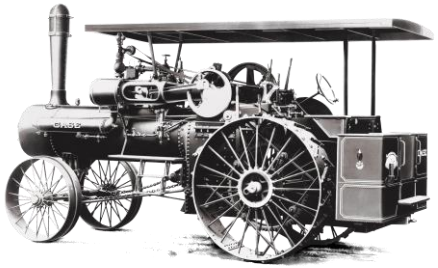
FARM MACHINERY
EVOLUTION



1876 1923 1939 1980 2016 2017

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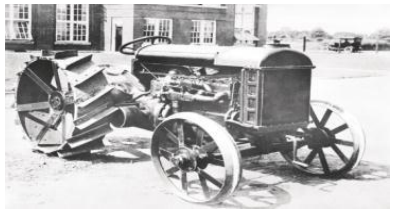
THE AGRICULTURAL **EVOLUTION**

1.0



Mechanization

- Introduction of tractors
- Increase in efficiency
- But labour-intensive system
- Relatively low productivity

2.0

Green Revolution

- New agronomic management practices
- Use of fertilizer and pesticide
- Improve seed quality
- Increase yield

3.0

Precision Ag

- Guidance systems
- Yield Monitoring
- Variable Rate Application
- Telematics
- Data management

4.0

Digital Farming

- Farm Management system in real time
- Added-value services
- Automation capabilities
- Improve Agri processes & food value-chain

1900 1950 1990 2010

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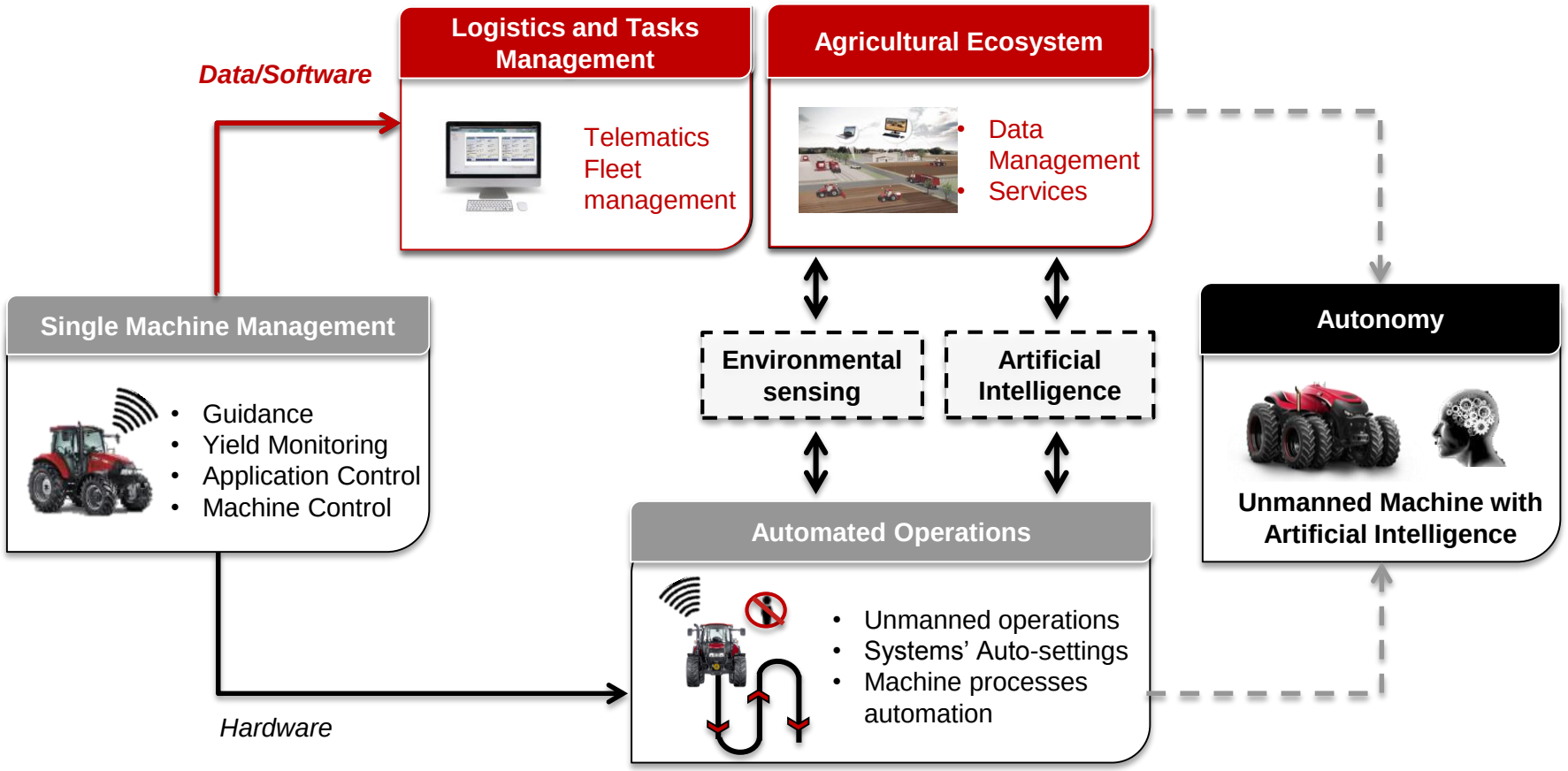
PRECISION **AGRICULTURE**

