

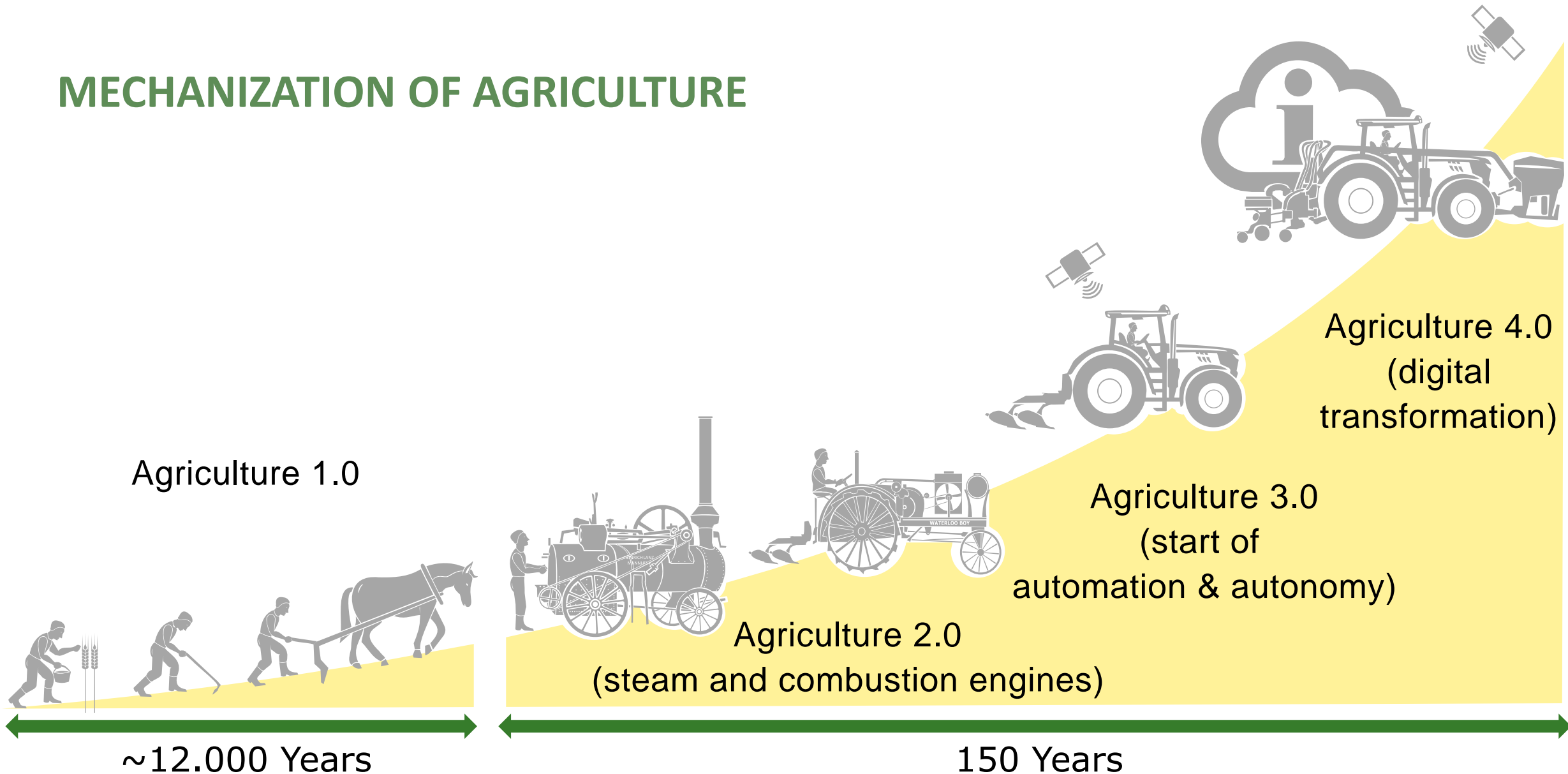


MANUFACTURING  
PERFORMANCE  
DAYS

Journey to all-electric, autonomous, modular Machines

Dipl.-Ing. André Klein, External Relations, Company John Deere

# MECHANIZATION OF AGRICULTURE



# INDUSTRY 4.0 VS. AGRICULTURE 4.0 – A VISION OF AGRICULTURE 4.0

The fourth industrial revolution is characterized by the replacement of mass production by mass-individualized products. Companies are put in a position to **manufacture products individually tailored to the customer's needs** in small batch sizes at low cost. This means with a similar cost structure as in mass production. Those who want to manufacture individually in the future will need facilities with certain capabilities that are not available in parts today. Aspects such as working, autonomy and open serve to realize these capabilities.

Prof. Dr. ... 2017 – translated from German

Ag 4.0 focuses on requirements of the individual product which by the way is the requirements of our society as consumer





