



Training course, slides version 2.5

EDI for supply chain collaboration in the automotive industry

24:e of October, 2018
Centralhuset Konferens,
Göteborg

Introduction

Language that we will use today?

Introduction to this day, presentation of lecturers and participants

Michael Bogren, Encode AB

- Developer of EDI and logistics support, services and applications, since 1987
- EDI implementations at over 300 EDI-partners
- Founder of GeBC AB – one of the first Web-EDI providers globally.



Ingrid Lundberg, Odette Sweden AB

- CEO of Odette Sweden AB since February 2015
- Former CIO of Volvo Logistics AB (since 1987)
- Long experience in EDI, SCM, Auto ID, Customer/Supplier relations
- Much involved in international automotive EDI organisations



Presentation of participants

- Your company and your role in the company
- Your experience in logistics, ERP – EDI, technical issues

Agenda walkthrough

Agenda

09.00	Introduction
09.15	EDI – why and what is it? <ul style="list-style-type: none">■ Introduction to Odette■ EDI standards and organisations behind■ Odette - future development and vision■ Example of tools (WebChecker and FAI)
10.00-11.30	General overview of tools used for data exchange (messages, auto-id concepts)
10.00	Messages <ul style="list-style-type: none">■ EDI messages, standards, structure, segments■ EDI Components/requirements■ Automotive industry compared to Food & Beverage
10.30	Coffee
	Messages - continues
11.00	AUTO-ID Concepts <ul style="list-style-type: none">■ 1D and 2D symbols■ Data Identifiers■ AUTO-ID Labels and Barcodes■ Equipment for generating and reading labels■ RFID – Passive and Active technology■ RFID - standards/alternatives

Agenda

11.45	Business processes and procurement methods in the automotive supply chain <ul style="list-style-type: none">■ Roles of the involved partners■ Batch delivery
12.00	Lunch
13.00	Business processes and procurement methods in the automotive supply chain - continued <ul style="list-style-type: none">■ JIT/JIS process■ VMI and CMI processes
13.45	OFTP2 and Odette Secure Introduction
14.00	EDIFACT Format and syntax, detailed walkthrough Segment architecture
14.30	Coffee Break
15.00	Practical tasks
16.30	Implementation issues <ul style="list-style-type: none">■ Driving forces behind EDI■ Supplier challenges■ IT solutions for EDI and labels■ Conclusion
16.45-17.00	Summary & discussion

Documentation

Available during training

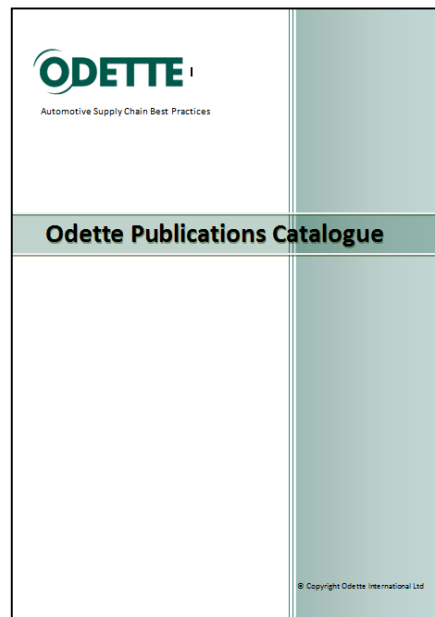
- Agenda
- Participants
- Slides
- Detailed samples of EDI messages
- Training course evaluation

For download

- Training course presentation slides
- OFTP2 explained
- OFTP2 Implementation Guidelines
- Comparison of File Transfer Alternatives

Odette current publications

<https://www.odette.org/publications>



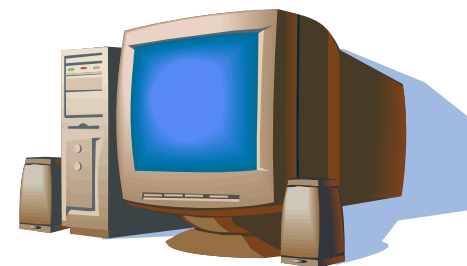
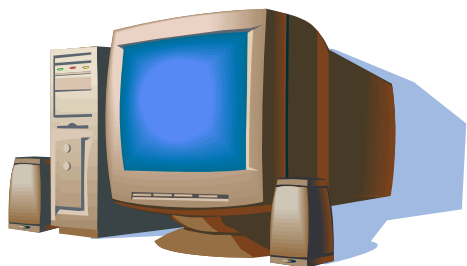
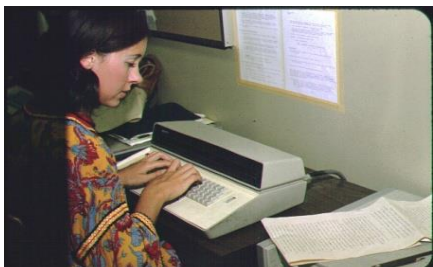
Download documents at

http://www.odette.se/kurser-seminarier_1/endast_tillganglig_for_kurs_medlemmar

User name: odette

PW: book12

EDI – Why?



What is EDI all about?

Benefits

- Without EDI, it is not possible to handle the data volumes required in today's logistic solutions.
- With good systems, manual handling can be completely excluded and data can be sent from system to system, from Tier to Tier.

Issues

- If EDI is used incorrectly, benefits are limited throughout the supply chain.
- One problem is when one party forces another party to use a web portal.
- Another problem is the number of different applications of formats.
- A third problem is inadequate applications, when rules are not followed.

The realisation of EDI

The automotive industry was a pioneer in implementing EDI due to:

- Heavily growing amounts of information to be exchanged with trading partners
- High IT and management skills
- Being a large scale activity

Another early adopter of EDI was the retail sector

From this adoption of EDI has spread to any part of the economy like building and construction, transports, customs, finance,....

Today EDI could be seen as a basic infrastructure factor in almost any administrative function in society, not least in On Line shopping:

Leverans på väg till dig.
Avsändare

Namn **Lampan AB**
Epost kontakt@lampan.se

Kollinummer

696XXXXXX8SE

Här är fakturan för ditt köp hos Lampan i Uddevalla. Vi behöver din betalning senast 3 december. Se fakturan på [Mitt Klarna](#) eller öppna den som pdf här.

Ordernummer: 88408
Orderdatum: 2015-10-29

Sändning

Datum **2015-11-19**
Sändningsreferens **88408**
Ordernummer **88408**
Transportör **Posten Sverige**

OBS!

Detta e-postmeddelande är skickat till dig från Lampan AB via Unifauns EDI-växel.

EDI – a must in the automotive industry



VOLVO

- AB Volvo participates in the Odette (Organisation for Data Exchange by Tele Transmission in Europe) organisation (Board and the forums).
- AB Volvo homepage: To support reducing development and order to delivery lead-times EDI (Electronic Data Interchange) communication throughout the supply chain is considered as a key success factor to support this.
- Actual yearly figures:
 - Delivery Plan: 4600 suppliers via web EDI + EDI (1261 suppliers with traditional EDI)
 - Despatch Advice: 3600 suppliers
 - Invoice: 1700 suppliers



SCANIA

- Scania participates in the Odette (Organisation for Data Exchange by Tele Transmission in Europe) organisation (Board and the forums).
- Actual yearly figures:
 - EDI-communication with 900 suppliers

EDI – a must in the automotive industry



- Volvo Cars Corporation participates in the Odette (Organisation for Data Exchange by Tele Transmission in Europe) organisation (Board and the forum).
- Actual yearly figures:
 - EDI-communication with 1300 suppliers



- NEVS participates in the Odette (Organisation for Data Exchange by Tele Transmission in Europe) organisation (Board and the forum).
- Almost no production at the moment, but are prepared to implement when the production starts.
 - EDI-communication with 1 supplier

Examples of information sources

(Some are pass-word protected)

https://www.odette.org/publications	All Odette publications available for Odette members (pass-word protected)
http://www.odette.se/implementering	Information about national profiles and guidelines issued by Odette Sweden
http://www.volvo.com/volvoit/edi/en-gb	EDI specifications at Volvo Group
http://microsite.hcltech.com/EDI/cars/index.html	EDI specifications at Volvo Cars
https://supplier.scania.com/wps/portal/Home/Supplying-to-Scania/EDI/	EDI specifications at Scania
https://www.vda.de/en/services/Publications.html	Information about national profiles and guidelines issued by VDA in Germany
http://www.galia.com/dyn/s_recommandations.asp	Information about national profiles and guidelines issued by GALIA in France
http://www.unece.org/tradewelcome/home.html	UNECE main page

Introduction to Odette, historical walkthrough



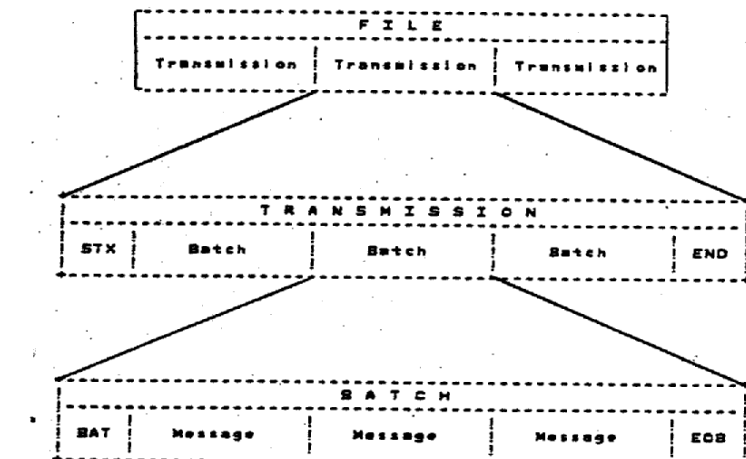
Introduction to Odette

Odette started in 1984, when DOS was the dominating Operating System and well before Internet and email became available

The basic concepts that EDIFACT builds upon were initially developed in Odette



Så här ser ett ODETTE-meddelande ut på bildskärmen.



Introduction to Odette

Odette” is an abbreviation for ”*Organisation for Data Exchange by Tele Transmission in Europe*”

Odette today:

- An organisation working for the European automotive industry with close relations to its counterparts in North America and in Japan
- An issuer of common guidelines and recommendations for logistics and data exchange in the supply chain:
 - EDI messages based on EDIFACT or XML
 - File transfer protocol
 - Usage of Auto Id with bar codes, 2D and RFID
 - Logistics scenarios

Membership

National Organisations

- **Germany (VDA)**
- **France (GALIA)**
- **Sweden (Odette Sweden)**
- **Spain (Odette Spain/ANFAC)**
- **Czech Republic (AIA)**
- **United Kingdom (SMMT)**



*Representing more than
4000 companies in Europe*

Associate National Members

- **Turkey (OSD)**

Associate IT Members

- **Axway**
- **QAD**

Interest Group Members

- **FCA & CNH (FIAT-Chrysler, IVECO)**

Global automotive cooperation in
EDI, Auto ID/RFID and Logistics



Odette organisation



Odette Sweden was founded in 1984, the company is owned by the trade association BIL Sweden AB
Around 50 members: OEMs, suppliers, IT Providers and LSPs



Network for common development of the Swedish/Scandinavian supply chain



Odette International



Joint Automotive Industry Forum, the platform for global collaboration between the American AIAG and Japanese JAMA and JAPIA



Odette introduction, working areas

Assessment Tools

- Global MMOG/LE
- Global Logistics Evaluation for Carriers and Logistics Service Providers

Key Performance Indicators

- KPIs for Global Materials Management and Logistics
- KPIs for Carriers and Logistics Service Providers
- Forecast Accuracy Measurement

Data Exchange

- EDI messaging
- EDI messaging support services
- OFTP2 File Transfer protocol

Applications

- Demand Capacity Planning
- Supply Chain Monitoring
- Vendor Managed Inventory
- Global Collaboratively Managed Inventory Min/Max

Packaging

- Container Management

General

- Global Materials Management and Logistics Agreement
- Guidelines for Reporting Freight Greenhouse Gas Emissions

Services

- OSCAR code issuing service for unique identification of companies or locations
- Odette as a Certification Authority (CA)
- Trust Bridge for listed CAs

