Transformation through Sensors, Software and Services

Fascinating technologies for everyday life

BOSCH

BOSCH

Digital - Bosch's stated position in shaping the new world

" *The connected world is not some distant dream. It's already here.*

We want to connect the virtual and the physical world. "

Sensor   **Software**   **Services**

Bosch as world's leading IoT Company

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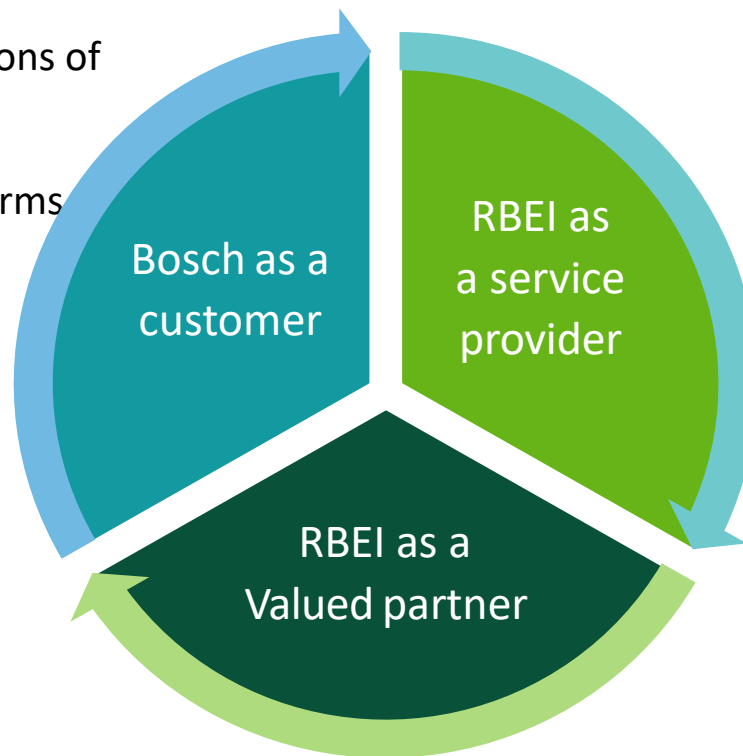# Robert Bosch Engineering and Business Solutions
Collaboration with Microsoft

- One of the largest global implementations of MS Technologies

- Communication & collaboration platforms

- Technology partnerships – Gold partner & CSP

- GTM partner for MS in India, EU & UK

- Co-operation in new areas like IoT, AR/VR & Blockchain

Bosch as a customer

RBEI as a service provider

RBEI as a Valued partner
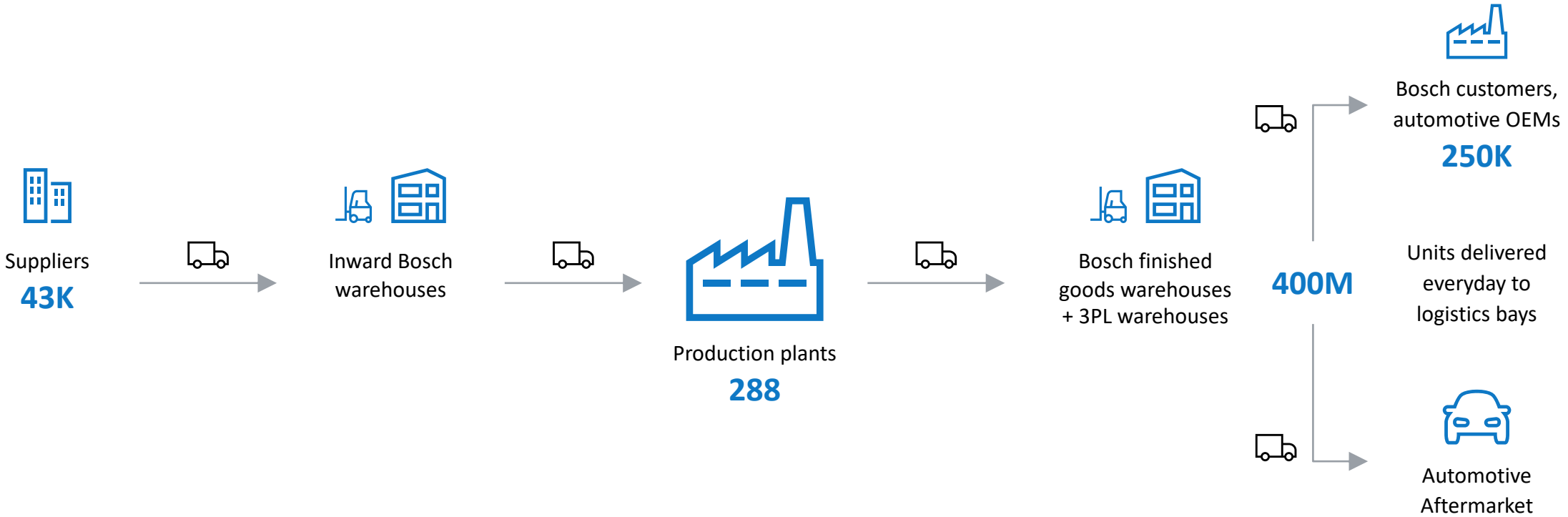
- Core Implementation Partner for Cloud Solutions