# AGRICULTURE 4.0: FOCUS ON AGRICULTURAL PRODUCTION SYSTEMS

## Production systems



Small grain



Dairy & Livestock



Horticulture

Ag 4.0 integrates and links production processes to production systems

## Production processes



Prepare



Plant



Care



Harvest

# FUTURE SYSTEMS

Agriculture 4.0 is the IT-based vertical and horizontal integration of farming embedding (the visionary goal of) optimal treatment of each plant and animal as an individual

WORKSHOP LEVEL



FARM MANAGEMENT SYSTEM

E/FRP

MES (AES)

Process Control System

Controller Level

Sensor Inform

## Adaptive Agricultural Production

- Technical intelligence
- Self reconfiguration
- Data driven

Ag 4.0 focuses on requirements of the individual product which by the way are the requirements of customers (society)

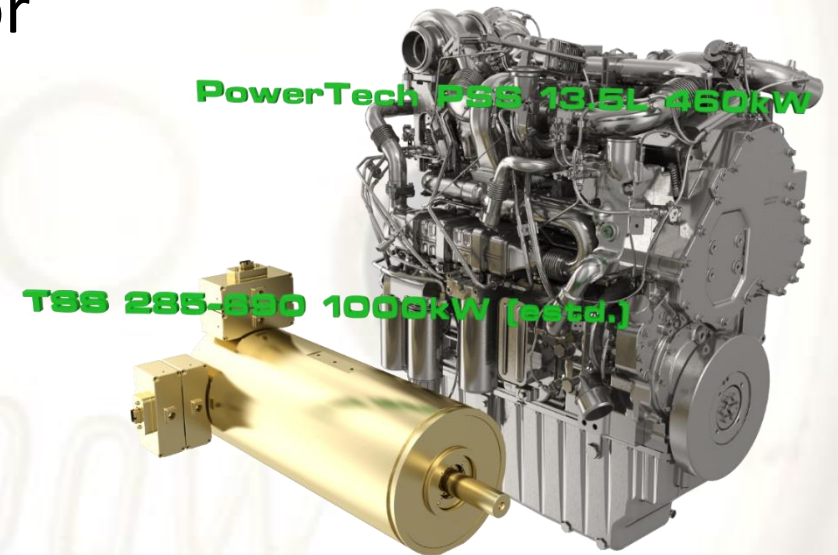


AUTONOMY



# ELECTRIFICATION - KEY ENABLING TECHNOLOGY

- Efficiency
- Controllability and dynamic response behavior
- Power density
- Using renewable energy