Auto ID /RFID Transport Labelling

- Global Transport Label
- OTL1 Transport Label
- OTL3 Transport Label
- Aftermarket Label
- Traceability of Vehicle Components
- Unique Parts Identification
- RFID in Vehicle Distribution Processes
- RFID for Parts Marking
- RFID in Supply Chain Container Management

WebChecker



Odette Sweden is running a service for checking test EDI files for most frequently used messages:

Global Invoice Sweden AP
SMSI Freight
SMSI General (NAP)
Global DESADV Sweden

LG07 – Forecast Accuracy Measurement

Definitions according to LG07

FAI: Measures the forecast against the firm order

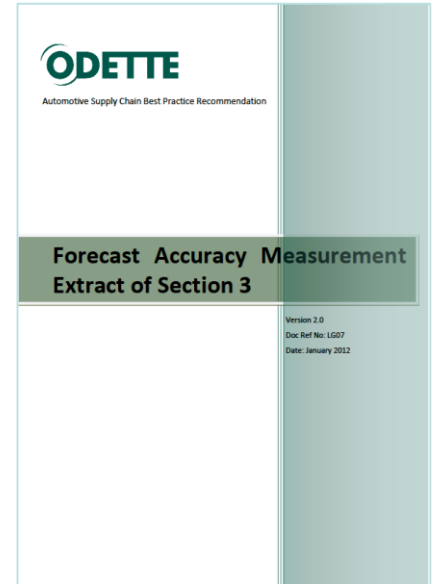
WTS: Over- or under forecasting compared to firm order

If: $d_0 \neq 0$

$$FAI := \alpha_1 \cdot \max \left\{ 0; 1 - \frac{|\Delta_1|}{d_0} \right\} + \alpha_2 \cdot \max \left\{ 0; 1 - \frac{|\Delta_2|}{d_0} \right\} \\ + \alpha_3 \cdot \max \left\{ 0; 1 - \frac{|\Delta_3|}{d_0} \right\} + \alpha_4 \cdot \max \left\{ 0; 1 - \frac{|\Delta_4|}{d_0} \right\}$$

100% = What you knew was completely correct.

0% = What you thought you knew was completely wrong



Animation_P03177.avi



An example of how demands for a specific time period are varying over time (green bars)

The blue sign indicates when information about a specific future demand was given

EDI standards and organisations behind

UNCEFACT (United Nations Centre for Trade Facilitation and Electronic Business)

- EDIFACT, Electronic Data Interchange For Administration Commerce and Transport
- XML

ODETTE, European standard

- Organisation for Data Exchange by Tele Transmission in Europe

GALIA, the French part of Odette

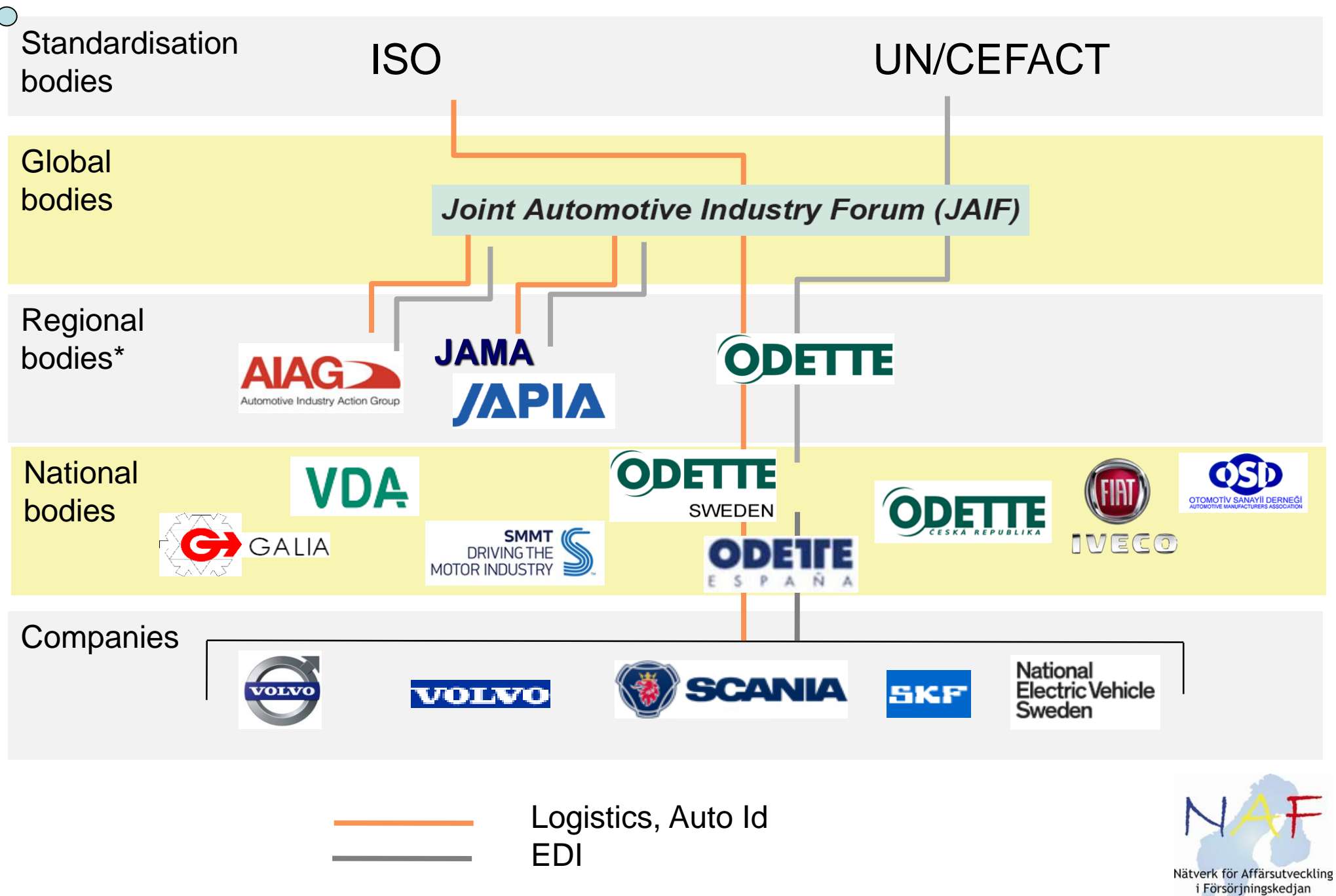
- Groupement pour l'Amélioration des Liaisons dans l'Industrie Automobile

VDA, the German part of Odette, also publisher of one of the earliest EDI standards

- Verband Der Automobilindustrie

ANSI, (old) American standard

- American National Standards Institute



EDI messages standards development and implementation



Odette – developments and future trends

Main developments in the Odette environment

Syntax

- EDIFACT was the main syntax from the start
- Still EDIFACT is the most commonly used syntax
- XML syntax in use for more than 15 years
- Syntax is a specialist issue that most EDI users do not need to get into

EDI messages

- The first generation of messages came from VDA in 1980. Still well before EDIFACT until recently still in (some) use but being phased out now
- The first Odette messages were published in 1986, still in (some) use
- Odette messages based on EDIFACT came in 1990, some are still used
- Global automotive EDI messages (Odette/JAIF based on EDIFACT) were first published around year 2000, these are in considerable use
- Odette/JAIF messages are also available in XML syntax

Main developments in the Odette environment

Data exchange

- Odette has developed its own file transfer protocol (OFTP)
- OFTP1 was made for "telecom" services (ISDN/X.25)
- OFTP2 is made for Internet services

Integration technologies

- From the beginning Odette has developed solutions aimed for direct data exchange between parties and assuming each party is connecting EDI to their ERP systems
- Simplified solutions are also available:
 - Data exchange plus eventually also other services like syntax translation via third parties (VAN), common in the US
 - Web portals

Future tendencies

Syntax

- EDIFACT still the main option but increasing use of XML
- More messages in XML format will mean more subsets and increasing complexity

EDI messages

- Message functionality only changing slowly
- More global standards
- More interactivity

Data exchange

- OFTP2 and Internet will become a global standard within automotive
- More cloud services, more interactivity

Integration technologies

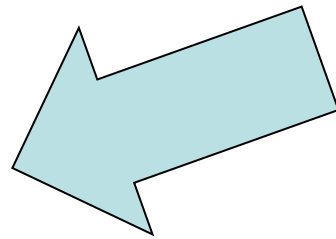
- Portals will be less used
- More cloud services, more interactivity

- General overview of tools used for data exchange (messages, labels, RFID)

General overview of tools used for data exchange (messages, auto-id concepts)

EDI – Electronic Data Interchange
Electronic, predefined documents
exchanged between parties.

DELFOR
DESADV
INVOIC
DELJIT



Labels with bar codes and plain
text information



RFID tags

EDI messages - standards

EDI – Electronic Data Interchange

- *The transfer of structured data, by agreed message standards, from one computer system to another*
- *EDIFACT – **E**lectronic **D**ata **I**nterchange for **A**dministration, **C**ommerce and **T**ransport – main European standard.*

Other standard formats:

Odette – Older EDIFACT subset

VDA – German Industry standard (not further developed)

ANSI X.12 – US standard

Some XML applications (UBL, cXML, SAP IDOCS and so on)

EDI messages - standards

- EDIFACT is developed and maintained by UNECE – United Nations Economic Commission for Europe.
- The standard D.13A contains 194 different business documents

<http://www.unece.org/trade/untdid/d13a/trmd/trmdi2.htm>

The most common in the Automotive Industry are:

DELFOR – **DEL**ivery **FOR**ecast

DEljIT – **DEL**ivery **J**ust **I**n **T**ime

DESADV – **DES**patch **ADV**ice

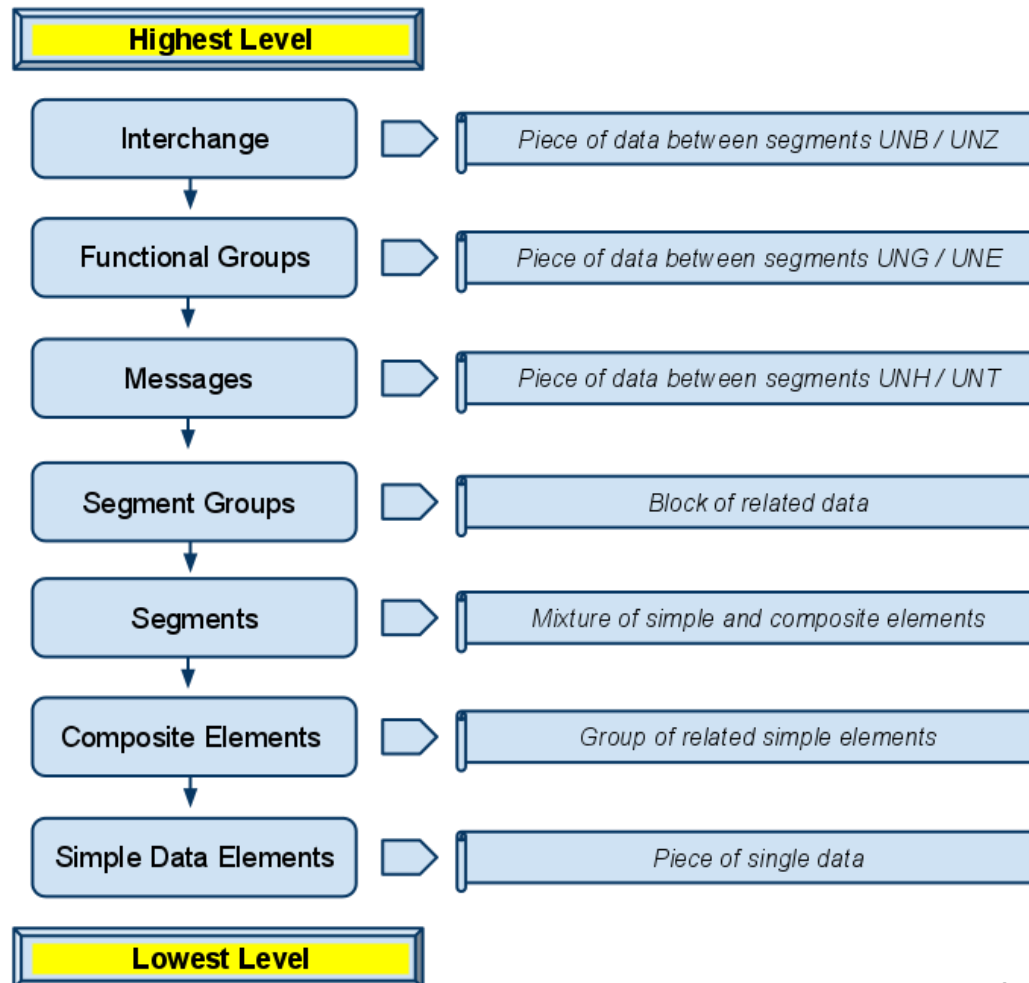
INVOIC - **INVOICE**e

EDI messages - structure

- Envelope One for each partner and location
 - Message: One per message (sets standard)
 - Header: Partner and message information
 - Line Detail/Item/Package data
 - Sub line Multiple details on line
-
- EDI standards like EDIFACT describe the structure of messages, gives information on how to interpret data and what segments and tags are mandatory, conditional and optional. Also functional codes are defined.

