

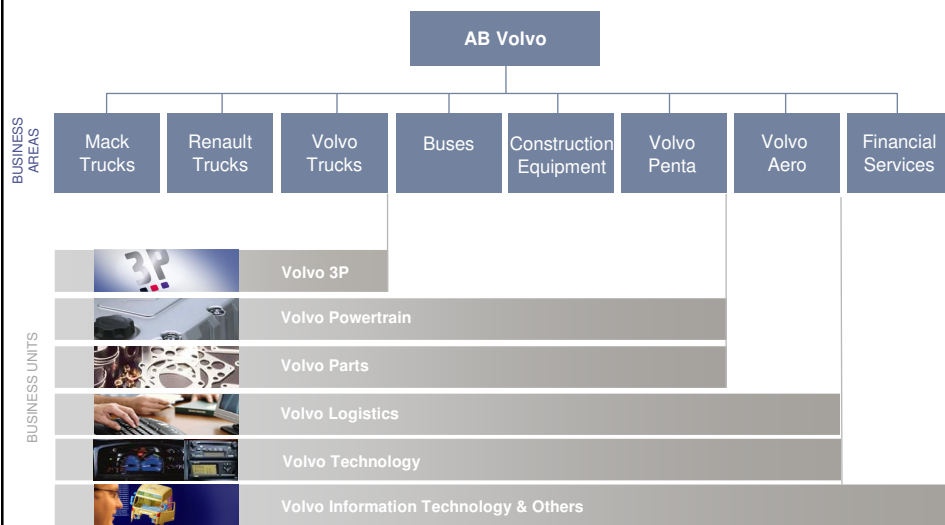
# VOLVO

## RFID within the Volvo Group

VOLVO

RFID within Volvo

### Volvo Group organization

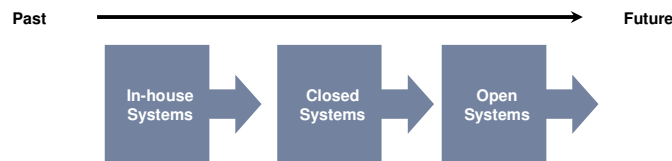


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VOLVO

## Agenda

- Experiences
  - In-house systems
  - Closed loop systems
- Future
  - Open systems



## RFID has enhanced the automotive industry for many years...

Exact tracking

Enhanced proof of delivery

Tracking of returnable assets

Elimination of production disturbance

Identification

Traceability

Assembly efficiency

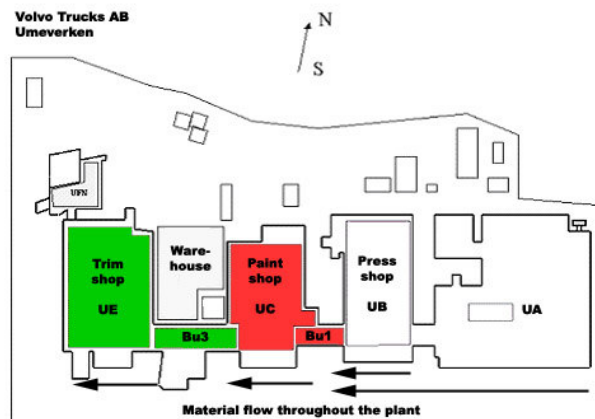
Security

***...and “there’s no end to the possibilities”***

## Early installations

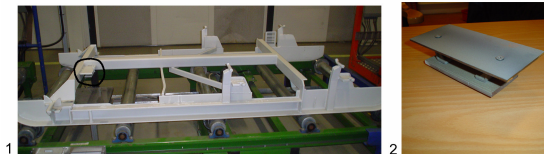
- Between 1996 – 1999
- Volvo Car plant in Torslanda
  - 120 EVS128 is mounted in the Paint Shop
  - RFID system OIS-P in the Marriage point
- Volvo Powertrain, Skövde
  - Tags on engines
- Volvo Cab factory, Umeå
  - Tagged detail racks in Paint shop

