RFID Technologie in The German Automotive Industry

Presented by:
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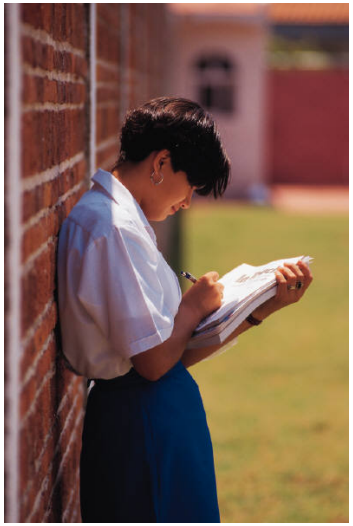
ITA-RFID project leader

Volkswagen AG
Logistics Brand Volkswagen

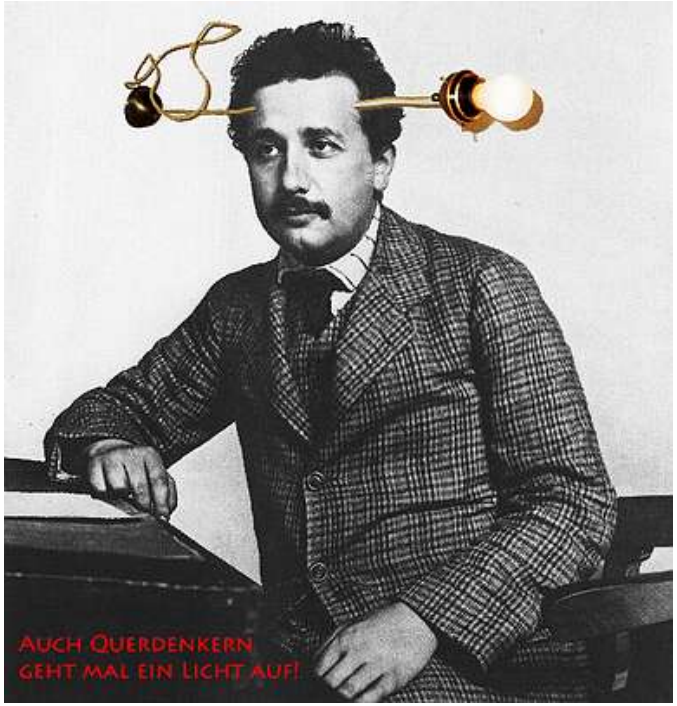
At the end of a lecture, ….

A female student came to A. Einstein and said:

Mr. Einstein, the questions for our homework, we´ve just got from you, are the same we´ve got two years ago …

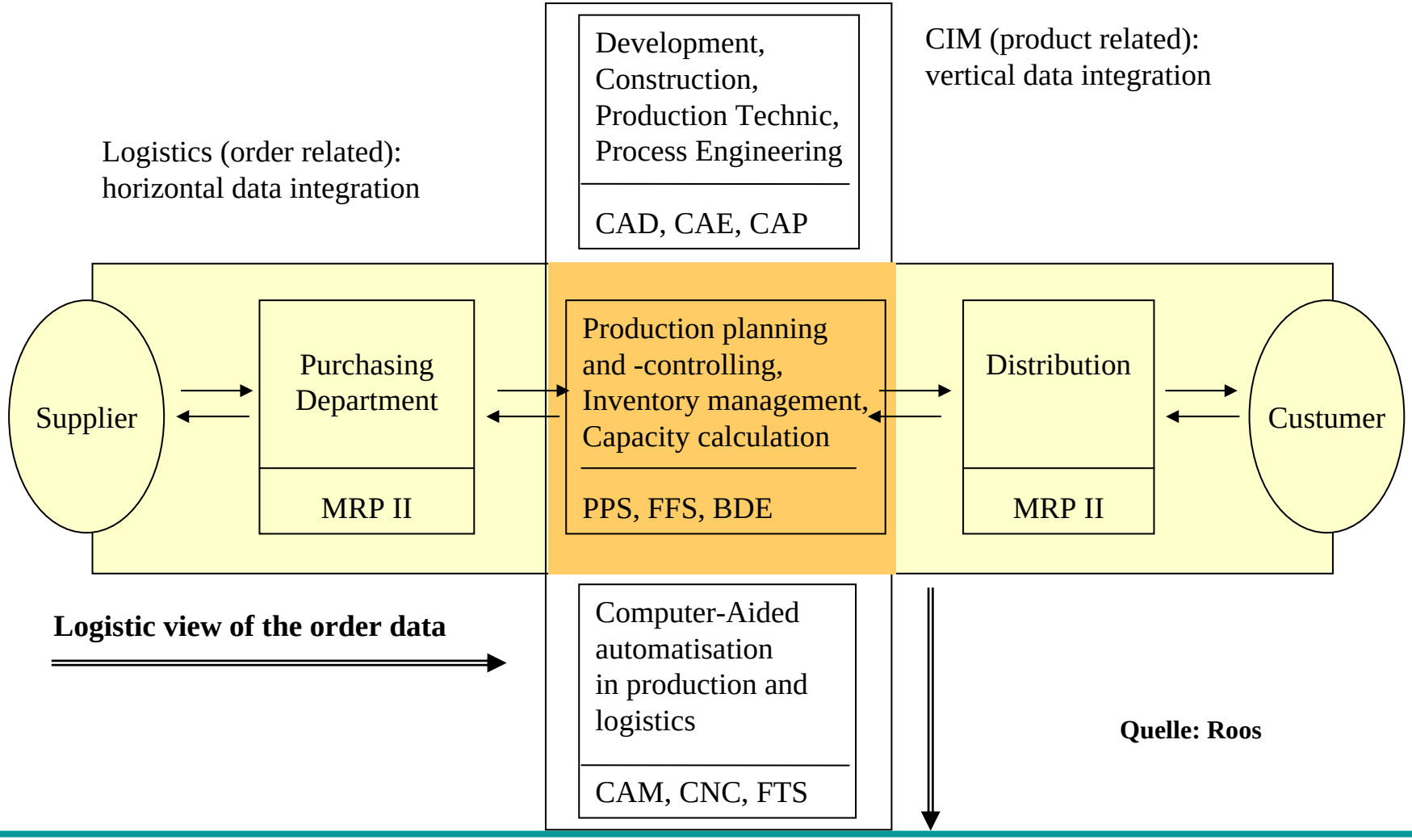


Yes, A. Einstein said after a moment, but I´ve change the answers, …



Innovations in the Automotive Industry

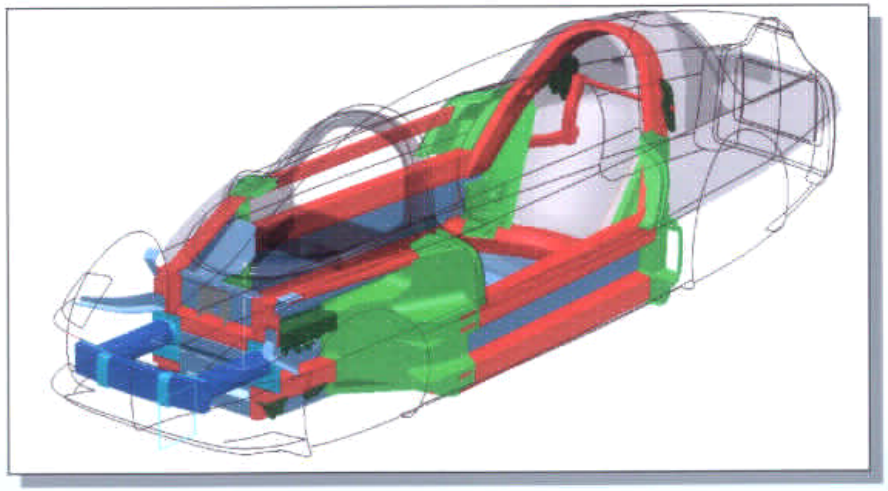
Logistic and Computer Integrated Manufacturing (CIM)