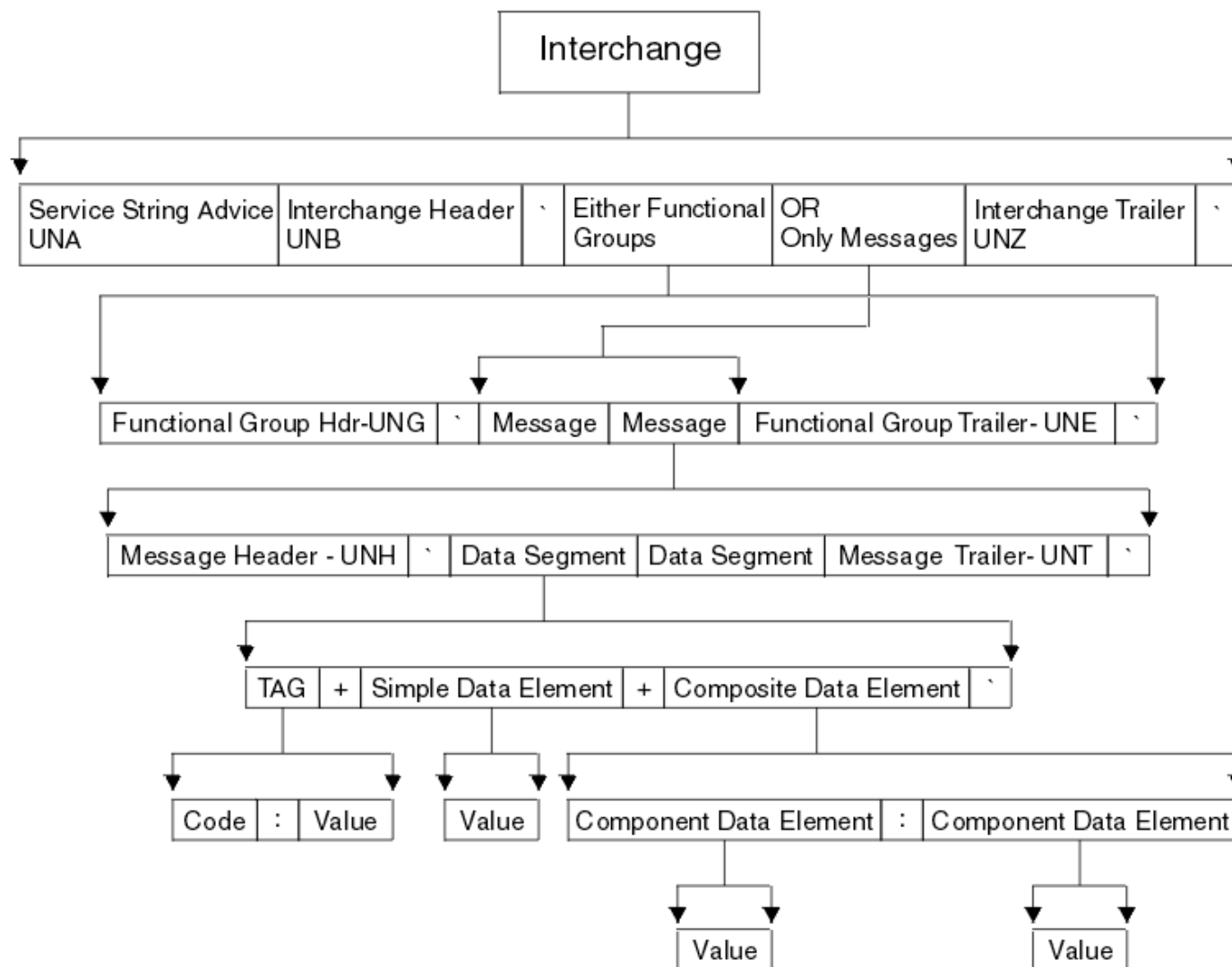
EDI messages - segments

UN/EDIFACT Message Structure



<http://gekseppe.blogspot.com>

EDI messages - segments



EDI messages - segments

UNA:+.? '

UNB+UNOA:2+SENDER+RECEIVER+180327:1554+968' RED = Single segments

UNH+1353+DESADV:D:93A:UN:EAN004'

BGM+351+651234'

DTM+137:201802011554:203'

DTM+69:20180201:102'

RFF+ON:2526906'

NAD+SU+984328931::9'

NAD+BY+7080000784356::9'

NAD+DP+7080003314604::9'

LOC+11:TVV'

CPS+1'

LIN+1++7311760219599:EN'

QTY+12:1:PCE'

RFF+ON:2526906:1.00'

LIN+2++7311760219605:EN'

QTY+12:1:PCE'

RFF+ON:2526906:2.00'

LIN+3++7311760219551:EN'

QTY+12:1:PCE'

RFF+ON:2526906:3.00'

LIN+4++7311760219568:EN'

QTY+12:1:PCE'

RFF+ON:2526906:4.00'

CNT+2:4'

UNT+24+1353'

UNZ+1+968'

Green = Segment group

4.3 Message structure

4.3.1 Segment table

Pos	Tag Name	S	R
HEADER SECTION			
0010	UNH Message header	M	1
0020	BGM Beginning of message	M	1
0030	DTM Date/time/period	M	10
0040	AAAA Segment group 1 AAAAAAAAAAAAAAAAAA	C	10AAAAAAAAAA
0050	RFF Reference	M	1
0060	DTM Date/time/period	C	1AAAAAAAAAA0
0070	AAAA Segment group 2 AAAAAAAAAAAAAAAAAA	C	20AAAAAAAAAA
0080	NAD Name and address	M	1
0090	LOC Place/location identification	C	10
0100	AAAA Segment group 3 AAAAAAAAAAAAAAAAAA	C	5AAAAAAAAAA
0110	CTA Contact information	M	1
0120	COM Communication contact	C	5AAAAAAAAAA0
DETAIL SECTION			
0130	UNS Section control	M	1

4.3 Message structure

4.3.1 Segment table

Pos	Tag Name	S	R
HEADER SECTION			
0010	UNH Message header	M	1
0020	BGM Beginning of message	M	1
0030	DTM Date/time/period	M	10
0040	AAAA Segment group 1 AAAAAAAAAAAAAAAAAA	C	10AAAAAAAAAA
0050	RFF Reference	M	1
0060	DTM Date/time/period	C	1AAAAAAAAAA0
0070	AAAA Segment group 2 AAAAAAAAAAAAAAAAAA	C	20AAAAAAAAAA
0080	NAD Name and address	M	1
0090	LOC Place/location identification	C	10
0100	AAAA Segment group 3 AAAAAAAAAAAAAAAAAA	C	5AAAAAAAAAA
0110	CTA Contact information	M	1
0120	COM Communication contact	C	5AAAAAAAAAA0
DETAIL SECTION			
0130	UNS Section control	M	1
0140	AAAA Segment group 4 AAAAAAAAAAAAAAAAAA	C	500AAAAAAAAAA
0150	NAD Name and address	M	1
0160	LOC Place/location identification	C	10
0170	FTX Free text	C	5

Practical example

VOLVO GLOBAL DELFOR D04A

Segment details

Group:	SG6	Status: R	Max. Occ.: 9999	Ship-to level (instruction line)
Group:	SG12	Status: R	Max. Occ.: 9999	Scheduled Article Details
Group:	SG18	Status: R	Max. Occ.: 999	Scheduling data
Group:	SG19	Status: R	Max. Occ.: 1	Scheduled quantity
Group:	SG20	Status: D	Max. Occ.: 1	Reference documents
Segment:	RFF	Seq. No.: 35 Status: M Counter: 0700	Level: 5 Max. Occ.: 1	Reference

Name: Reference

Description of segment:

UN/EDIFACT		Implementation		
	Name	St Format	St Format	Use / Remarks
RFF	Reference	M	M	
C506	Reference	M	M	
1153	Reference code qualifier	M an..3	M an..3	AAP Part consignment number
1154	Reference identifier	C an..70	R an..17	Reference to a specific consignment for item deliveries.

Remark:

After special agreement with Volvo, a reference is made here to an order line or other customer oriented reference concept.

Example:

RFF+AAP:36001'