PRODUCT CATEGORIES	Guidance systems	Variable Rate Applications	Yield Monitoring	Telematics/data Management
				
MAIN FUNCTIONS	• Reduce overlap • Path optimization • Traffic control	• Place inputs only where needed	• Understand in-field variability	• Manage fleet and activities remotely
				
PRODUCT BENEFITS	**+ Improve efficiency Reduce fuel + consumption**	**+ Reduce input costs + Reduce environ-mental impact**	**+ Increase the yield**	**+ Decision support**

THE PRECISION AGRICULTURE EVOLUTION
ARTIFICIAL INTELLIGENCE AND AUTONOMY



DIGITAL FARMING
WHAT IS IT ALL ABOUT?

Smart Machines + Data + Precision Farming Technologies

=

Optimise Farm Operations

Tractor works on the field and collects data

Data is gathered and sent to a platform which analyses it

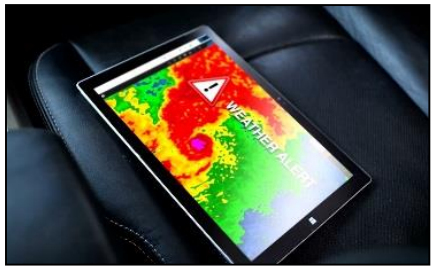
Data is then available through the telematics portal to farmer

Data can be shared with third parties, to receive services like weather, crop, etc..

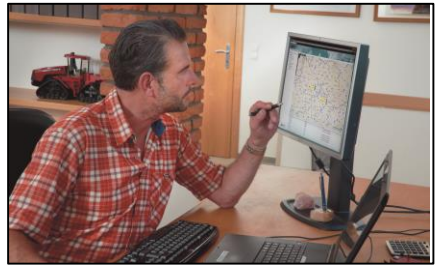
DIGITAL FARMING
HIS BENEFITS

- **Digital Farming makes Precision Farming tools work better**

- **Data exchange & analysis tools help in fast decision-making**



- **It allows optimized farm operations and improved production processes**



DIGITAL FARMING
IN PRACTICE

Optimize a seeding activity

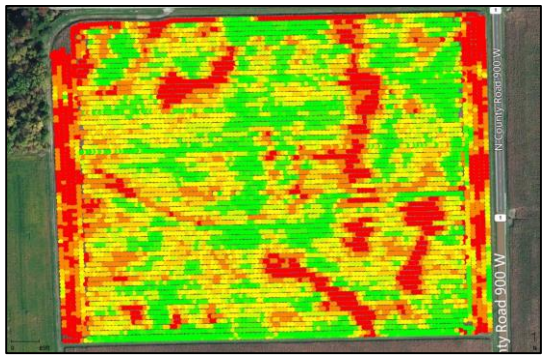
Variable Rate Application (VRA) technology is originally based on **soil sampling** and **yield monitoring.**

Digital Farming technologies take into account:

- data gathered from multiple fields
- external factors like: environmental conditions and seed characteristics

Benefits

- ✓ **Improve the precision of the VRA map**
- ✓ **Optimize the use of chemicals applied**
- ✓ **Reduce input costs**
- ✓ **Improve the quality of the yield**