Quelle: Roos

Innovations in the Automotive Industry

Manufacturing of Connections between different Materials



Fügeverfahren
Joint Technologies

Schweißen	**Welding**
Kleben	**Splicing**
Falzen	**Crimping**
Stanznieten/Clinchen	**Clinching**
Clipsen	**Clip**

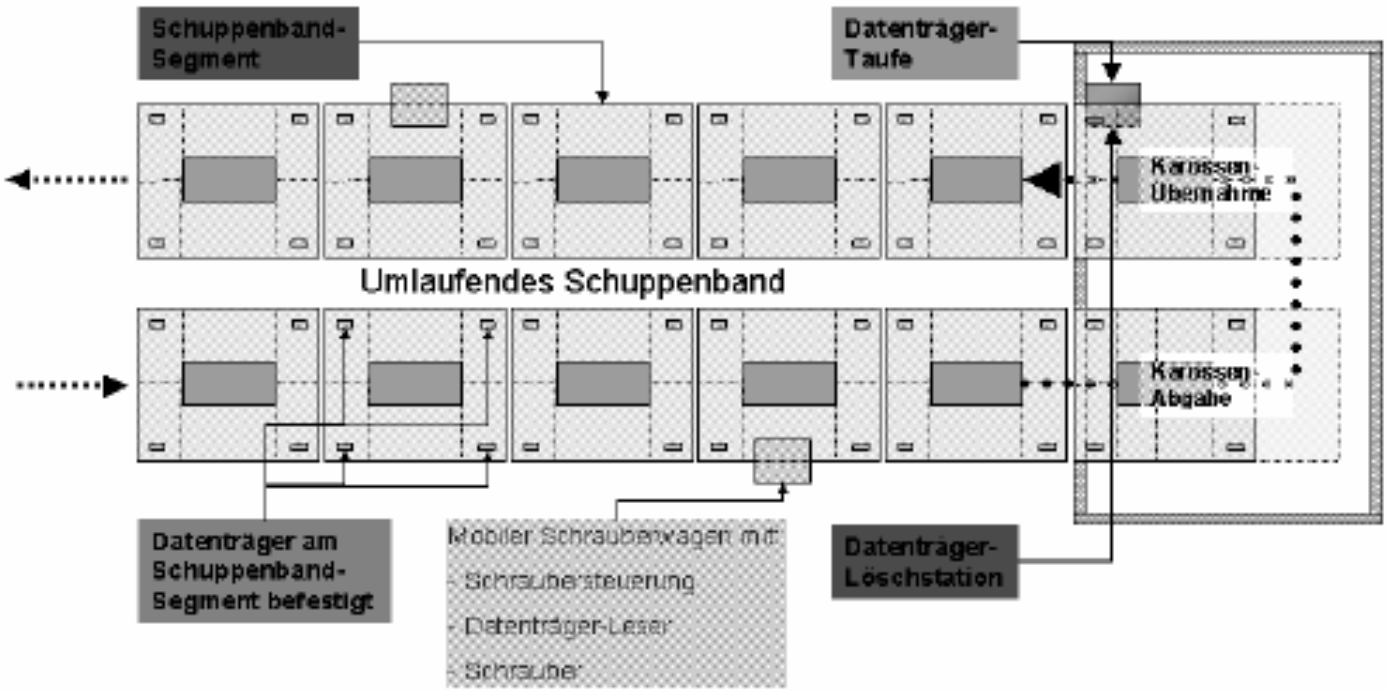
Material

Höchstfeste Bleche warmumgeformt	**High strength plates**
Aluminium	**Aluminium**
Magnesium	**Magnesium**
Kohlefaser	**Carbon fiber**
Kunststoff	**Plastics**

Quelle: Volkswagen

Innovations in the Automotive Industry

RFID-Technology in the Car Manufacturing Process – screwdriver controlling / TOURAN-Production in Wolfsburg



Quelle: Volkswagen/ Schreiner

The way is the aim,
without any aim,
every way is the right way

ISO International Organization for Standardization

EPCglobal

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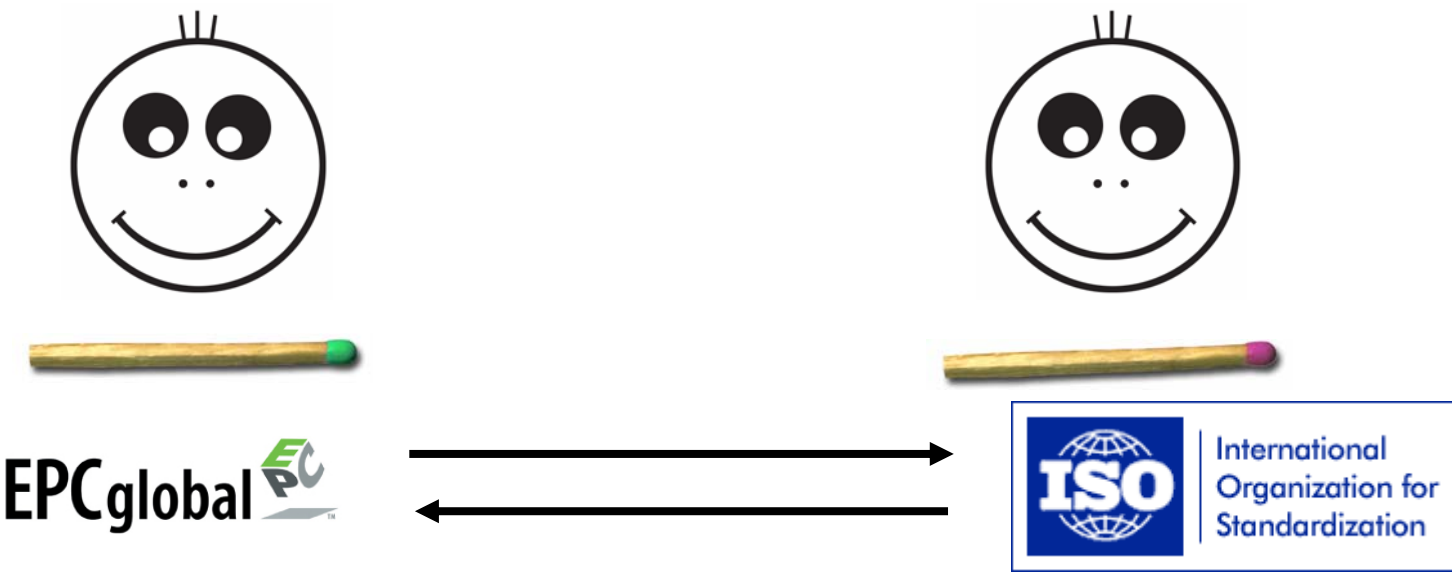