Validation results for D:\Encode\bwim\Received\m2217865.edi
Using message definition: DELFOR.D04A

```

UNB, [000] INTERCHANGE HEADER
0001 M,001 Syntax identifier "UN04"
0002 M,01 Syntax version number "1"
0004 M,03 Sender identification "194200005563101301"
0007 C,04 Identification code qualifier "30"
0008 C,04 Identification code qualifier "00"
0010 M,03 Recipient identification "19420000556477278ALFDEX"
0007 C,04 Identification code qualifier "00"
0017 M,06 Date "181016"
0018 M,06 Time "1054"
0020 M,03 Interchange control reference "36797318"

UNH, [000] UNH
0062 M,03 Message reference number "3679731800001"
0065 M,03 Message type identifier "DELFOR"
0032 M,03 Message type version number "D"
0054 C,03 Message type release number "04A"
0051 C,02 Controlling agency "UN"
0057 C,03 Association assigned code "GMD051"

BGM, [000] BEGINNING OF MESSAGE
1001 C,03 Document name code "241"
1004 C,03 Document identifier "1942002"

DTM, [000] DATE/TIME/PERIOD
2005 C,03 Date or time or period function code "137"
2380 C,03 Date or time or period text "20181013"
2379 C,03 Date or time or period format code "102"

DTM, [000] DATE/TIME/PERIOD
2005 C,03 Date or time or period function code "137"
2380 C,03 Date or time or period text "20181013"
2379 C,03 Date or time or period format code "102"

NAD, [002] NAME AND ADDRESS
3035 M,03 Party function code qualifier "BY"
3039 M,03 Party identifier "100"
3055 C,03 Code list responsible agency code "92"

NAD, [002] NAME AND ADDRESS
3035 M,03 Party function code qualifier "SE"
3039 M,03 Party identifier "43008"
3055 C,03 Code list responsible agency code "92"

GEL, [006] PROCESSING INFORMATION
3040 M,03 Processing information code qualifier "3"

NAD, [007] NAME AND ADDRESS
3035 M,03 Party function code qualifier "BY"
3039 M,03 Party identifier "100"
3055 C,03 Code list responsible agency code "92"
3056 M,03 Party name "VOLVO PARTS CORPORATION GENT"

LIN, [012] LINE ITEM
1259 C,03 Action request/notification descriptor "38"
7140 C,03 Item identifier "VOE21475236"
7143 C,03 Item type identification code "IN"

LOC, [G12] PLACE/LOCATION IDENTIFICATION
3227 M,03 Location function code qualifier "11"
3225 C,03 Location name code "938"
3055 C,03 Code list responsible agency code "92"

LOC, [G12] PLACE/LOCATION IDENTIFICATION
3227 M,03 Location function code qualifier "159"
3225 C,03 Location name code "938"
3055 C,03 Code list responsible agency code "92"

DTM, [G12] DATE/TIME/PERIOD
2005 C,03 Date or time or period function code "137"
2380 C,03 Date or time or period text "20181013"
2379 C,03 Date or time or period format code "102"

RFF, [G17] REFERENCE
1153 M,03 Reference code qualifier "W"
1154 C,03 Reference identifier "3500/552938"

RFF, [G17] REFERENCE
1153 M,03 Reference code qualifier "AP"
1154 C,03 Reference identifier "1842001"

QTY, [G16] QUANTITY
6063 M,03 Quantity type code qualifier "10"
6060 M,03 Quantity "100"
    
```

```

DTM, [G16] DATE/TIME/PERIOD
2005 C,03 Date or time or period function code "51"
2380 C,03 Date or time or period text "20180101"
2379 C,03 Date or time or period format code "102"

QTY, [G16] QUANTITY
6063 M,03 Quantity type code qualifier "12"
6060 M,03 Quantity "50"

DTM, [G16] DATE/TIME/PERIOD
2005 C,03 Date or time or period function code "11"
2380 C,03 Date or time or period text "20180910"
2379 C,03 Date or time or period format code "102"

RFF, [G17] REFERENCE
1153 M,03 Reference code qualifier "AAK"
1154 C,03 Reference identifier "6009349"

QTY, [G16] QUANTITY
6063 M,03 Quantity type code qualifier "12"
6060 M,03 Quantity "50"

DTM, [G16] DATE/TIME/PERIOD
2005 C,03 Date or time or period function code "11"
2380 C,03 Date or time or period text "20180521"
2379 C,03 Date or time or period format code "102"

RFF, [G17] REFERENCE
1153 M,03 Reference code qualifier "AAK"
1154 C,03 Reference identifier "6007994"

QTY, [G16] QUANTITY
6063 M,03 Quantity type code qualifier "12"
6060 M,03 Quantity "50"

DTM, [G16] DATE/TIME/PERIOD
2005 C,03 Date or time or period function code "11"
2380 C,03 Date or time or period text "20151116"
2379 C,03 Date or time or period format code "102"

RFF, [G17] REFERENCE
1153 M,03 Reference code qualifier "AAK"
1154 C,03 Reference identifier "5109763"

SCC, [G18] SCHEDULING CONDITIONS
4017 M,03 DELIVERY PLAN COMMITMENT LEVEL CODE "4"

QTY, [G19] QUANTITY
6063 M,03 Quantity type code qualifier "113"
6060 M,03 Quantity "12"

DTM, [G19] DATE/TIME/PERIOD
2005 C,03 Date or time or period function code "10"
2380 C,03 Date or time or period text "20190107"
2379 C,03 Date or time or period format code "102"

SCC, [G18] SCHEDULING CONDITIONS
4017 M,03 DELIVERY PLAN COMMITMENT LEVEL CODE "4"

QTY, [G19] QUANTITY
6063 M,03 Quantity type code qualifier "113"
6060 M,03 Quantity "12"

DTM, [G19] DATE/TIME/PERIOD
2005 C,03 Date or time or period function code "10"
2380 C,03 Date or time or period text "20190218"
2379 C,03 Date or time or period format code "102"

SCC, [G18] SCHEDULING CONDITIONS
4017 M,03 DELIVERY PLAN COMMITMENT LEVEL CODE "4"
    
```

EDI messages – structure

	message			
	CUSRES Customs response message	2	2	
	IFTIAG Dangerous cargo list message	1	1	
*	IFTDGN Dangerous goods notification message	1	2	
	DEBADV Debit advice message	2	2	
	DELJIT Delivery just in time message	2	2	
	DELFOR Delivery schedule message	2	2	
*	DESADV Despatch advice message	2	5	
	BOFDIR Direct balance of payment declaration message	1	2	
	DIRDEB Direct debit message	2	3	
	CONDPV Direct payment valuation message	2	2	
	DIRDEF Directory definition message	1	1	
	DOCADV Documentary credit advice message	2	2	
	DOCAMI Documentary credit amendment information	2	1	
	message			
	DOCAPP Documentary credit application message	2	2	
	DOCINF Documentary credit issuance information	2	2	
	message			
	CONDRA Drawing administration message	1	1	
	CONDRO Drawing organisation message	1	1	
	CONEST Establishment of contract message	2	3	
	CREEXT Extended credit advice message	2	2	
	PAYEXT Extended payment order message	2	2	
	FINCAN Financial cancellation message	2	1	
	FINSTA Financial statement of an account message	2	1	
*	IFTMBF Firm booking message	2	5	
*	IFCSUM Forwarding and consolidation summary message	2	4	
*	IFTRIN Forwarding and transport rate information	1	2	
	message			
*	IFTSAI Forwarding and transport schedule and	1	2	
	availability information message			
*	IFTCCA Forwarding and transport shipment charge	1	2	
	calculation message			
+	GENRAL General purpose message	1	1	
	GESMES Generic statistical message	1	1	
*	IFTMCS Instruction contract status message	2	5	
*	IFTMIN Instruction message	2	5	
	INSPRE Insurance premium message	1	1	
	PRPAID Insurance premium payment message	1	1	
*	IFTSTA International multimodal status report message	1	5	
*	IFTSTQ International multimodal status request	1	2	
	message			
+	IFTFCC International transport freight costs and	1	1	
	other charges message			
*	INVRPT Inventory report message	2	3	
	CONITT Invitation to tender message	2	3	
*	INVOIC Invoice message	2	4	
	message			
	JOBAPP Job application proposal message	1	1	
	JAPRES Job application result message	1	1	
	JINFDE Job information demand message	1	1	
	JOBCON Job order confirmation message	1	1	
	JOBOFF Job order message	1	1	

DELFOR
DESADV

INVOIC

EDI messages – Segment Groups and segments

4.3 Message structure

4.3.1 Segment table

Pos	Tag Name	S	R
HEADER SECTION			
0010	UNH Message header	M	1
0020	BGM Beginning of message	M	1
0030	DTM Date/time/period	M	10
0040	AAAAA Segment group 1 AAAAAAAAAAAAAAAAAA	C	10AAAAAAAAA;
0050	REF Reference	M	1
0060	DTM Date/time/period	C	1AAAAAAAAA0
0070	AAAAA Segment group 2 AAAAAAAAAAAAAAAAAA	C	20AAAAAAAAA;
0080	NAD Name and address	M	1
0090	LOC Place/location identification	C	10
0100	AAAAA Segment group 3 AAAAAAAAAAAAAAAAAA	C	5AAAAAAAAA;
0110	CTA Contact information	M	1
0120	COM Communication contact	C	5AAAAAAAAA0
DETAIL SECTION			
0130	UNS Section control	M	1
0140	AAAAA Segment group 4 AAAAAAAAAAAAAAAAAA	C	500AAAAAAAA;
0150	NAD Name and address	M	1
0160	LOC Place/location identification	C	10
0170	FTX Free text	C	5
0180	AAAAA Segment group 5 AAAAAAAAAAAAAAAAAA	C	10AAAAAAAAA;
0190	DOC Document/message details	M	1
0200	DTM Date/time/period	C	10AAAAAAAAA0
0210	AAAAA Segment group 6 AAAAAAAAAAAAAAAAAA	C	5AAAAAAAAA;
0220	CTA Contact information	M	1
0230	COM Communication contact	C	5AAAAAAAAA0
0240	AAAAA Segment group 7 AAAAAAAAAAAAAAAAAA	C	10AAAAAAAAA;
0250	TDT Details of transport	M	1
0260	DTM Date/time/period	C	5AAAAAAAAA0
0270	AAAAA Segment group 8 AAAAAAAAAAAAAAAAAA	C	9999AAAAAAAA;
0280	LIN Line item	M	1
0290	PIA Additional product id	C	10
0300	IMD Item description	C	10
0310	MEA Measurements	C	5
0320	ALI Additional information	C	5

} Segment group

} Segment

EDI messages – Segment structure

Change indicators

←

NAD NAME AND ADDRESS

Function: To specify the name/address and their related function, either by C082 only and/or unstructured by C058 or structured by C080 thru 3207.

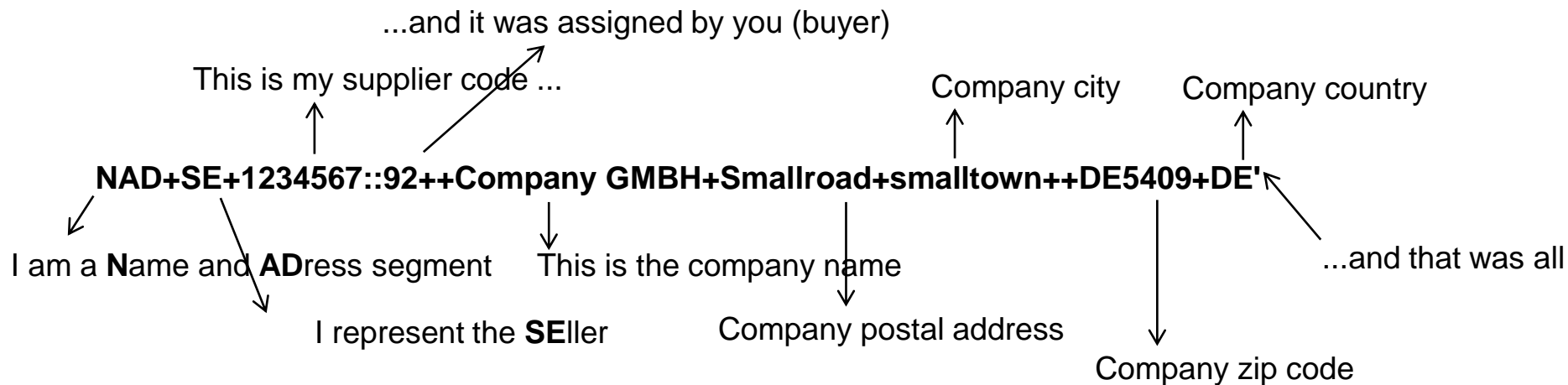
010	3035	PARTY QUALIFIER	M	an..3	
020	C082	PARTY IDENTIFICATION DETAILS	C		} Composite
	3039	Party id. identification	M	an..35	
	1131	Code list qualifier	C	an..3	
	3055	Code list responsible agency, coded	C	an..3	
030	C058	NAME AND ADDRESS	C		} Data tag
	3124	Name and address line	M	an..35	
	3124	Name and address line	C	an..35	
	3124	Name and address line	C	an..35	
	3124	Name and address line	C	an..35	
	3124	Name and address line	C	an..35	
040	C080	PARTY NAME	C		
	3036	Party name	M	an..35	
	3036	Party name	C	an..35	
	3036	Party name	C	an..35	
	3036	Party name	C	an..35	
	3036	Party name	C	an..35	
	3045	Party name format, coded	C	an..3	
050	C059	STREET	C		
	3042	Street and number/p.o. box	M	an..35	
	3042	Street and number/p.o. box	C	an..35	
	3042	Street and number/p.o. box	C	an..35	
	3042	Street and number/p.o. box	C	an..35	
060	3164	CITY NAME	C	an..35	
070	3229	COUNTRY SUB-ENTITY IDENTIFICATION	C	an..9	
080	3251	POSTCODE IDENTIFICATION	C	an..9	
090	3207	COUNTRY, CODED	C	an..3	

???