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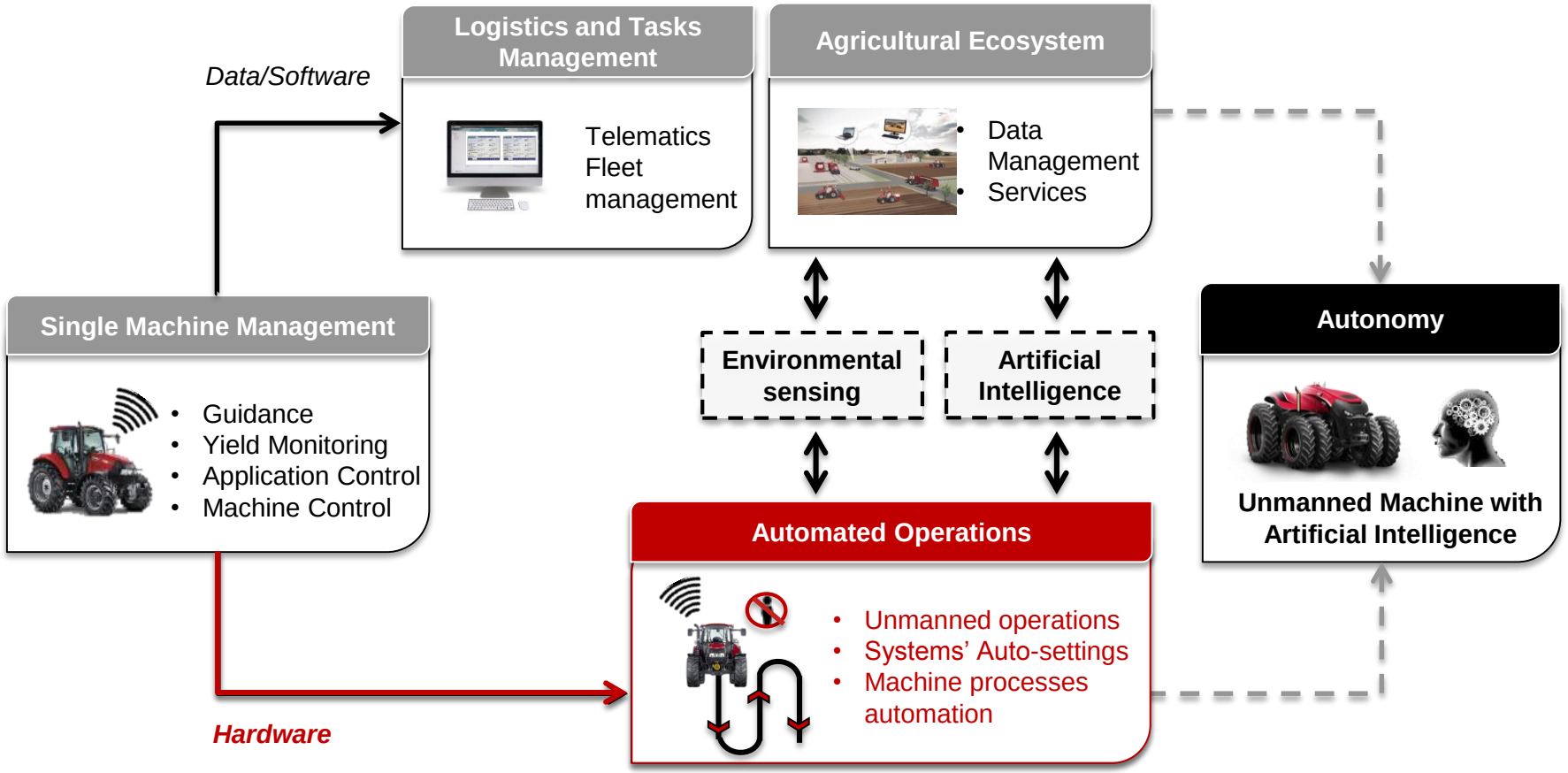
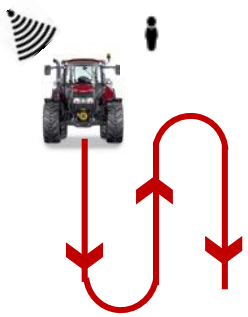


LEVELS OF AUTONOMY
VALUE

Autonomy will evolve by task and at different levels

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
Guidance	**Coordination**	**Leader/Follower**	**Supervised Autonomy**	**Full Autonomy**
*All manned vehicles	*All manned vehicles	*Manned leader, unmanned followers	*In-field supervision of unmanned vehicles	*No local supervision (Artificial Intelligence)



Advanced Independent Autonomy

Intermediate level of sensing & perception technology and machine control

Entry-level sensing technology, Functionally safe components & machine control, remote user interface