# VISION

## Decentralized energy supply from & for rural areas





# MODULARITY

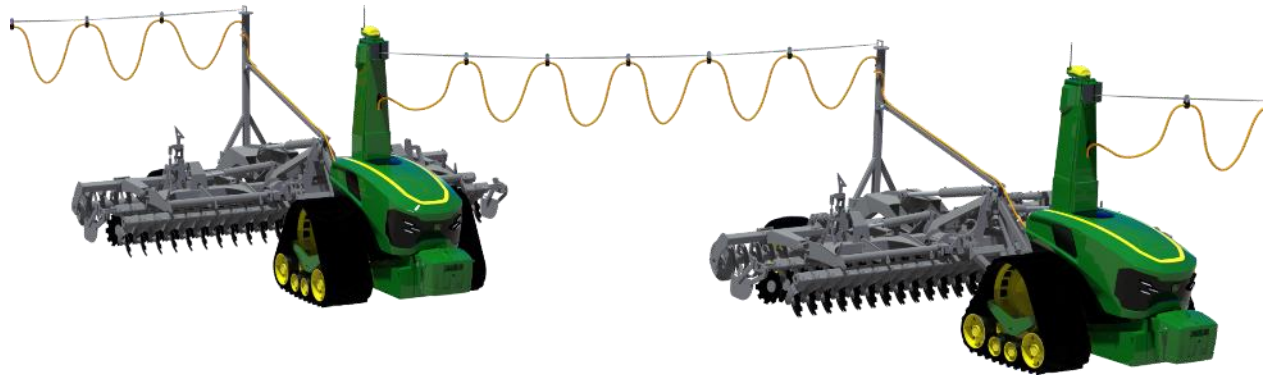
## Defined unit for each function

### Tractor – Implement Symbiosis

- All-electric traction unit
- Implement unit
- External power source



## Machine Fleets





# CLOSING REMARKS

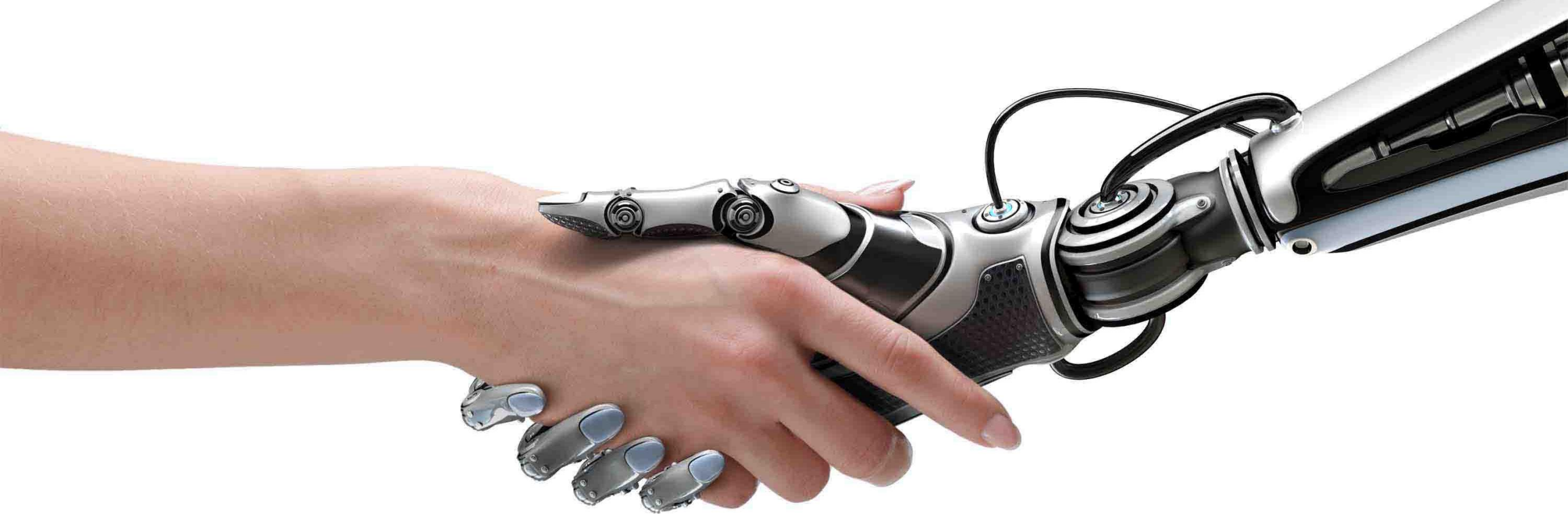
**Ag 4.0 focuses on requirements of the individual product**

## **Requirements of AG4.0 machines**

- Enablement through electrification
- Realizing functions through modularity
- Autonomy
- Self-optimization through connectivity







**JOHN DEERE**