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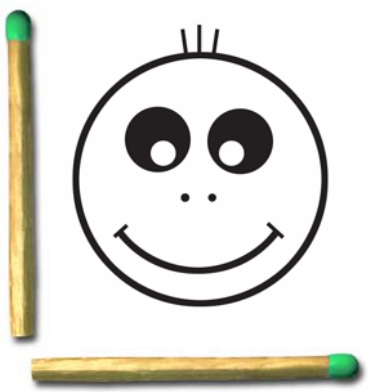

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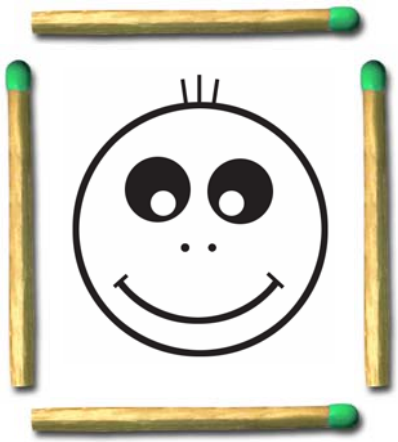

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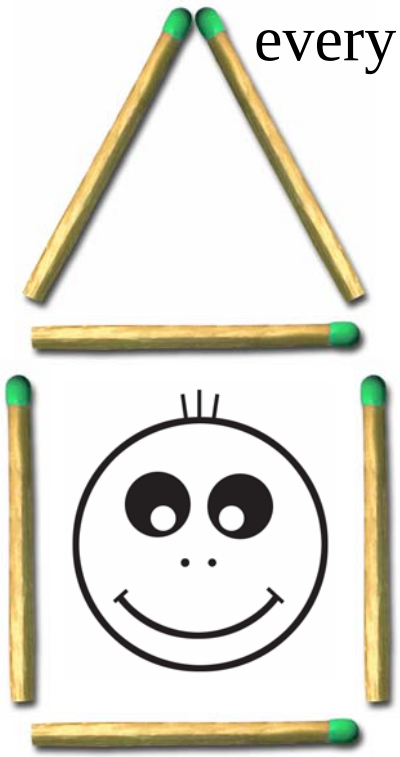

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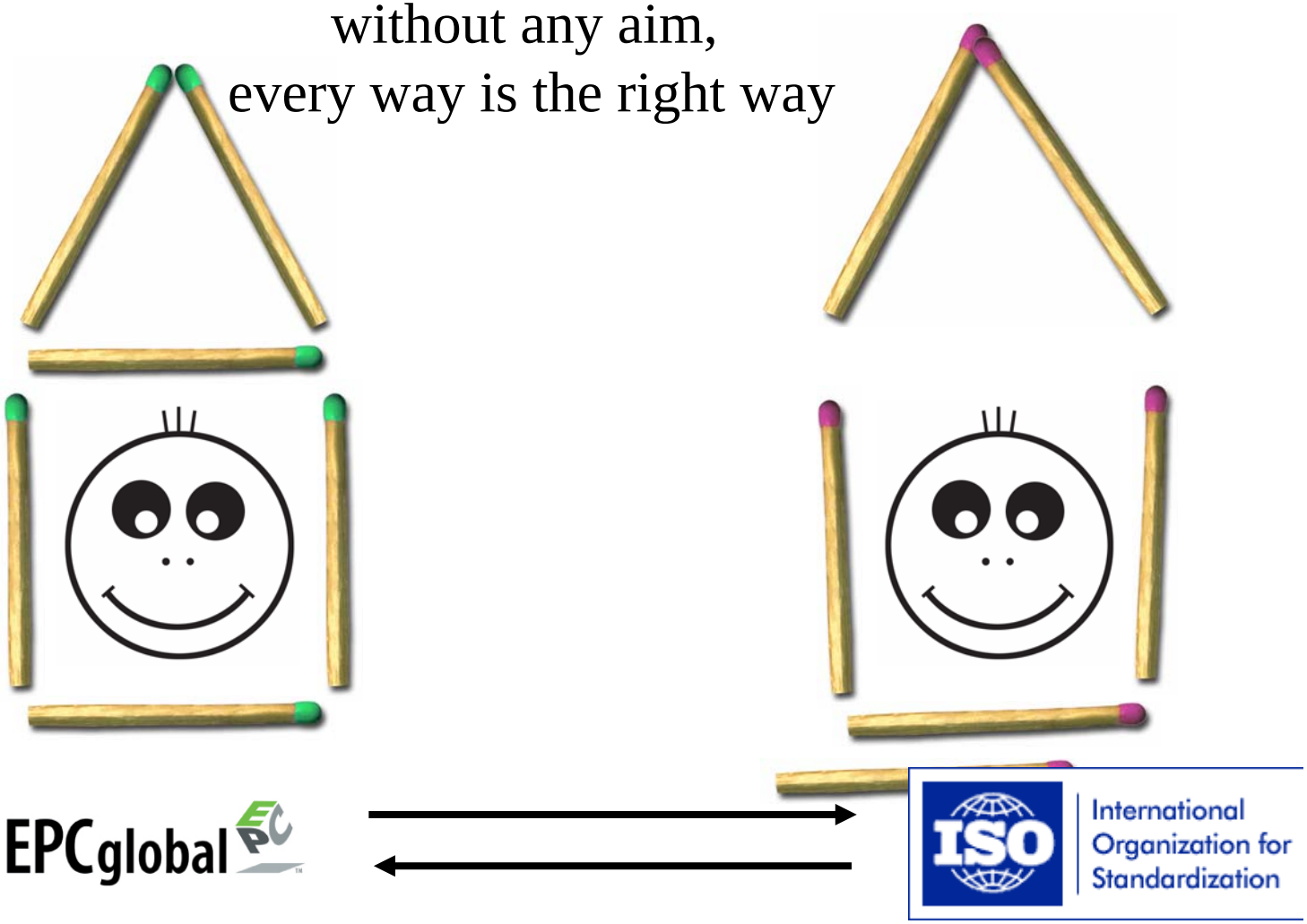