NAD+BY+1234567::91++Company GMBH+Smallroad+smalltown++DE5409+DE '

EDI messages - segments

- *EDI is a way to pack and label data in business information in a standardized manner, so that the information can be interpreted and imported to/exported from ERP or other superior systems.*
- *Let's dissect one single EDIFACT segment:*



<http://www.unece.org/trade/untdid/d96a/trmd/trmdi2.htm>

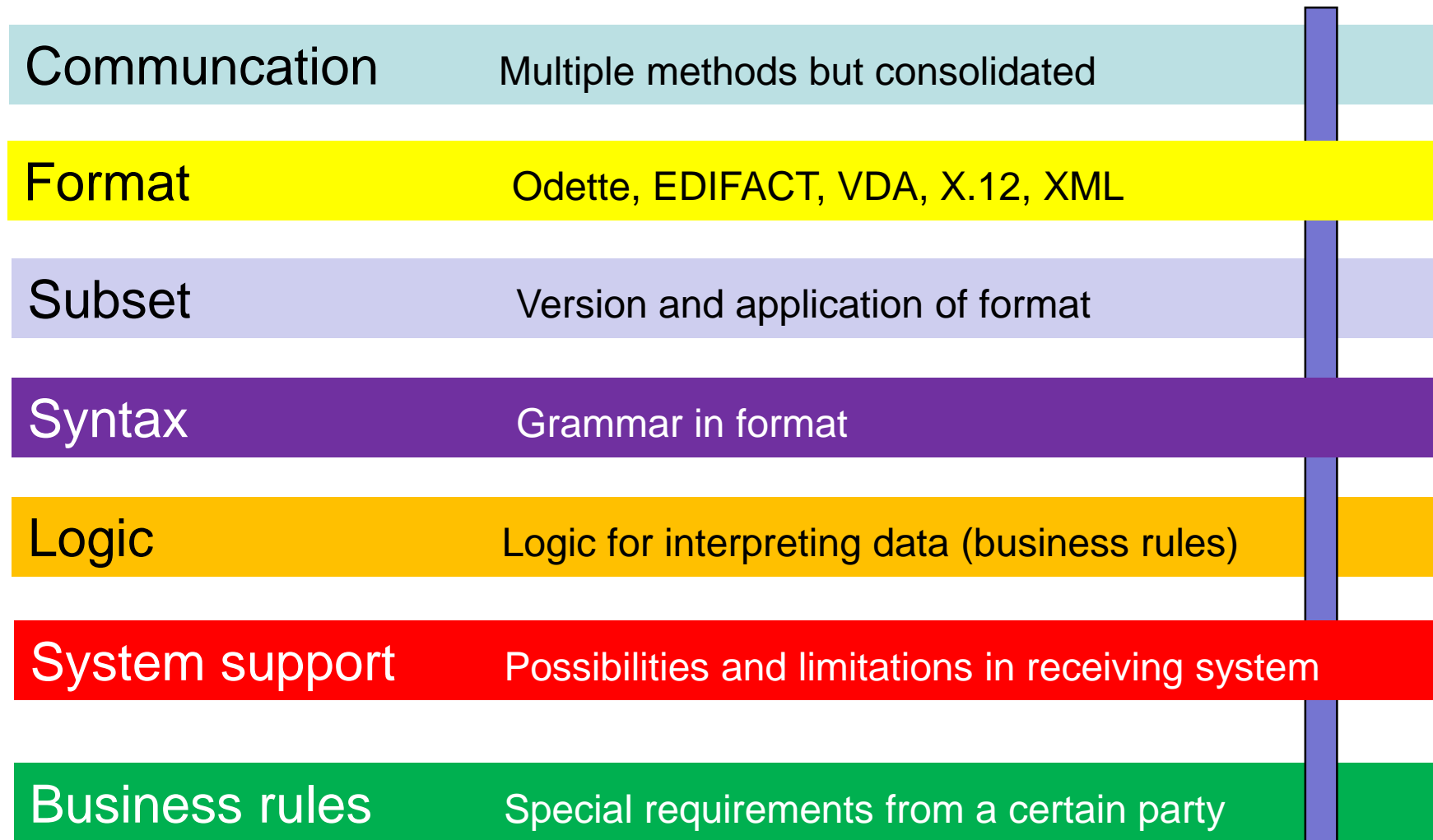
EDI messages - segments

- *EDI is a way to pack and label data in business information in a standardized manner, so that the information can be interpreted and imported to/exported from ERP or other superior systems.*
- *Let's check the delimiters*

NAD+SE+1234567::92++Company GMBH+Smallroad+smalltown++DE5409+DE'

NAD		NAME AND ADDRESS	
		Function: To specify the name/address and their related function, either by C082 only and/or unstructured by C058 or structured by C080 thru 3207.	
		+	
010	3035	PARTY QUALIFIER	M an..3
020	C082	PARTY IDENTIFICATION DETAILS	C
	3039	Party id. identification	M an..35
	1131	Code list qualifier	C an..3
	3055	Code list responsible agency, coded	C an..3
030	C088	NAME AND ADDRESS	C
	3124	Name and address line	M an..35
	3124	Name and address line	C an..35
	3124	Name and address line	C an..35
	3124	Name and address line	C an..35
	3124	Name and address line	C an..35
040	C080	PARTY NAME	C
	3036	Party name	M an..35
	3036	Party name	C an..35
	3036	Party name	C an..35
	3036	Party name	C an..35
	3036	Party name	C an..35
	3045	Party name format, coded	C an..3
050	C059	STREET	C
	3042	Street and number/p.o. box	M an..35
	3042	Street and number/p.o. box	C an..35
	3042	Street and number/p.o. box	C an..35
	3042	Street and number/p.o. box	C an..35
060	C054	CITY NAME	C an..35
	3154		
070	3229	COUNTRY SUB-ENTITY IDENTIFICATION	C an..9
080	3251	POSTCODE IDENTIFICATION	C an..9
090	3207	COUNTRY, CODED	C an..3

EDI messages – Components/requirements – top level



Automotive industry compared to Food & Beverages

Comparison with Food and beverage industry: Other requirements, other messages

- Automotive industry – Continuous loop until some term changes.
 - Delivery Schedule/Delivery Forecast – DELFOR – Long horizon
 - Call-off – DELFOR – Short horizon (embedded firm orders)
 - ASN: Despatch Advise – DESADV – Multiple deliveries on same Order No.
 - Invoice/SBI – Multiple invoices per order, one per delivery.
- Food and beverage/Retail – One loop concludes a requirement.
 - Order: Discrete order – ORDERS – One timer
 - Order response: Order Confirmation – ORDRSP – One timer
 - ASN: Despatch Advise – DESADV – One delivery on one Order No.
 - Invoice – one invoice per one order/delivery

Coffee Break

- General overview of tools used for data exchange (messages, auto-id concepts)
 - AUTO-ID Concepts

● Auto-ID concepts

Definition:

Auto Id stands for various technologies for automatic data capture from physical objects

Ex. of concepts:

2 D symbols

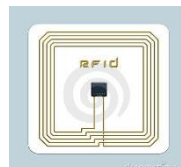


Data Matrix

Bar codes



RFID



Examples of usage in Automotive

- Labelling of packaging like pallets and small-boxes
- Labelling of transport handling units
- Parts marking
- Identification of vehicles
- Manufacturing operations
- Assets marking

.....

Auto-ID concepts

- 1D and 2D

Auto Id stands for various technologies for automatic data capture from physical objects, some of the main aspects are:

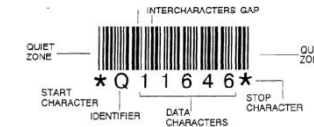
Symbology	1D like Code 39 or Code 128 2D like QR or Datamatrix
Reading and scanning – (when to use what)	Laser scanning of bar codes Camera technology for 2D Wireless communication for RFID
Data structure	According to ISO including Data Identifiers
Data content	Rules for uniqueness, entities, field formats according to ISO plus user group guidelines
Label layout	Various standard labels according to user group guidelines

Auto-ID concepts

1D and 2D symbols

Code 39 .

- Defines 43 characters



Code 128

- All 128 characters of ASCII, also Latin-1 with extension, Contains check character

Start Character	Data Digits	Check Character	Stop Character
␣	CODE-128	o	␣

Data Matrix (ECC200)

- Up to an..2335 or n..3116 characters, error* correction



QR

- Up to an..4296 or n..7089 characters, error* correction



PDF417

- Up to an..1800 or n.. 2710 characters, error* correction



- # Auto-ID concepts

 - Bar codes - data Identifiers

Data Identifier (DI)

- Data Identifiers are published in the ANSI document ASC MH10 Data (referred to in ISO/IEC 15418)
- A DI defines the general category or intended use of the data that follows
- Format: One alphabetic character alone, or one alphabetic character prefixed by one, two or three numeric characters.

Examples:

I	Vehicle Identification Number (VIN)
1J	Unique license plate number assigned to a transport unit which is the lowest level of packaging, the unbreakable unit
4I*	ID for the transport vehicle and the transported vehicle(s)
L	Storage Location
1P	Item Identification Code assigned by Supplier

* Proposal

- Auto-ID concepts - labelling

Auto-ID concepts

Labelling guidelines: overview

Label	Issuer	Application/parties	Symbology	Licens Plate	Year
OTL1, Odette Transport Label V 1.4	Odette International	For labelling of packaging between suppliers and customers	Code 39		1986
GTL, Global Transport Label, GTL	AIAG, Odette International, JAMA	For labelling of packaging between suppliers and customers, contains globally unique package id (License Plate mandatory)	Code 128, 2D	x	2000
OTL3	Odette International	For labelling of packaging between suppliers and customers, contains globally unique package id (License Plate optional)	Code 128, 2D	(x)	2004
KLT (VDA 4902 version 4)	VDA	For labelling of packaging (only KLT) between suppliers and customers	Code 39		1994
MAT label	VDA	For labelling of packaging (smallest package unit) between suppliers and customers	Code 128, 2D		
New European GTL	Odette International	For labelling of packaging between suppliers, LSPs and customers, contains globally unique package id (License Plate mandatory)	Code 128, 2D, Datamatrix	x	2016

- # Auto-ID concepts

 - Labelling guidelines

Other labels (new, proposed)

- MAT label (For manufacturing traceability)



- Smart Label (concept that combines 2D, RFID and human readability)

Auto-ID concepts

- Labelling in the European automotive industry

OTL1, Odette Transport Label

NOTAGASE SCANIA - CHASSIE SODERTALJE SWEDEN		FROM TO FROM TO 230G/230	
12345678 1234567		320 370 1	
1234567		BRACKET 111222333	
160		D96030112345	
1234		100000331	

GTL, Global Transport Label, small

RENAULT S.A. USINE DE FLINS 78410 AUBERGENVILLE FRANCE		Bar Code A1B2C3D4E5F6G7H8I9	
A1B2C3D4E5F6G7		Y10112345678	
OD1008 123456789		TABLEAU DE BORD	

OTL3, Odette Transport Label 3

RENAULT PALENCIA		173GR2 01		MGI COUTIER SA	
B5 25/07 04.00		A0 51 14		72	
8200069075		3 KGM		3 KGM	
12998676		D040709		BAGUETTE DECORATIVE	
Z106090		2506206142		00059651	

GTL, Global Transport Label A5

A1 SHIP FROM		A2 SHIP TO		A3 2D SYMBOL	
B1 CUSTOMER REFERENCE #1		B2 CUSTOMER ROUTING INFORMATION		B3 LOGISTICS REFERENCE	
C CUSTOMER PART NUMBER					
1J OD ABCD 12F456H89				D2 CUSTOMER REFERENCE #2	
E1 SUPPLIER AREA				E2 CUSTOMER REFERENCE #3	

KLT (VDA 4902 version 4)

Receiver SCANIA CAB SE-572 36 ÖSKARSHAMN		Ship To/Dock/Gate 606V/607A		Advice Note No. (N) 49645	
Part No. (P) 1428670		Quantity (Q) 3 PCE			
Supplier (V) 0030		Description Pedalpl Autom Vän-styrd kpl			
Serial No. (S) 752907		Date P110204			
		Lot No. (H) 110204			