- Dedicated ODC in India and Europe

- Fast Track Centre Factory for on-premise to cloud migration

- IOT / Azure Based projects – Connected Car, Remote Monitoring

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Bosch

We are a globally operating company

Suppliers
43K

Inward Bosch
warehouses

Production plants
288

Bosch finished
goods warehouses
+ 3PL warehouses

400M

Bosch customers,
automotive OEMs
250K

Units delivered
everyday to
logistics bays

Automotive
Aftermarket

100
Countries

42.1B
Purchasing volume

280
Manufacturing sites

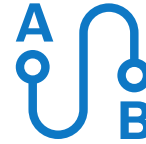**800**
Warehouses worldwide

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Lack of visibility magnifies issues

Delivery mismatch of parts/components

Lack of visibility in supply chain

Shipment Traceability

Poor warehouse productivity

Multiple data systems

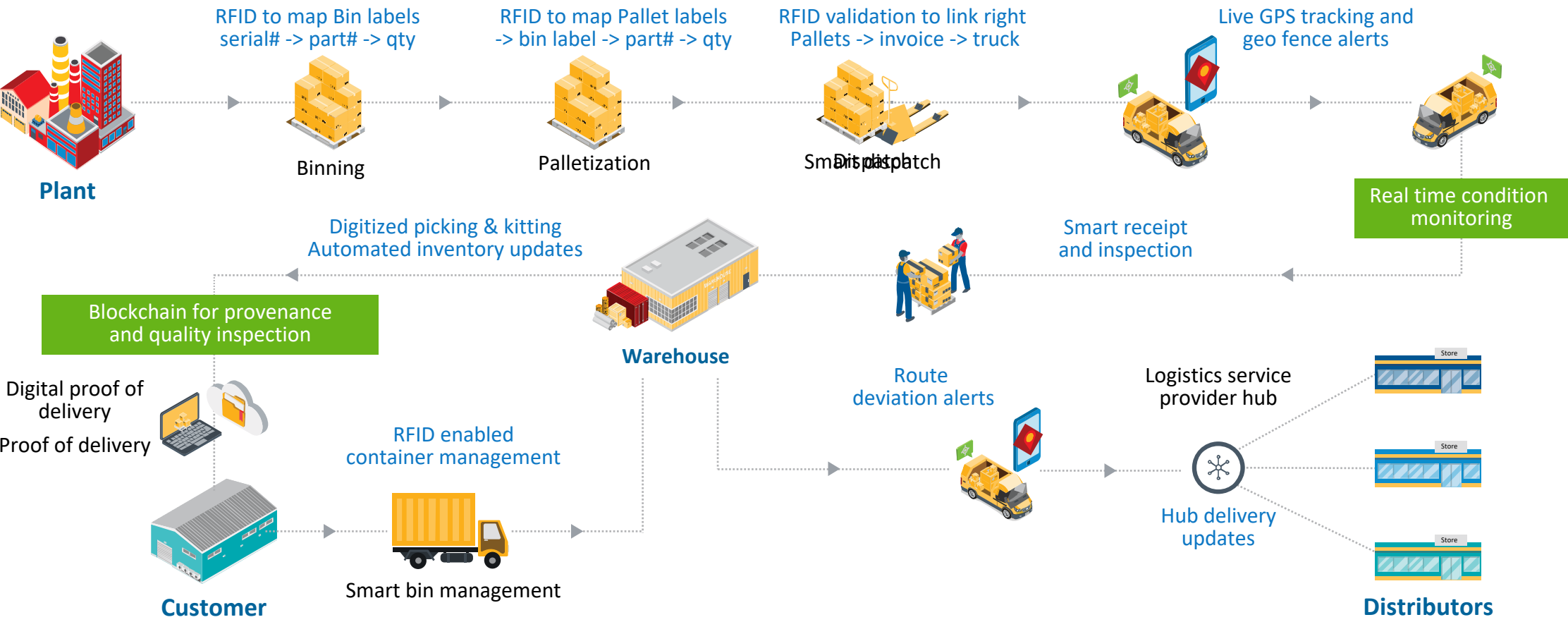High Lead time to respond to customer queries