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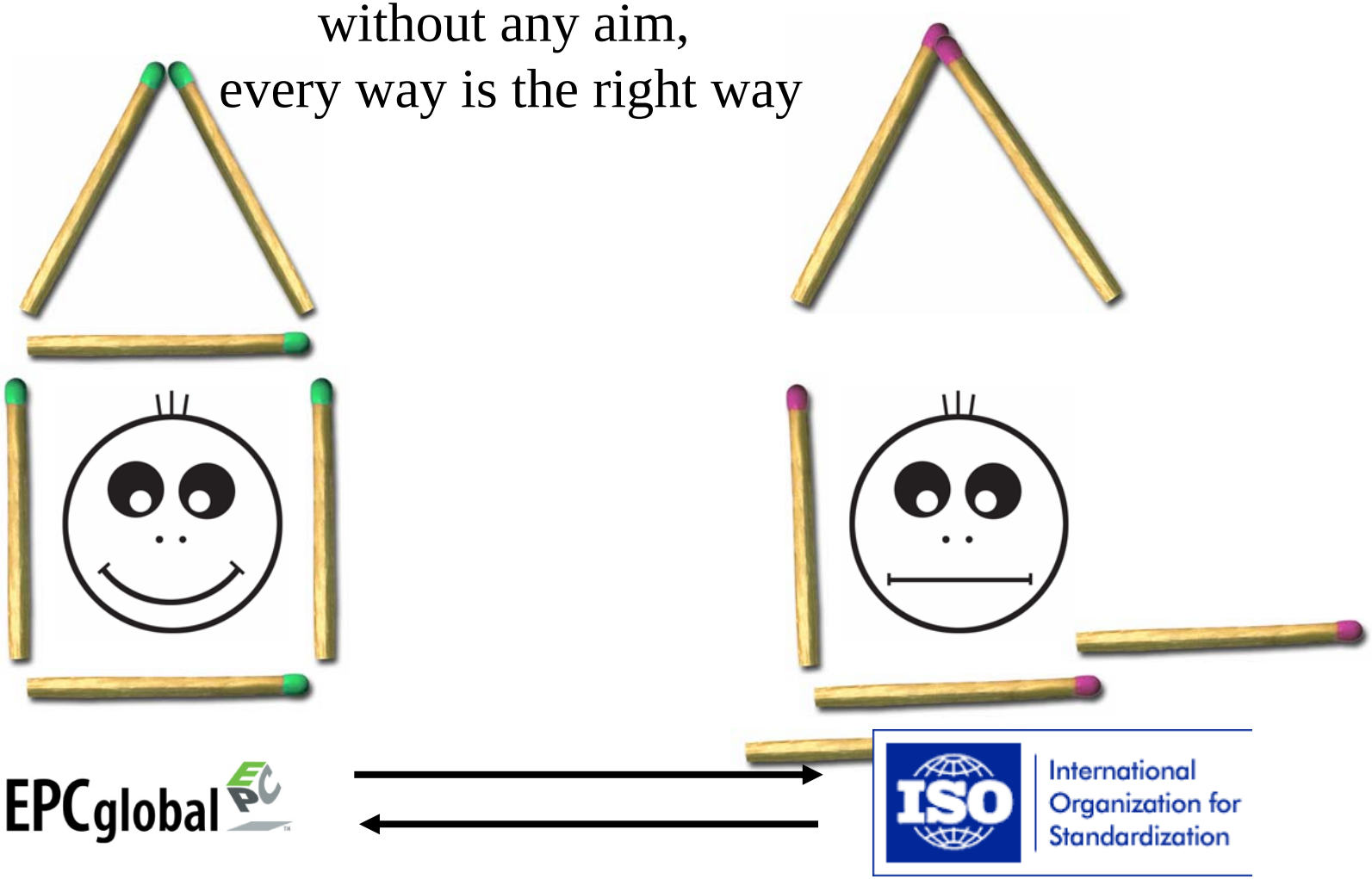

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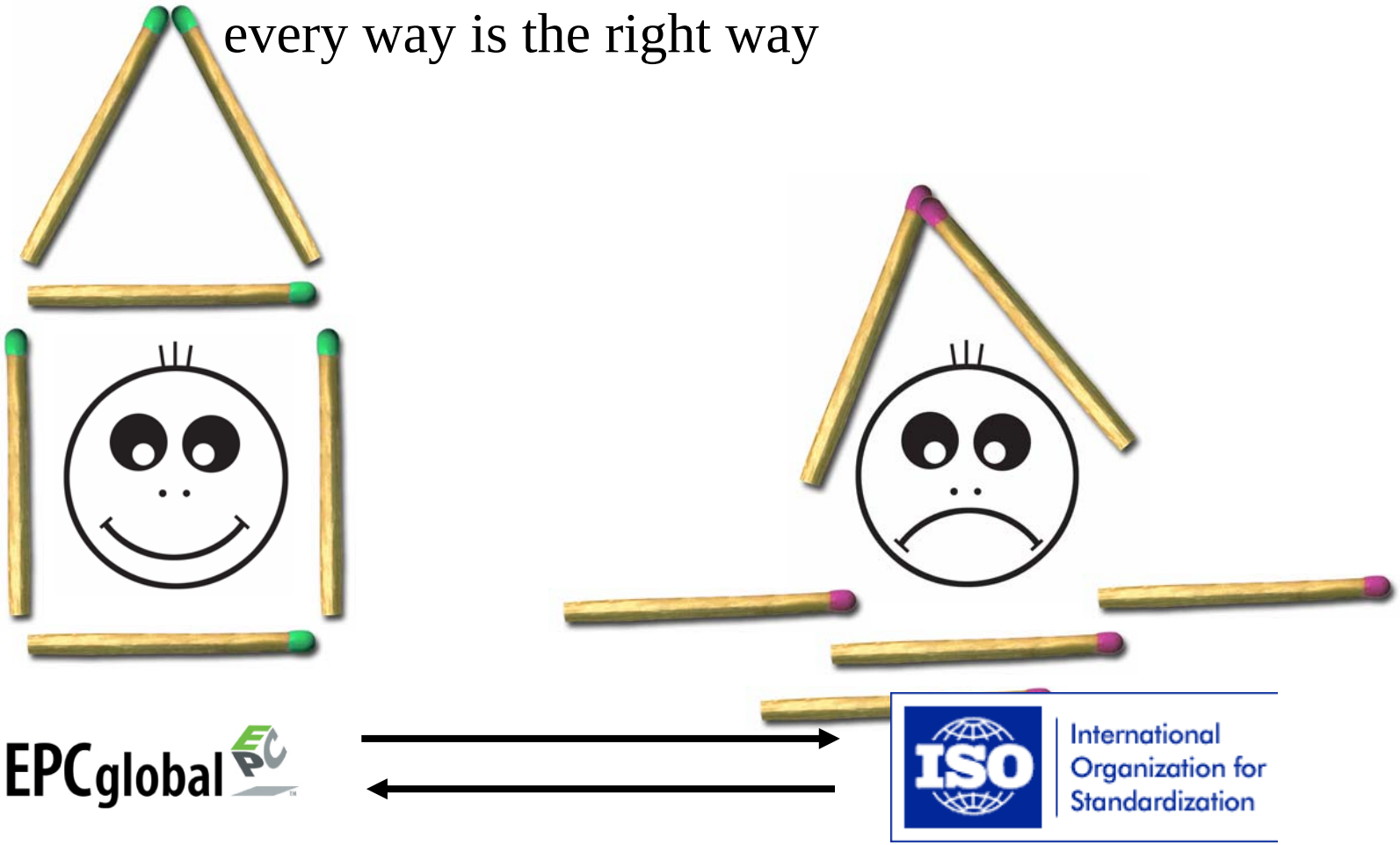

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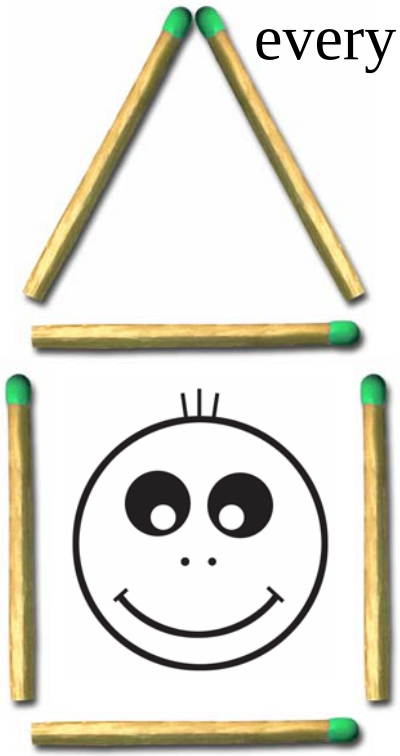