Labelling in the European automotive industry

GTL, Global Transport Label – New European Profile in four sizes

A5/Half letter

SHIP FROM LIEFERANT AG WERK BERLIN BERLIN DE-10117 ID: 887766554		SHIP TO MODERN CAR INC. LONDON PLANT 72 GREAT PETER STREET UK SW1P 2BN LONDON PLANT / UNLOADING POINT / CUSTOMER INTERNAL DESTINATION 013 / RAMP 15 / WH4		S	
COUNTRY OF ORIGIN: DE		DELIVERY NOTE NUMBER: 12345678			
SUPPLIER NUMBER: 987654321		CUSTOMER SPECIFIC ROUTING INFORMATION: ROUTE 66 LINE15		ETA: 2016-01-15/13:30	QUANTITY (PC): 1000
CUSTOMER PART NUMBER: LEFT MOUNT ALUMINIUM		GFS-123-554-765		NET KG: 780	GROSS KG: 850
PACKAGE-ID (1J): UN 987654321 000123457		PACKAGING TYPE: KLT4738		PRODUCTION DATE: P 2016-01-14	
		BATCH NUMBER: CH1234		ENGINEERING / HARDWARE REV. / SOFTWARE REV.: 2015-11-01	
SUPPLIER AREA		SUPPLIER DATA LINE 1 SUPPLIER DATA LINE 2 SUPPLIER DATA LINE 3		CUSTOMER DATA LINE 1 CUSTOMER DATA LINE 2 CUSTOMER DATA LINE 3 CUSTOMER DATA LINE 4 CUSTOMER DATA LINE 5	

A6/6x4 inches

SHIP FROM LIEFERANT AG WERK BERLIN BERLIN DE-10117 ID: 887766554		SHIP TO MODERN CAR INC. 72 GREAT PETER STREET UK SW1P 2BN LONDON PLANT / UNLOADING POINT / CUSTOMER INTERNAL DESTINATION 013/RAMP 15/WH4		S	
C. OF ORIGIN: DE		DELIVERY NOTE NUMBER: 12345678			
SUPPLIER NUMBER: 987654321		CUSTOMER SPECIFIC ROUTING INFORMATION: ROUTE 66 LINE15		ETA: 2016-01-15/13:30	QUANTITY (PC): 1000
CUSTOMER PART NUMBER: LEFT MOUNT ALUMINIUM		GFS-123-554-765		NET KG: 780	GROSS KG: 850
PACKAGE-ID (1J): UN 987654321 000123457		PACKAGING TYPE: KLT4738		PRODUCTION DATE: P 2016-01-14	
		BATCH NUMBER: CH1234		ENGINEERING / HARDWARE REV. / SOFTWARE REV.: 2015-11-01	
SUPPLIER DATA LINE 1 SUPPLIER DATA LINE 2 SUPPLIER DATA LINE 3		CUSTOMER DATA LINE 1 CUSTOMER DATA LINE 2 CUSTOMER DATA LINE 3 CUSTOMER DATA LINE 4 CUSTOMER DATA LINE 5			

SLC 1 – 210x74 mm

SHIP FROM LIEFERANT AG WERK BERLIN BERLIN DE-10117 ID: 887766554		SHIP TO MODERN CAR INC. LONDON PLANT 72 GREAT PETER STREET UK SW1P 2BN LONDON PLANT / UNLOADING POINT / STOCK LOCATION 013 / RAMP 15 / WH4		S	
COUNTRY OF ORIGIN: DE		DELIVERY NOTE NUMBER: 12345678			
SUPPLIER NUMBER: 987654321		CUSTOMER SPECIFIC ROUTING INFORMATION: ROUTE 66 LINE15		ETA: 2016-01-15/13:30	QUANTITY (PC): 1000
CUSTOMER PART NUMBER: LEFT MOUNT ALUMINIUM		GFS-123-554-765		NET KG: 780	GROSS KG: 850
PACKAGE-ID (1J): UN 987654321 000123457		PACKAGING TYPE: KLT4738		PRODUCTION DATE: P 2016-01-14	
		BATCH NUMBER: CH1234		ENGINEERING / HARDWARE REV. / SOFTWARE REV.: 2015-11-01	
SUPPLIER DATA LINE 1 SUPPLIER DATA LINE 2 SUPPLIER DATA LINE 3		CUSTOMER DATA LINE 1 CUSTOMER DATA LINE 2 CUSTOMER DATA LINE 3 CUSTOMER DATA LINE 4 CUSTOMER DATA LINE 5			





SLC 2 – 210x42 mm

SHIP FROM ID: 887766554		SHIP TO: MODERN CAR INC.		DELIVERY NOTE: 12345678		PACKAGING TYPE: KLT4738		PRODUCTION DATE: P 2016-01-14	
SUPPLIER NUMBER: 12345678		PLANT / UNLOADING POINT / STOCK LOCATION: LINE15		ROUTING CODE: ROUTE 66		BATCH NUMBER: CH1234		PART / HARDWARE / SOFTWARE REVISION: 2015-11-01	
		LEFT MOUNT ALUMINIUM		QUANTITY: 1000		GROSS KG: 850		CUSTOMER DATA LINE 1 CUSTOMER DATA LINE 2 CUSTOMER DATA LINE 3	
GFS-123-554-765									



● Labelling in the European automotive industry **ODETTE** SWEDEN

MAT Label: No fixed size – label examples (*on smallest package unit*)

Bosch/Hella sample (large 120 x 60 mm)

	Part No.: 3381320005		Man Date: 20090218	
	Quantity: 210	Index: AA	Exp. Date: 20110218	
	Add. Info: 5003020		MS-Level: 3	
	Part Name: 10KOhm 5%			
	Ordering Code: A294969309345			
Supplier-ID	Package-ID	1. Batch	2. Batch	
850	S123456789012	750160430	750160544	
Purchase:	555459223	Shipping Note:	122584	
Manufacturer Part Number: SL105103MAA-S				
				
P3381320005@V0000000850				
				
H0000000000750160430@Q00210				
 Supplier-Name 123-LTD				

Small Label (80 x 25 mm, as sample):

	Part No.: 3381320005	Exp. Date: 20081019
	Quantity: 200	
	Man. Part Nr.: SL105103MAA-S	
	MS-Level: 1	
	Package-ID: S123456789012	Supplier-ID: 815
		

Very small Label (74 x 22 mm)

	Part No.: 3381320005	Exp. Date: 20081019
	Quantity: 200	
	Package-ID: S123456789012	
	Supplier-ID: 815	
	MS-Level: 1	

● Auto-ID concepts

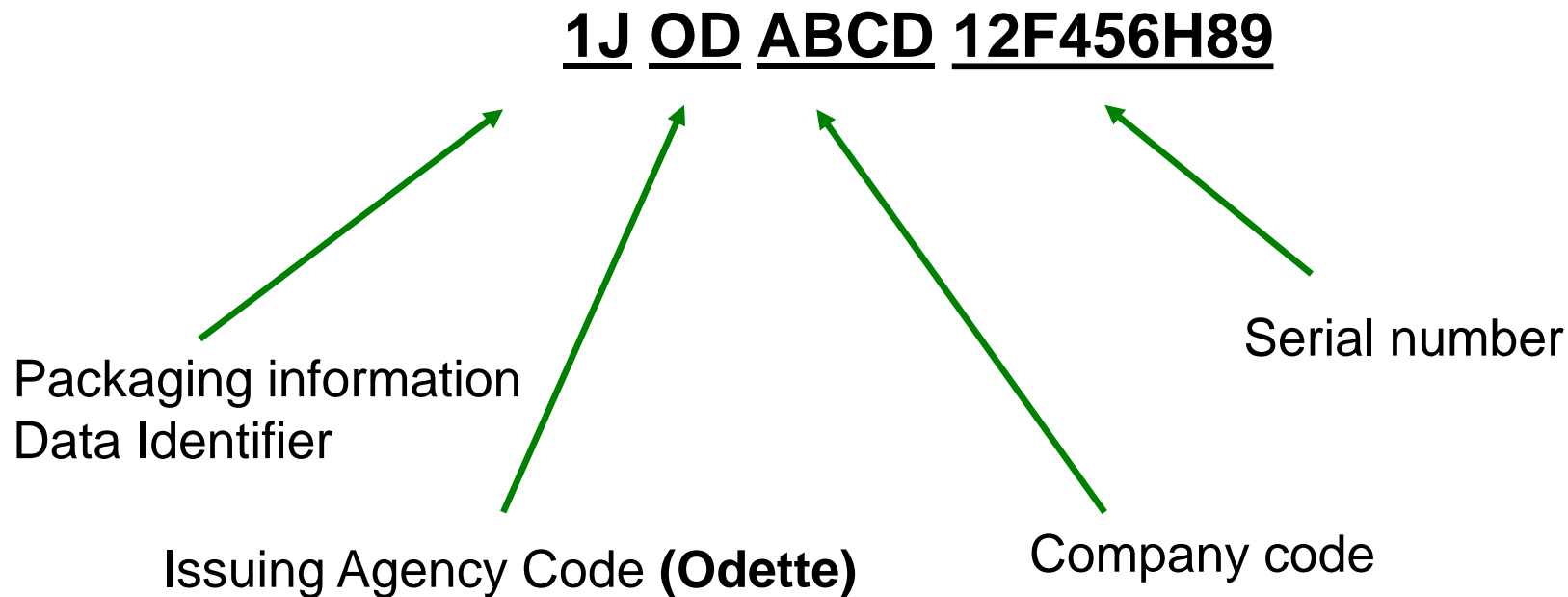
- Application of the License Plate

- A license plate is assigned to a transport unit by its issuer. The license plate is used for globally unique identification of transport units but could also be used in other applications. Among the most used license plate schemes are:
- **SSCC**: Serial Shipping Container Code, issued by GS1, format is 18 numeric characters. SSCC consists of: Application Identifier (00)+Extension Digit+ GS1 Company Prefix + Serial Reference+Check Digit (Retail and food and beverage)
- **License Plate in GTL**: Issued by JAIF (Joint Automotive Industry Forum) format is up to 22 alpha-numeric characters. License Plate consists of Data Identifier (1J, 5J or 6J)+Issuing Agency Code (OD, UN or LA)+Serial Number (Manufacturing)

OD	Odette
UN	DUNS
LA	JIPDEC

- Auto-ID concepts

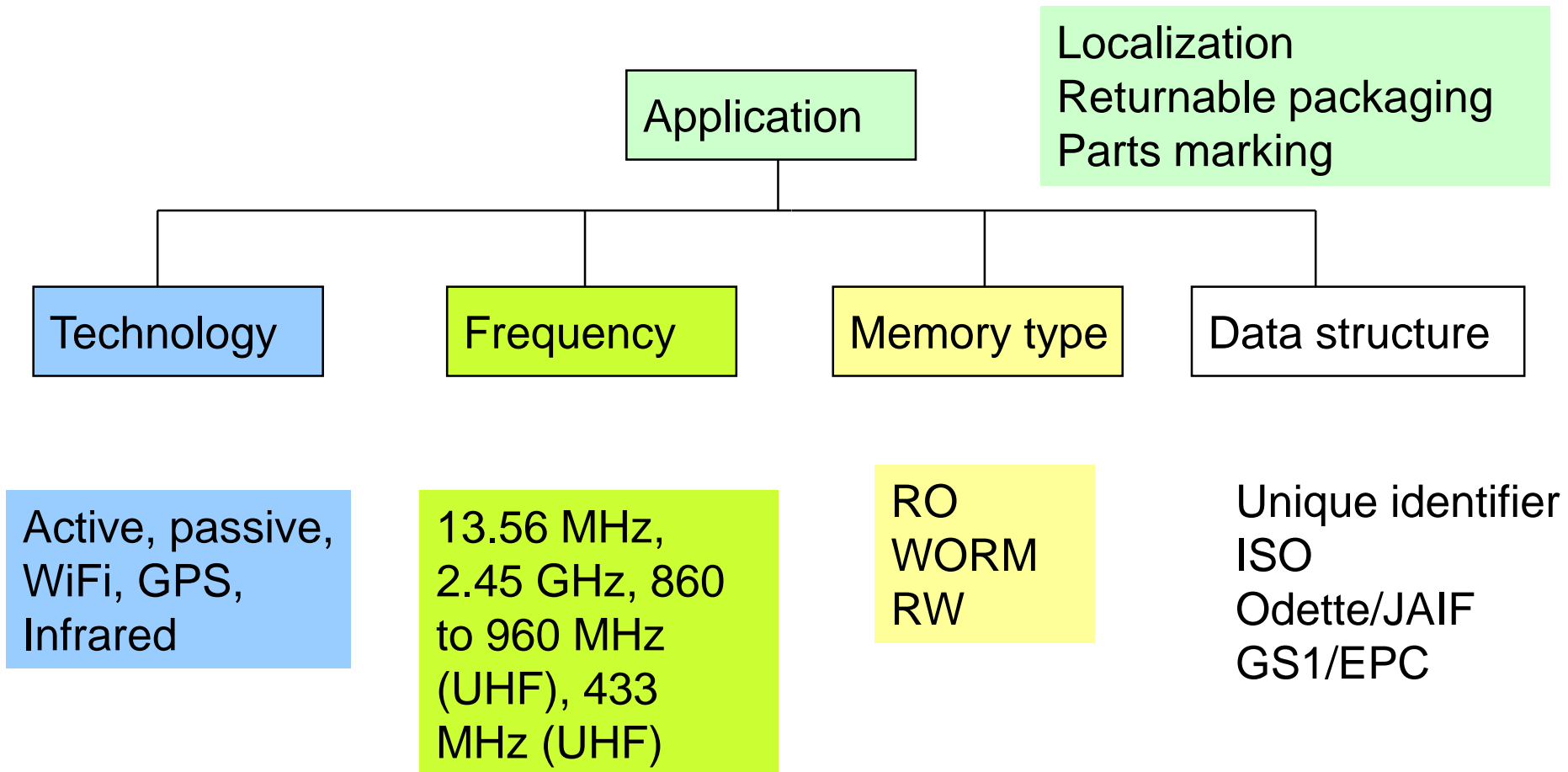
- License Plate: Unique Package ID based on Odette



- Auto-ID concepts
 - RFID

- RFID is a technology for automatically identifying and tracking tags attached to objects.
- The tags contain electronically stored information.