Vehicle to Vehicle (V2V), Data Sharing, Coordinated Vehicle Control (CVC), In-field path planning

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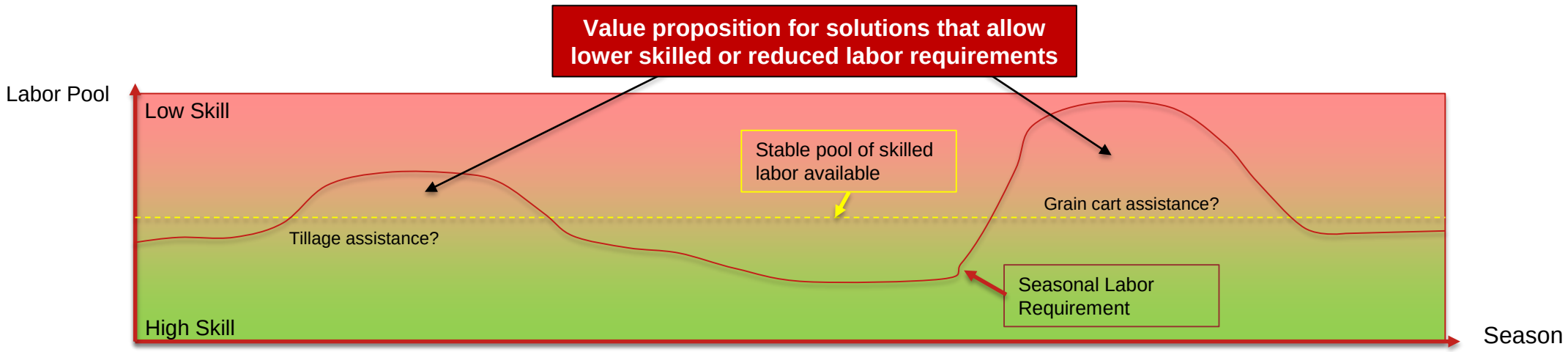
CUSTOMER VALUE
CASH CROP EXAMPLE

Early Spring	Late Spring	Summer	Early Fall	Late Fall
Tillage & Planting	Spraying & Fertilizer	Hay & Forage	Harvesting	Tillage & Fertilizer