ISO International Organization for Standardization

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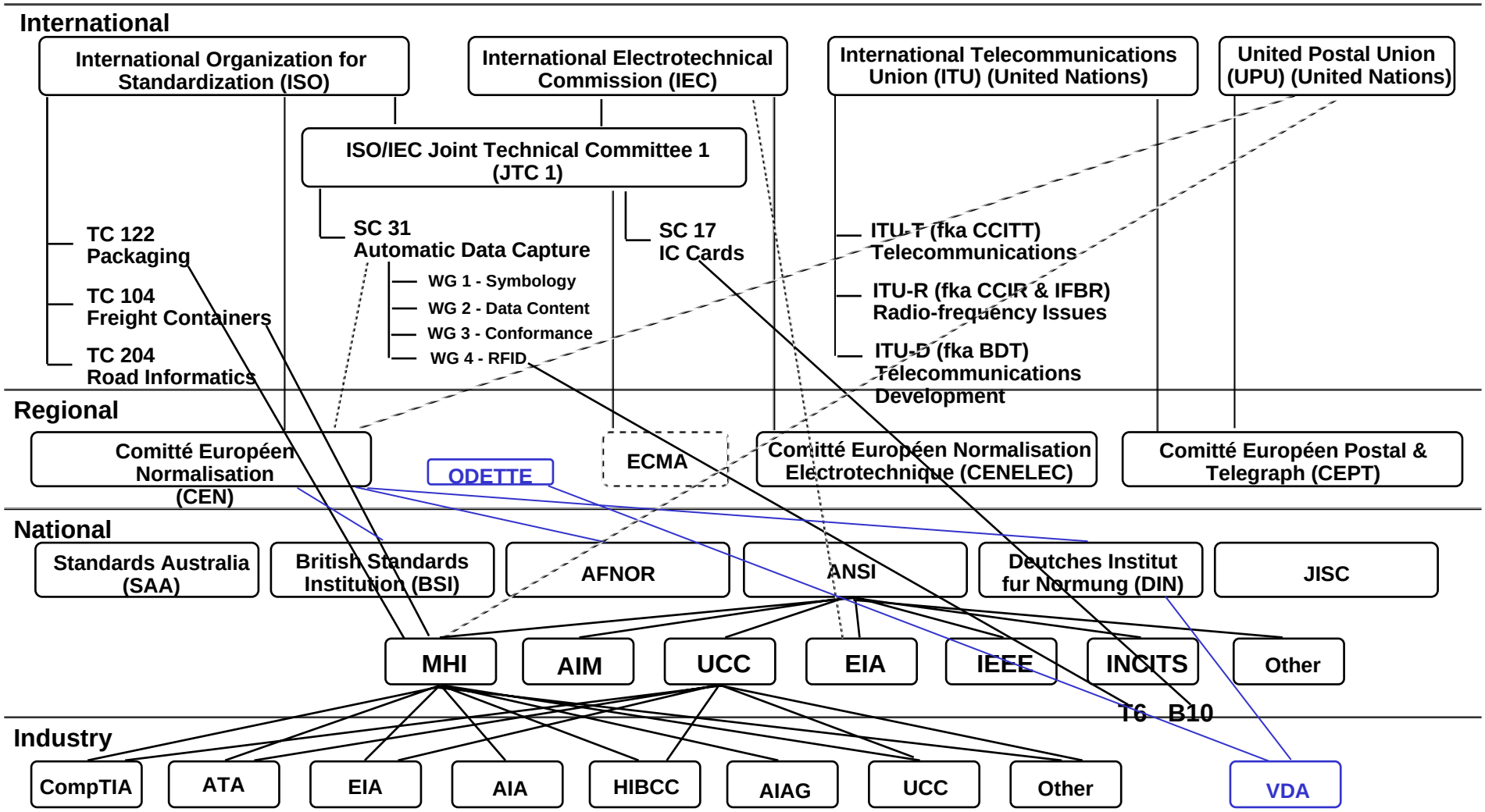
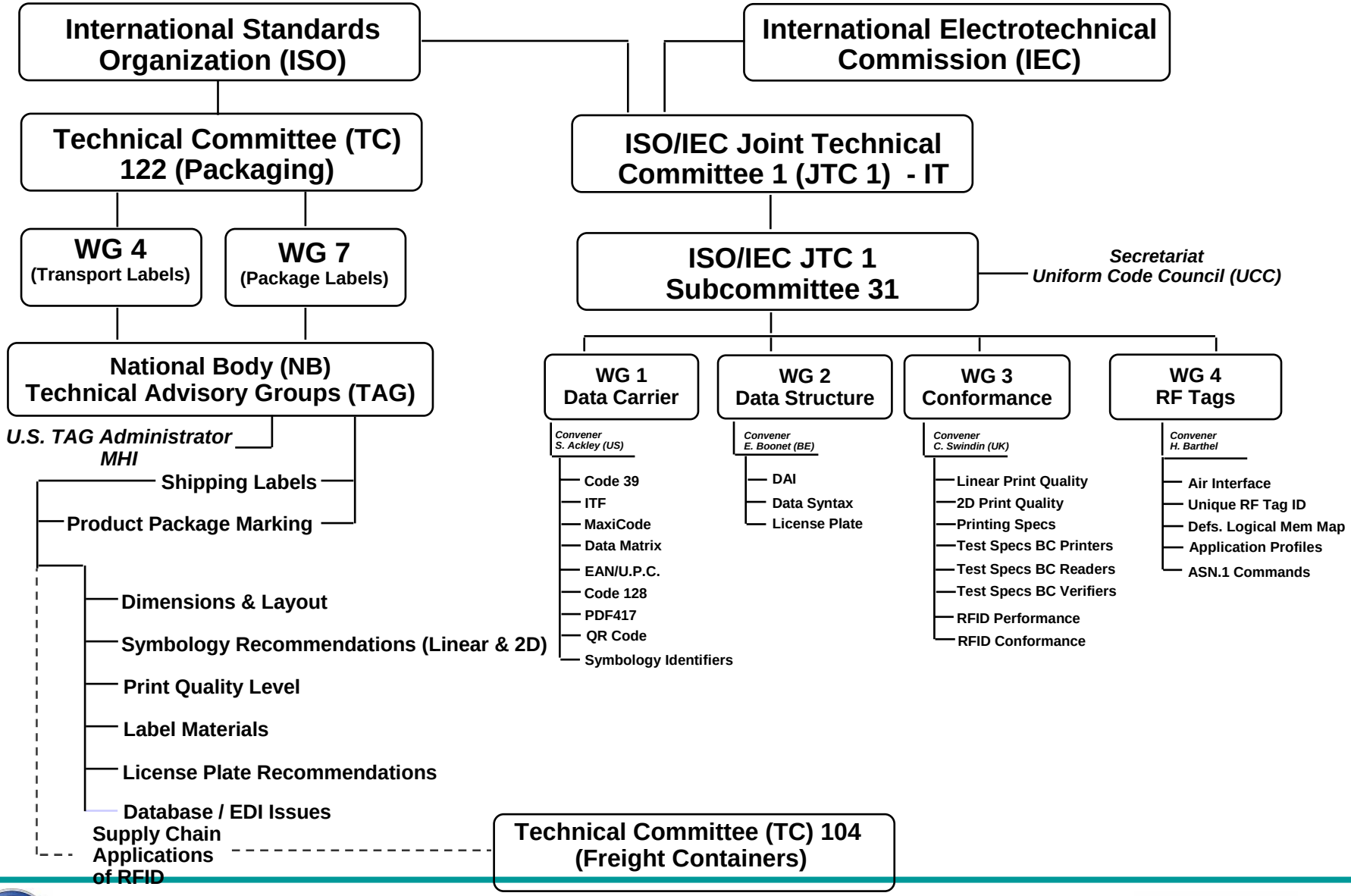
....create with Standards ? !