High Inventory buffer

Manual inspection – error prone

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String it all together, an integrated value chain

Plant

RFID to map Bin labels
serial# -> part# -> qty

Binning

RFID to map Pallet labels
-> bin label -> part# -> qty

Palletization

RFID validation to link right
Pallets -> invoice -> truck

Smart dispatch

Live GPS tracking and
geo fence alerts

Real time condition
monitoring

Digitized picking & kitting
Automated inventory updates

Smart receipt
and inspection

Blockchain for provenance
and quality inspection

Warehouse

Route
deviation alerts

Logistics service
provider hub

Digital proof of
delivery

Proof of delivery

RFID enabled
container management

Hub delivery
updates

Store

Store

Store

Customer

Smart bin management

Distributors

BOSCH

Trac360 – Azure platform for traceability

Over a period of two years

Harnessing Azure services

Enable granular tracking of goods, carriers, and processes across the supply chain

Microsoft Azure

02	**05**	**17**
Plants	Warehouses	OEMs

1000	**12M**	**25000**	**18000**
Parts	SKUs	Trips	Dealers

100% On-time delivery since rollout

10% Reduction in warehouse inventory

30% Reduction in premium freight expenditure
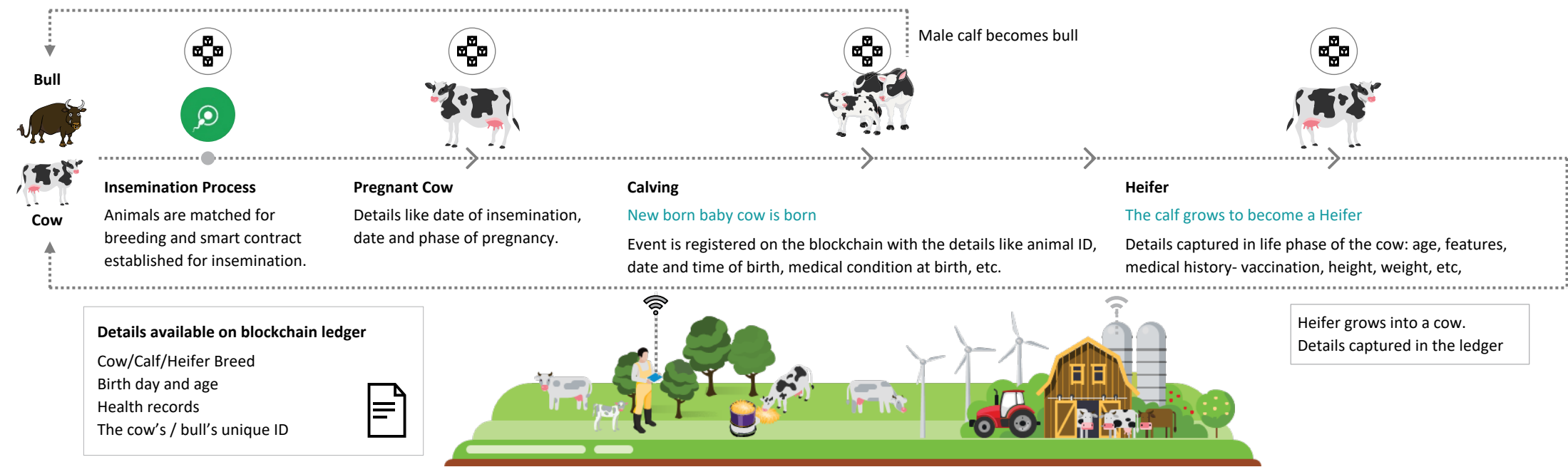
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trueFood+

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Crypto Cow

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IoT, Blockchain, AI – A Game Changer
Crypto Cow

Business need

To have information on the origin and the quality of the dairy product by tracking how the cow was bred & also aid in seamless transfer of ownership of cow

Bull

Male calf becomes bull

Cow

Insemination Process
Animals are matched for breeding and smart contract established for insemination.

Pregnant Cow
Details like date of insemination, date and phase of pregnancy.

Calving
New born baby cow is born

Event is registered on the blockchain with the details like animal ID, date and time of birth, medical condition at birth, etc.