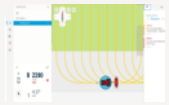
A FOUNDATION
TO BUILD ON

Presentations

- 2016

Pilot Projects

- Understand usability of interface



- Gauge customer acceptance

- Test control of key functions

Future Product Development

- Integrate into Vehicle Architecture

- Prepare vehicle and implements

- Commercialise Software and hardware

Commercially Viable Product

Commercially Viable Autonomous Vehicle

TODAY | IMPLEMENTATION | INTEGRATION

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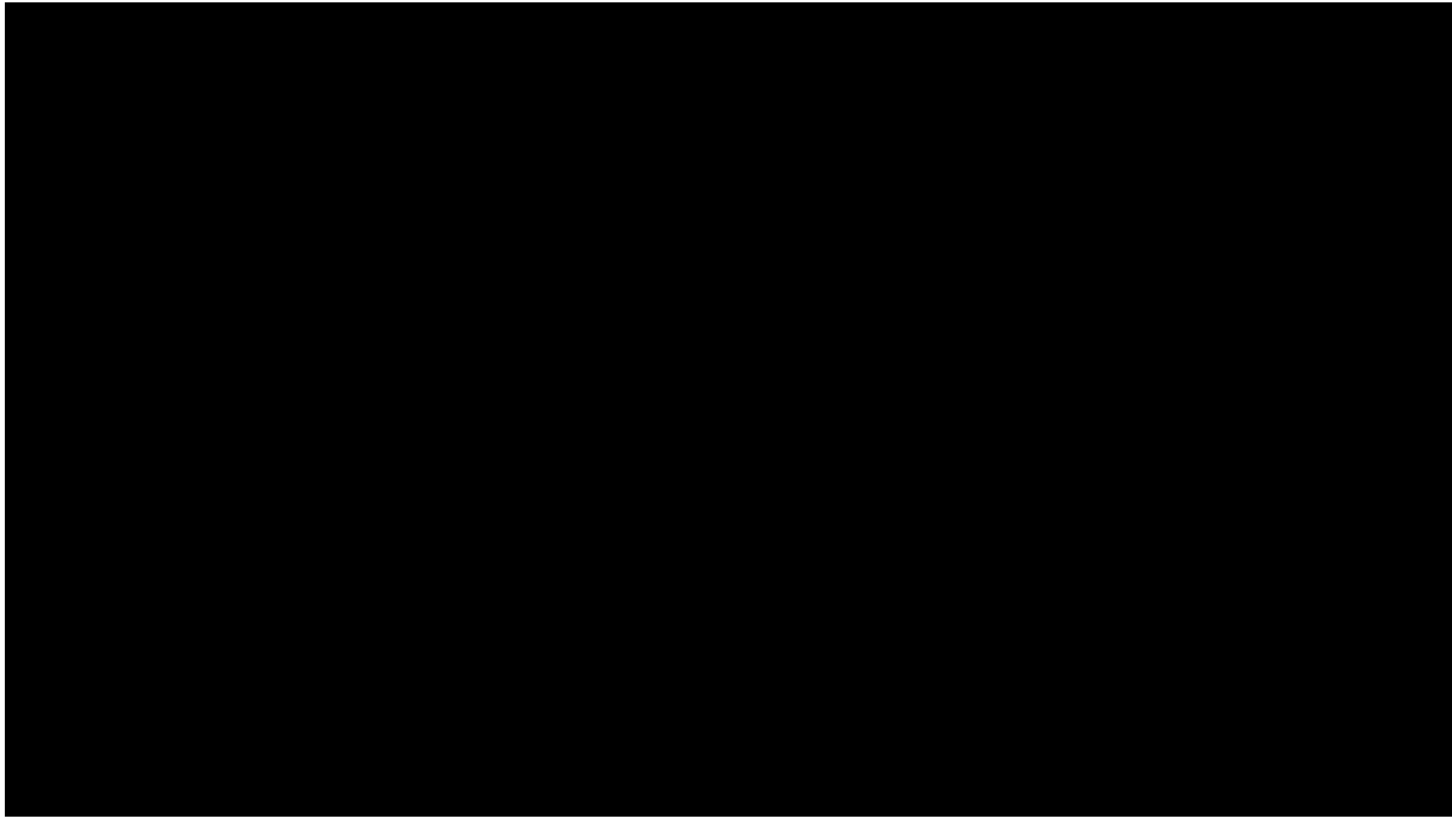
PILOT PROJECT
BOLTHOUSE FARMS



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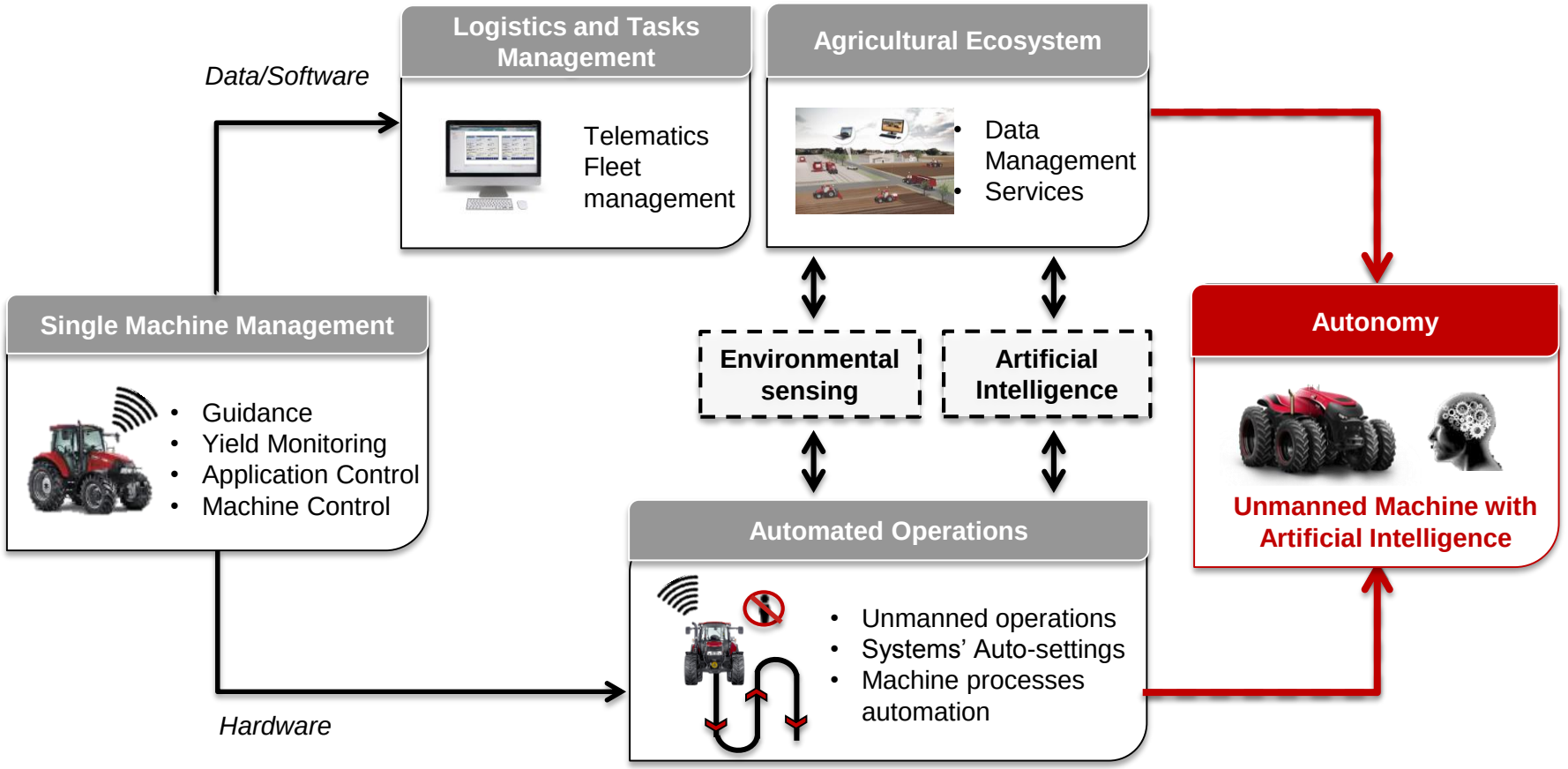