Standards Organisations



RFID Focussed ISO Standards



Transponder systems (RFID systems)
Initial Situation in the automotive Industry

Modern material flow systems require an information flow

- redundancy-free
- trouble-free
- and constantly faster and faster

In this respect, up to the present day labels have been highly significant as physical information carriers

- Barcode labels as information store
- barcode readers (scanner checkout...) as identification tool

Transponder systems (RFID systems)
Initial Situation in the automotive Industry

Target:

The primary target in logistics, apart from the trend to automation of logistics sequences, is the coupling of material and information flows with

- autonomous data storage

Requirements:

All relevant data and information that accompanies a consignment of parts is organised consistently for all participants

- useful
- changeable (partly) - without physical intervention such as label changing and pasting over

Transponder systems (RFID systems)
Initial Situation in the automotive Industry

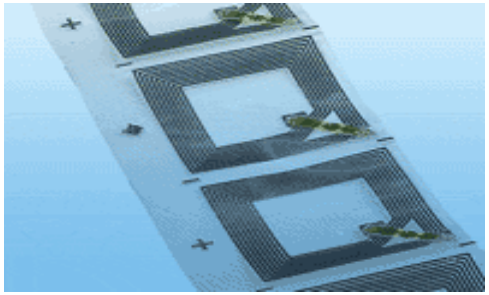
Limits:

Meeting these requirements -
use of information content throughout the logistics chain - is beyond the capacity of barcodes

Solution:

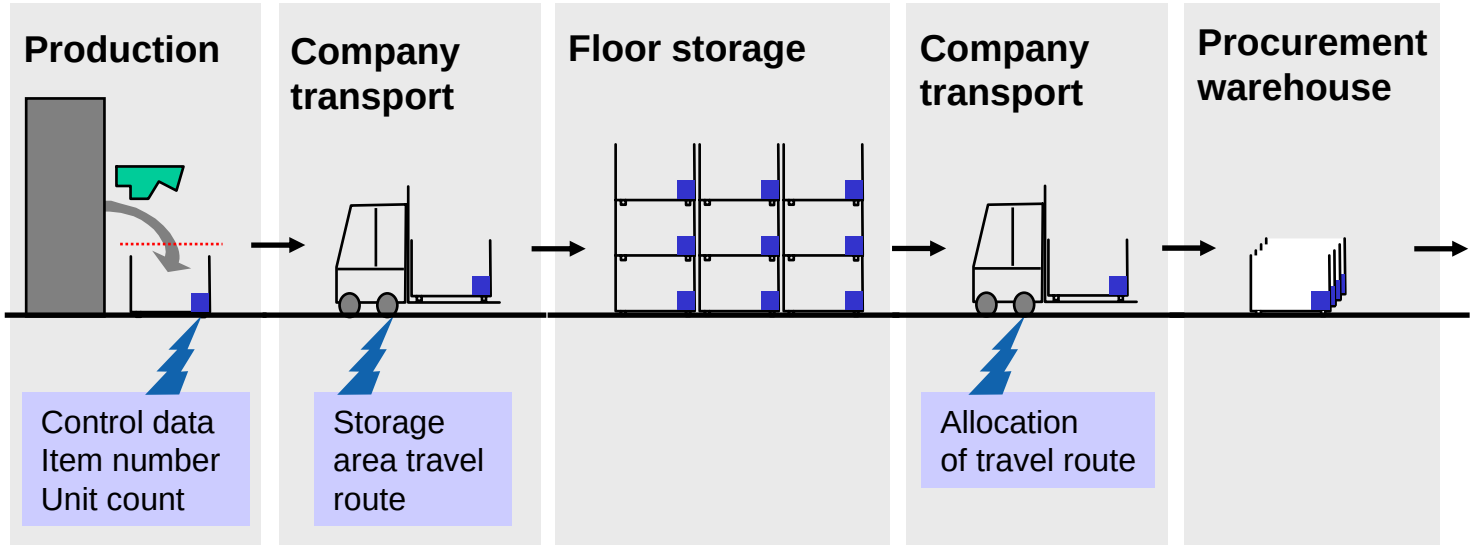
Transponder technology (RFID systems)

Parts are identified contact-free and without a direct visual connection by means of electromagnetic fields

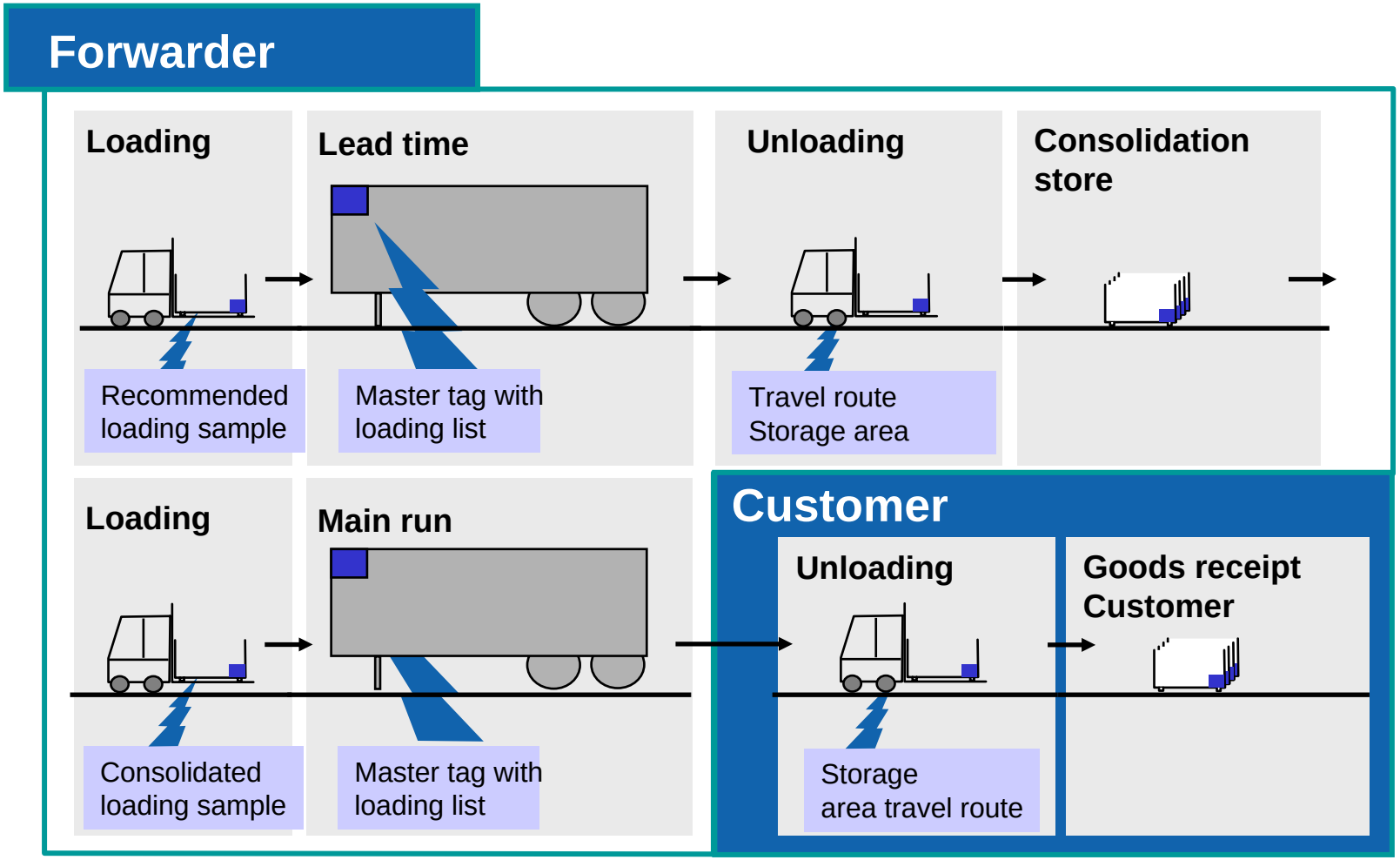


Information flow in logistics chain supplier - forwarder - customer (1)