- Auto-ID concepts
 - RFID standards/alternatives



Odette/JAIF recommendations are referring
to passive technology for 860 till 960 MHz

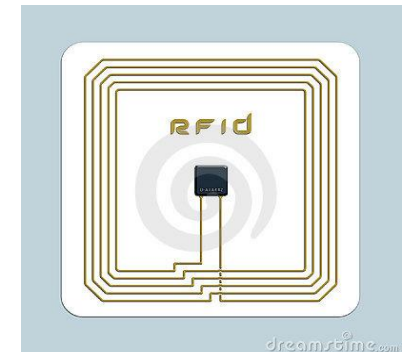
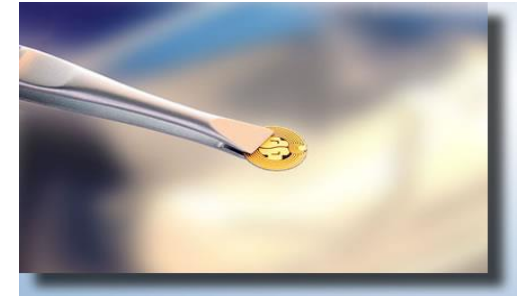
Auto-ID concepts

- RFID - Passive tags

- Are powered by electromagnetic induction from magnetic fields produced by the reader
- Consist of chip and antenna
- Work on small reading distances up to some meters
- Could be read even if not seen, but certain materials might hinder reading (fluids, metals)
- Are cheap
- Could only contain very little information

Examples of usage

- Access cards
- Keys
- Parts marking
- Theft protection
- Returnable packaging
- VIN number



- # Auto-ID concepts

 - RFID - Active tags



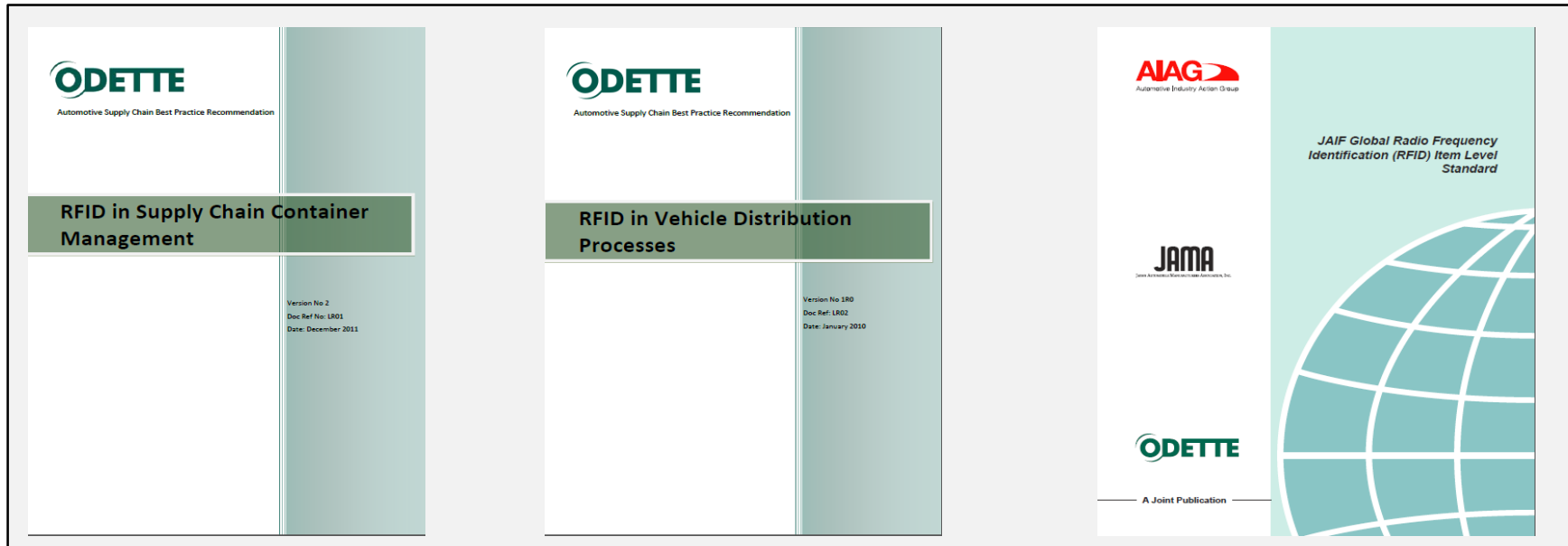
- Active tags have a local power source such as a battery
- They may operate at hundreds of meters from the reader
- Larger memory
- More expensive

Examples of usage

- RTLS (Real Time Location)
- Containers
- Manufacturing systems

- Auto-ID concepts
 - Odette and JAIF recommendations

Odette and JAIF recommendations



All documents build on ISO/IEC 18000-63, Parameters for air interface communications at 860 MHz to 960 MHz Type C

- Business processes and procurement methods in the automotive supply chain

- Batch delivery
- JIT/JIS process
- VMI and CMI processes

Business processes and procurement methods - Batch delivery

■ Batch delivery

- Incentives
- Information flow
- Roles of the involved parties
- Detailed review including technical aspects like data exchange, formats, subsets, syntax, Auto Id and labelling, message functions and logics, systems support.
- Via deliveries
 - Direct
 - Via X-docks
 - Via sub-contractor
- Label requirements
- Package types

Business processes and procurement methods – Batch delivery incentives

- A batch delivery is a delivery of items that are kept in stock by the consignee.
- Medium to high volume items with low to medium cost
- Steady consumption
- Generic item for all individuals/models
- Regular (scheduled) deliveries

Incentives

- Long distance
- High consumption

Business processes and procurement methods

- Basic Scenario for information flow (batch).

OEM

Commercial agreement, paper document with business rules.

Long horizon forecasts on requirements.

Firm orders to deliver.

Self billing invoice, monetary transaction message based on one despatch note.

DELINS / DELFOR Information flow

Order (Blanket order)

Forecast

Call-offs

ASN & Labels

Invoice

Self billing invoice

Supplier

Electronic despatch note/delivery note with Item and package information with corresponding labels.

Commercial invoice based on one despatch note.



Business processes and procurement methods

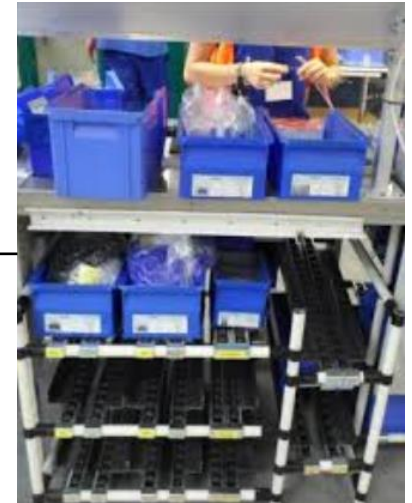
- Batch – messages

- DELFOR A delivery schedule/instruction, often with embedded firm orders
- DESADV An electronic delivery/despatch note with information on the shipment with unique identities on each package, corresponding with labels on the goods
- INVOIC A debit invoice from supplier to buyer or buyers agent normally under the concept of one delivery note (one DESADV) equals one invoice
- SBI A credit advise from buyer to supplier normally under the concept of one delivery note (one DESADV) equals one credit advise

● Business processes

– Direct Batch Delivery – Parties

- Buyer
- Supplier
- Carrier/LSP



● Business processes

– X-docks Batch Delivery - Parties

- Buyer
- Supplier
- X-dock
- Carrier/LSP



● Business processes

– Subcontractor Batch Delivery - Parties

- Buyer
- Supplier
- Sub-contractor
- Carrier/LSP



Business processes

– Batch Delivery - Roles

Buyers responsibilities:

- calculation of demands
- transmitting information
- providing carrier/LSP (normally)
- reporting deviations
- packaging instructions
- payments
- customs issues



Business processes

– Batch Delivery - Roles

Supplier responsibilities:

- receiving and interpreting demands
- delivering according to demands
- following packaging instructions
- ordering transport
- ordering packaging material
- transmitting ASN
- labelling of goods
- all transport related documentation



Business processes

– Batch Delivery - Roles

Carrier responsibilities:

- transport booking system
- pickup
- keeping transport lead time
- occasionally for packaging material
- occasionally for packaging material replenishment
- report deviations



Business processes

– Batch Delivery - Roles

X-docks responsibilities:

- stock keeping
- outbound transport to OEM
- repackaging when required
- relabelling when required
- transport or transport booking
- report deviations
- scrap handling