TRENDS & CHALLENGES
OUR SOLUTIONS

- **Securing food production**
  - Maximize yield potential through timely field operations
  - Preserve food quality through crop traceability and logistics
- **Growing interest in sustainable farming**
  - Optimize the use of inputs
  - Optimize the quality of the yield
- **Increasing regulations**
  - Digitalization of paper work
  - Well-informed information
- **Limited availability of land and labour**
  - Minimize downtime
- **Increasing pressure for traceability**
  - Reporting and gathering of data
- **Legal limitations for chemicals**
  - Optimize use of chemicals applied
- **Seasonal production**
  - Maximize the working window

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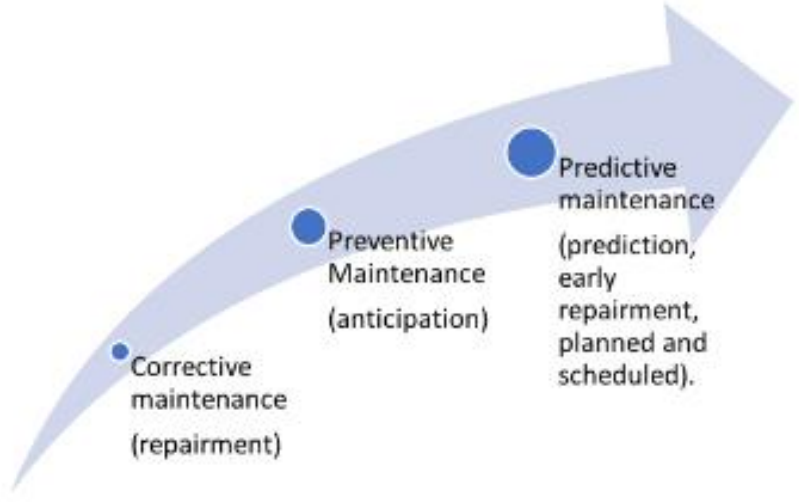
QUESTION & ANSWER
SESSION
CASE IH
AGRICULTURE

Control Room

What CNH Industrial is doing with the data from the machines

Through analysis of vehicle data
Provide **better service**
Develop **better machines**



Less un-planned downtime
Lower TCO

Service Support

Data Collection

Non Connected vehicles

- Data download & Collection from EST diagnostic tool when connected to dealer network

Connected vehicles

- Data Download from connected vehicles:

Data Analytics

Data Analytics Team: data scientists, subject matter experts, ICT, …

- Value case definition
- DTC, Trigger, Alerting definition for Breakdown prediction
- Predictive Maintenance & Repair, alerting and flexible maintenance

Service Delivery Platform

Service Portal

- Use of customer-facing portal for dealers/customers

Control Room

- Control Room on connected and non connected vehicles for customer service