Supplier



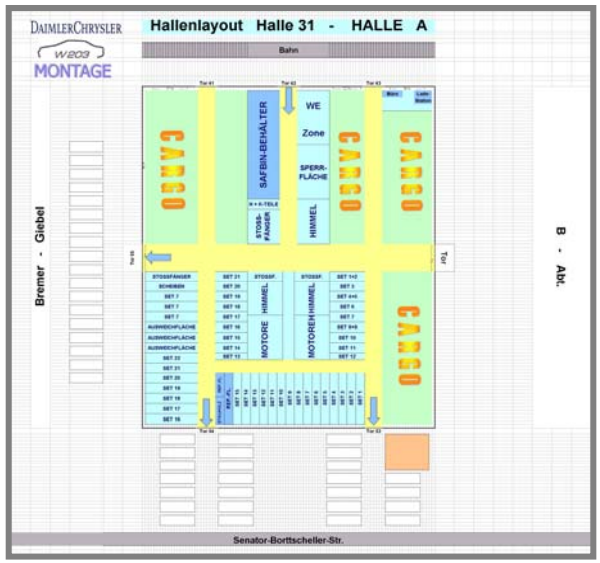
Information flow in logistics chain supplier - forwarder - customer (2)

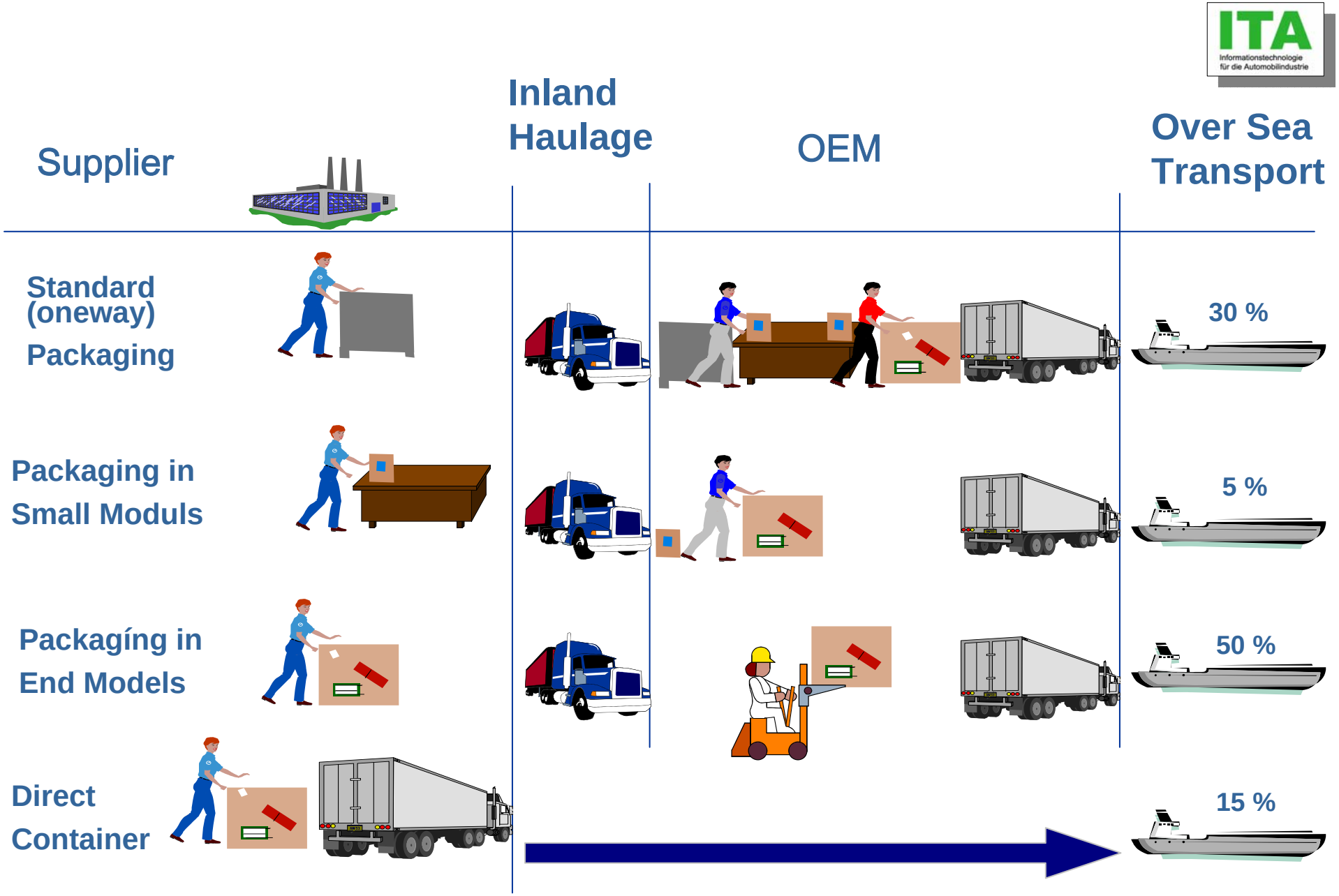


Transponder systems (RFID systems)
Scenarios and Feasibility Studies in the automotive Industry

Container Tracking in CKD-processes for over sea plants

Feasibility Studies were done in 2003 / 2004 by OEM´s (DC / Volkswagen) corporately with Logistic Service Providers, Inhouse Logistics and IT-Solution Integrators under co-ordination by the Association of the German Automotive Industry (VDA) and IT-Association (ITA)




Supplier
Inland Haulage
OEM
Over Sea Transport
Standard (oneway) Packaging
30 %
Packaging in Small Moduls
5 %
Packagíng in End Models
50 %
Direct Container
15 %

Identification of Small Load Container i. e. the VDA-KLT

Best and Worst Case Scenarios (Single and Bulk Reading) were described and some pilot tests with Metal and Plastic Containers with activ and passiv transponders were done.