Heifer
The calf grows to become a Heifer

Details captured in life phase of the cow: age, features, medical history- vaccination, height, weight, etc,

Details available on blockchain ledger
Cow/Calf/Heifer Breed
Birth day and age
Health records
The cow's / bull's unique ID

Heifer grows into a cow.
Details captured in the ledger

Benefits

Real time tracking of the health of a cow and change of ownership

Introduce transparency in the origin and quality of the dairy products

Creating a more transparent market for cow trading by tracking its breed and lineage.

trueFood+
Decentralized Data Market Place

FARMER

- The proof of fair and sustainable farming can help them get certifications seamlessly and hence establish/ elevate their brand.
- Trade/ lease assets like animals, animal supplies, farm equipment, raw materials etc.
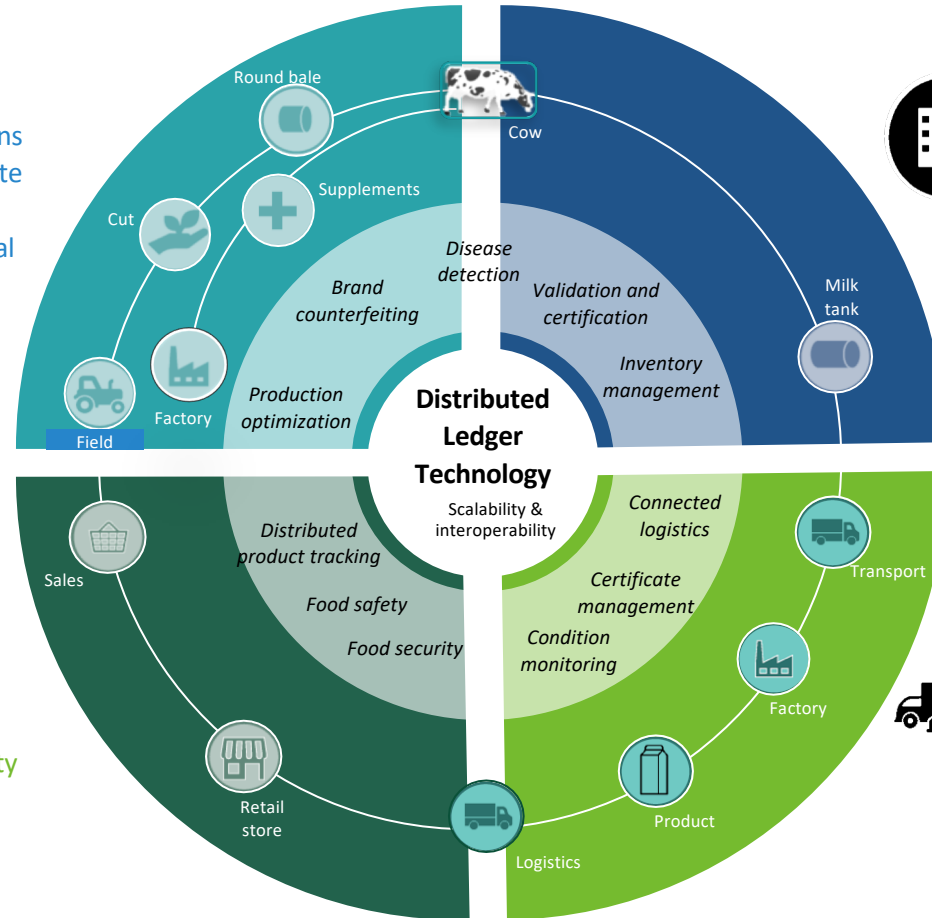
PRODUCER

- The ability to prove to the end consumer the Safety of product, fair processing practices, certifications
- Establish their brand reputation and trust among its customers by providing end to end transparency

RETAILER

- The ability of optimizing its inventory between stores and reduce wastage related losses.
- Protect itself against product recalls (brand and bottom-line implications) due to quality issues by ensuring quality of sourcing its inventory.

SUPPLY CHAIN

- Digitization and seamless yet secure access to relevant stakeholders of e – bills of lading, certificate of transfer of ownership, custom clearances and other paper documents.
- Establish the proof of quality and freshness by proper condition monitoring and a log of any abnormal events like increase in temperature or pressure etc.

Round bale · Cow · Supplements · Cut · Field · Factory · Milk tank · Transport · Factory · Product · Logistics · Retail store · Sales

Disease detection · Validation and certification · Inventory management · Brand counterfeiting · Production optimization · Connected logistics · Certificate management · Condition monitoring · Distributed product tracking · Food safety · Food security

Distributed Ledger Technology
Scalability & interoperability

BOSCH

"

...but most importantly, because we walk in your shoes:

with over **135 years** of experience in the industry, we, at Bosch, speak your language and understand your needs, thus providing solutions designed in partnership with you & delivered to address the realities of your business environment

– Robert Bosch

"

Invented
for life

BOSCH