## Volvo's cab factory in Umeå



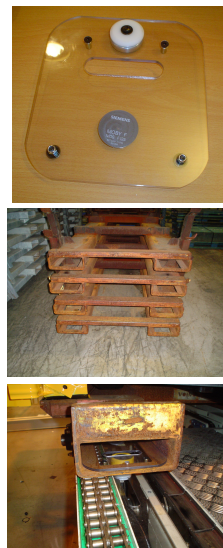
## In-house system Paint shop

- Read range of max 45 cm
  - Shorter range due to metal
- Withstands chemicals and heat
- Minimized production disturbance
- 13,56 MHz
- Passive tags
- R/W
- 112 byte memory



## In-house system Trim shop

- 125 KHz
- Passive tags
- RO
- 5 Byte memory
- Read range of max 14 cm and 20 cm
  - Decreased read range due to metal environment
- Exact tracking along the line



## Closed loop system



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## Closed loop system Fuel Tank Racks

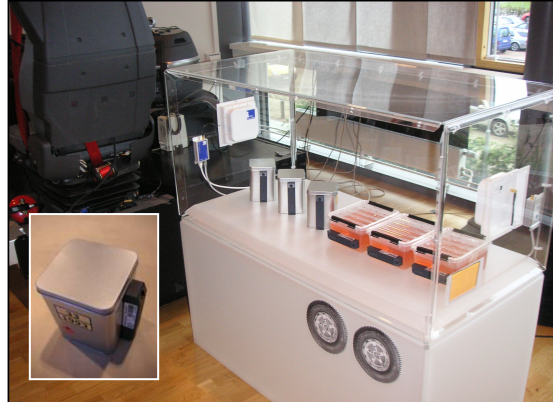


- 868 MHz tags
- Passive tags
- RO
- 96 bits memory
- Read range of max 2
  - Decreased read range due to moist environment and metal
- Enhanced visibility
- Asset utilization

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## Closed loop system Supply Chain security



## Closed loop system Supply Chain security

- 868 MHz tags
- Active tags
- WORM
- 13 Bytes memory
- Enhanced security
- Enhanced transport efficiency



## General Tracking and Yard Management



**“The Volvo Way”**

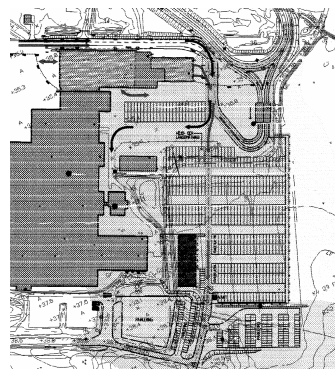


VAS & VAES



## General Tracking and Yard Management

- A common need for:
  - More effective tracking
  - Enhanced Yard Management
- The project consists of:
  - Investigation of needs and requirements of tracking at AB Volvo - **started**
  - Investigation of needs and requirements of yard management at AB Volvo - **started**
  - Investigation of available general solutions - **started**
  - Demonstrate possible general solutions
  - Make recommendation of a common solution.



## Commonality within the Volvo Group

- Different frequencies for different areas
- Data format on tags
- Which existing standards should we use
- Centralized or decentralized data storage

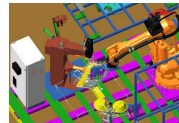


## Distribution ← Automotive products manufacturing



## Goods reception →

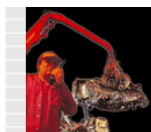
## Assembly →



## Recycling ←

## Usage ←

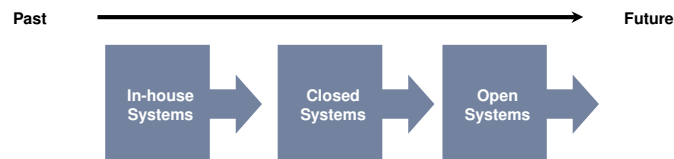
## Finished Products





## Future

- Long experience in In-house systems
- Closed loop pilots
- Open systems
  - Use same tags in longer supply chains



## Thank You!

## Questions?

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