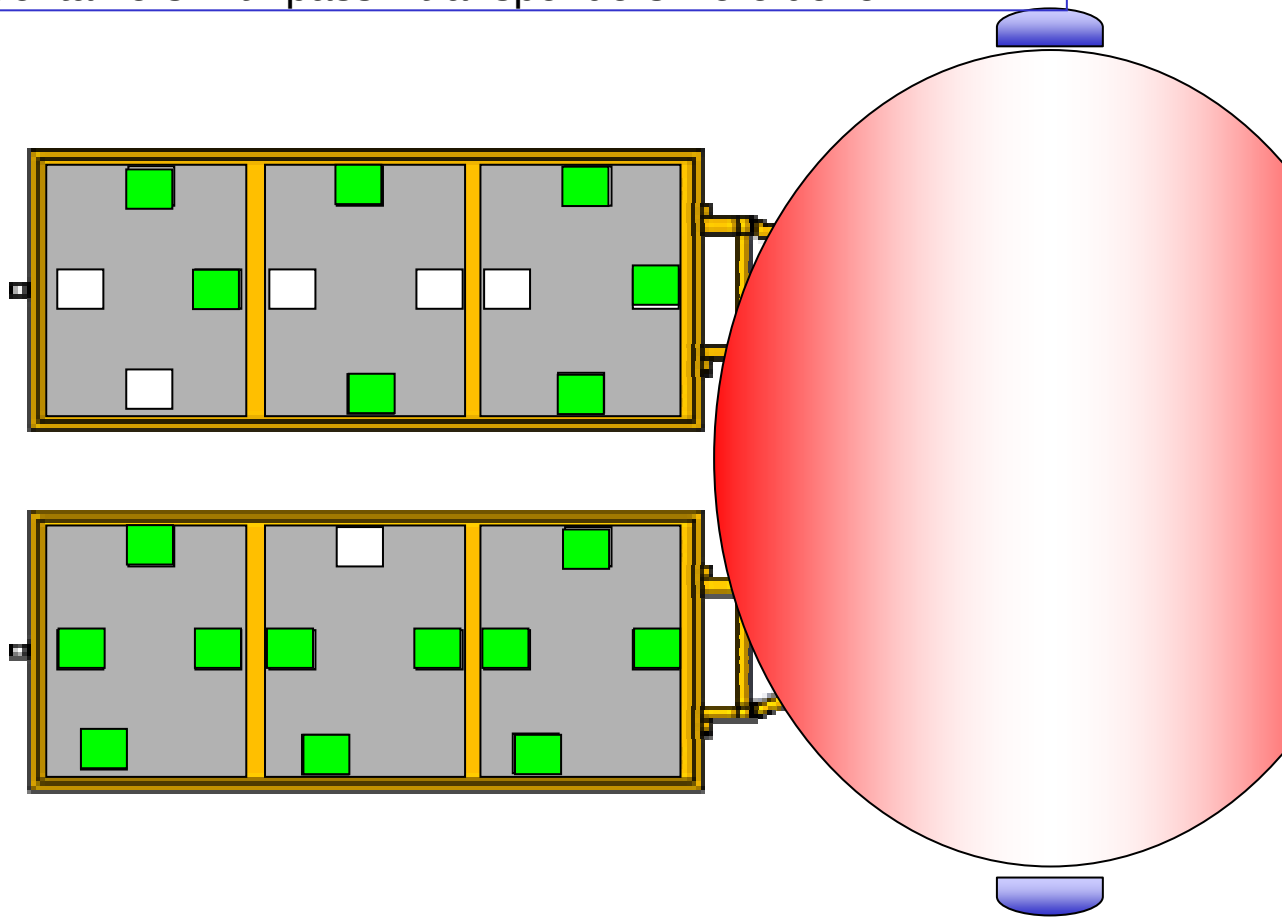
3-Ebenen GaReCo Gate from TBN

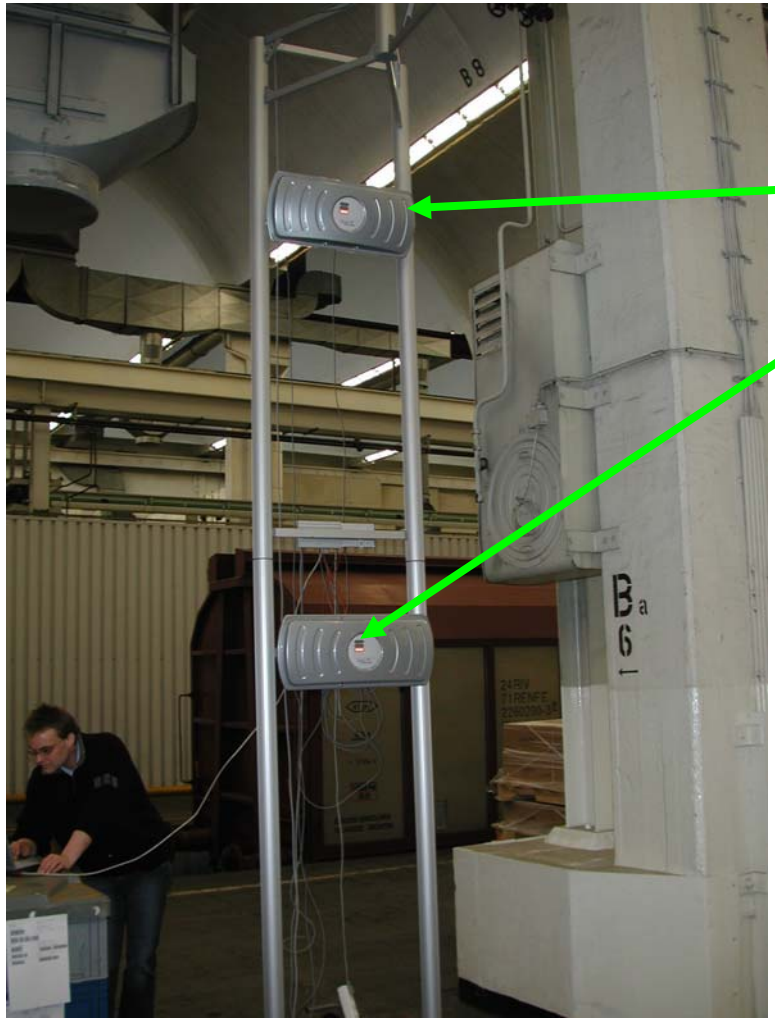
Identification of metal container i. e. for special metal parts

Worst Case Scenarios (Single and Bulk Reading) were described and some pilot tests with Metal Containers with passiv transponders were done.

First Layer

Second Layer

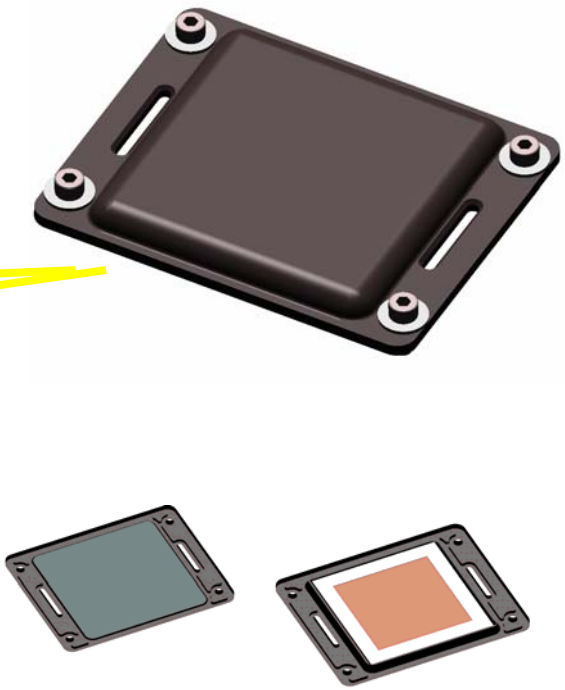




Gate:

- ~ 4,10 m height
- ~ 7,00 m width
- 4 Deister Reader (two per site) UHF (868 MHz)
- Transponder UHF passiv

Parts: engine hoods, 20 parts per container



Special metal tag, atmel chip, tagidu protocol, 4 tags per container (one on each site only for testing not for further application)

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