Business processes

– Batch Delivery - Roles

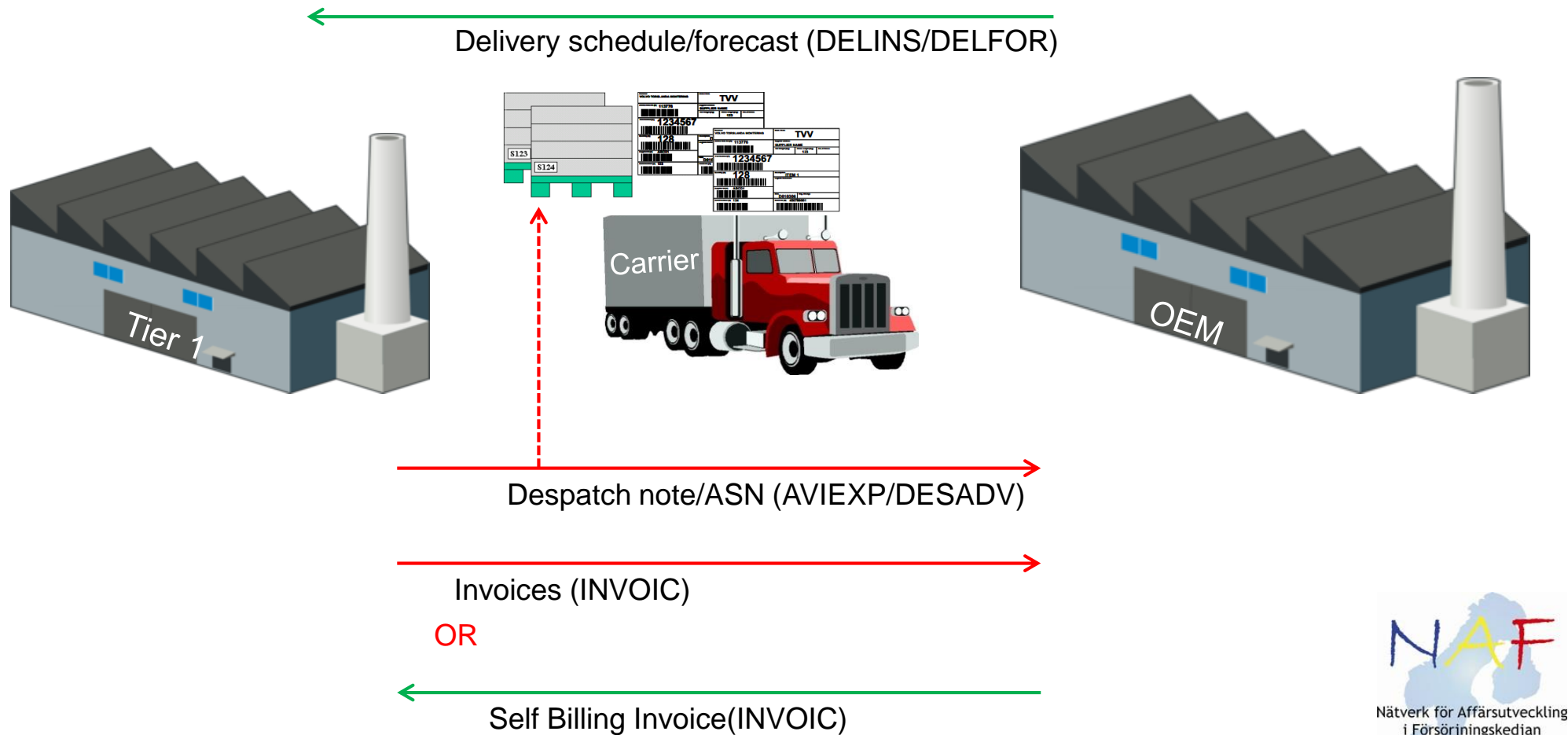
Sub-contractor / LSP responsibilities:

- delivering according to demands on the actual supplier
- act as the supplier when generating ASN and labels
- ordering transport
- send ASN and label goods on behalf of main supplier
- report back to actual supplier



Business processes

– Batch Delivery – Detailed review – Information flow



Lunch

Business processes

– Batch Delivery – Detailed review – Call-off Logic

The DELINS/DELFOR message normally contains both forecasts and firm orders. Objective is to give Tier 1 suppliers and their sub suppliers the current situation on deliveries, in the short horizon and a chance to plan and secure resources in the long horizon.

Structure (DELINS/DELFOR):

HEAD: Consignee – Consignor – Carrier – Validity (horizon)

LINE: Part No – Previous deliveries – Cumulative quantity – Delivery point

REQ: Quantity – Date – Status - Reason





Business processes

– Batch Delivery – Detailed review - Logic DELFOR

UNH+123456+DELFOR:D:04A:UN:GMI051
BGM+241+201101170102'
DTM+137:20110117:102'
DTM+157:20110117:102'
NAD+BY+1020::92'
NAD+SE+6128::92'
GEI+3'
NAD+ST+1001::92++TUVE'
LIN++38+1137005:IN'
PIA+1+P04:DR'
LOC+11+020'
LOC+159+F-11 020'
DTM+257:20110117:102'
RFF+ON:371906128020'
RFF+AIF:201101120210'
QTY+83:500'
QTY+70:23000'
DTM+51:20110101:102'
QTY+12:500'
QTY+48:500'
DTM+11:20110108:102'
RFF+AAK:12785'
QTY+12:500'
QTY+48:500'
DTM+11:20110105:102'
RFF+AAK:12760'
QTY+12:500'
QTY+48:500'
DTM+11:20110102:102'
RFF+AAK:12725'
SCC+1'
QTY+113:500'
DTM+10:20110203:102'
SCC+1'
QTY+113:500'
DTM+10:20110210:102'
SCC+1'
QTY+113:500'
DTM+10:20110217:102'
SCC+4'
QTY+113:500'
DTM+10:20110225:102'
SCC+4'
QTY+113:500'
DTM+10:20110304:102'

Message header
Delivery schedule number
Issue date
Effective from
Legal Buyer
Seller
Section separator
Ship to
Buyer's Article number
Drawing information
Place of discharge
Final delivery point
Calculation date
Purchase Order Number
Previous delivery schedule number
Quantity in Backorder
Cumulative quantity received
Accumulation start date
Delivered quantity (according to DESADV)
Received quantity
Date of despatch
Despatch advice number
Delivered quantity (according to DESADV)
Received quantity
Date of despatch
Despatch advice number
Delivered quantity (according to DESADV)
Received quantity
Date of despatch
Despatch advice number
Firm
Quantity to be delivered
Date of despatch
Firm
Quantity to be delivered
Date of despatch
Firm
Quantity to be delivered
Date of despatch
Forecast
Quantity to be delivered
Date of despatch
Forecast
Quantity to be delivered
Date of despatch

HEAD

LINE

REQ

Business processes

– Batch Delivery – Detailed review – ASN Logic

The AVIEXP/DESADV message is a pre advise (ASN, Advanced Shipping Note) on a delivery. Objective is to have the ASN in the OEM system before the goods arrive and use the corresponding goods labels (with the same serial No's as transmitted in the ASN), to achieve a highly automated goods reception process.

Structure (AVIEXP/DESADV):

HEAD: Consignee – Consignor – Carrier – Date

PACK: Package (Inner) – Package (Outer) – Serial No – ASN No

PART: Part No – Quantity in pack – Quantity total – Revision (optional)

Structure (LABEL):

Consignee/Destination

Supplier

Serial No (of package)

ASN No

Part No (dependant)

Quantity (dependant)

RECEIVER VOLV. EUR. TRANS. SKALDENST 62 B-9042 GENT. BELGIUM.		DOCKGATE -070	
ADVISE NOTE NO. (N) 195565		SUPPLIER ADDRESS THERMOPOL LTD. ENGLAND.	
PART NO. (P) 1676481		NET WT (KG) 21	GROSS WT (KG) 23
		NO. BOXES 1-1	
QUANTITY (Q) 35		DESCRIPTION CHARGE AIR HOSE - COLD SIDE	
SUPPLIER (S) 5213		SUPPLIER PART NO. 2774000	
SERIAL (S) 542		SNCR. CHANGE P07	
		PROD. DATE D980405	
		HAZARD CODE	
		CHANGE NO. (R)	

Business processes

– Batch Delivery – Detailed review – ASN Logic DESADV

UNH+XFR16786+DESADV:D:00A:UN:GMI021'	Service segment
BGM+351+1400009714'	Document (ASN) No
DTM+137:201410131641:203'	Document (ASN) No
MEA+AAX+AAD+KGM:41000'	Gross weight of consignment
MEA+AAX+ABJ+MTQ:0.0'	Gross volume of consignment
RFF+AAS:000000010659046'	Reference to Transport document No
NAD+ST+1622::92'	Ship-To plant
LOC+11+200::92'	Dock (at plant), place of discharge
NAD+SF+45755::92'	Ship-From
NAD+SE+45755::92'	Supplier
NAD+CA+VOT::92'	Carrier
CPS+1++1'	Package level
PAC+1++NIL::92'	No of packages – package type
QTY+52:3000:C62'	No of items in each package
PCI++++S::10'	Type of Package (configuration)
GIN+ML+600017548'	Serial No (identity) of package
LIN+++5753120:IN'	Item No
QTY+12:3000'	Total quantity of part
ALI+UK'	Country of origin
RFF+ON:684945755200'	Reference to blanket order
LOC+159+200::92'	Final destination (gate)
UNT+22+XFR16786'	Service segment
UNZ+1+39516'	Service segment

HEAD

PACK

ITEM

Business processes

– Batch Delivery – Detailed review – Invoice Logic

The INVOIC message is normally in a one-to-one relation with an ASN to create balance with what has been delivered. The SBI invoice is more a transaction information from buyer to vendor that a monetary amount will be transferred on a certain date.

Structure (INVOIC):

HEAD: Buyer – Vendor – Consignee – Date - Terms

LINE: Part No – Quantity – Price

SUM: Summary - Taxes



Business processes

– Batch Delivery – Detail review – Invoice Logic INVOIC

UNH+39622+INVOIC:D:03A:UN:GMI012'	Service segment
BGM+380+00119237'	Document (Invoice) No
DTM+137:20141008:102'	Document (Invoice) date
GEI+PM+:272'	Processing information (PM=Production material)
NAD+SE+45755::92++ESSENTA COMPONENTS AB - SE+VERKSTADSVAG 13+ASKIM SWEDEN++SE-436 34+SE'	Supplier code, name and address
RFF+VA:SE556915024501'	Supplier VAT No
NAD+FH+++ESSENTA COMPONENTS AB - SE+VERKSTADSVAG 13+++SE-436 34+SE'	Seller (as legally registered) code, name and address
NAD+PE+45755::92++ESSENTA COMPONENTS AB - SE+VERKSTADSVAG 13+ASKIM SWEDEN++SE-436 34+SE'	Payee code, name and address
FII+BF+33551700796:ESSENTA COMPONENTS AB - SE+:::NORDEA BANK'	Payee, payment (beneficiary) bank and account
NAD+BY+1705::91++VOLVO LOGISTICS CORP. (23596)+2800VDB1705+GOTEBORG++SE-405 08+SE'	Buyer code, name and address
RFF+VA:SE556197973201'	Buyer VAT No
NAD+ST+23596::92++VOLVO LOGISTICS CORP. (23596)+2800VDB1705+GOTEBORG++SE-405 08+SE'	Ship-To code, name and address
CUX+2:SEK:4'	Currency information
LIN+1++20428724:IN'	Line No and Item No
IMD+++::PLASTPLOMB'	Item description
QTY+47:10000:PCE'	Invoiced quantity
ALI+SE'	Country of origin
MOA+38:3110,00'	Line total amount (price * quantity)
PRI+AAB:311,00:::1000:PCE'	Item price (per 1000)
RFF+AAK:1400009709'	Reference to delivery note/despatch advice
DTM+171:20141008:102'	Date of above referenced document
RFF+ON:056945755525'	Reference to order (blanket order)
TAX+7+VAT+++::25.00+S'	TAX (VAT) details for line
MOA+124:777,50'	Tax (VAT) amount for line
UNS+S'	Service segment
MOA+77:3887,50:::4'	Invoice amount (invoice total)
MOA+125:3110,00:::4'	Taxable amount
MOA+176:777,50:::4'	Tax amount
MOA+79:3110,00:::4'	Total lines item amount
TAX+7+VAT+++::25.00+S'	TAX (VAT) summary details
MOA+124:777,50:::4'	TAX (VAT) amount
MOA+125:3110,00:::4'	Taxable (VAT) amount
UNT+33+39622'	Service segment
UNZ+1+39352'	Service segment

HEAD

LINE

SUM

Sample and reference of Odette label (OTL1)

DELFOR - NAD 3036 - (CN)

DELFOR - LOC 3225 (159)
DESADV - LOC 3225 (159)

DESADV - BGM 1004

RECEIVER
VOLV. EUR. TRANS. SKALDENST 62
B-9042 GENT. BELGIUM.

DOCKGATE

-070

ADVICE NOTE NO. (N)

195565

SUPPLIER ADDRESS

THERMOPOL LTD. ENGLAND.

NET WT (KG)

21

GROSS WT (KG)

23

NO. BOXES

1-1

PART NO. (P)

1676481

DELFOR - LIN 7140 (IN)
DESADV - LIN 7140 (IN)

QUANTITY (Q)

35

DESCRIPTION

CHARGE AIR HOSE - COLD SIDE

DESADV - QTY 6060 (52)

SUPPLIER PART NO.

2774000

SUPPLIER (U)

5213

ENGR. CHANGE

P07

DELFOR - NAD 3039 (SE)
DESADV - NAD 3039 (CZ)

PROD. DATE

D980405

HAZARD CODE

DESADV - PIA 7140*

SERIAL (S)

542

CHARGE NO. (H)

DESADV - RFF 1154
GIR 7402

*=special agreements

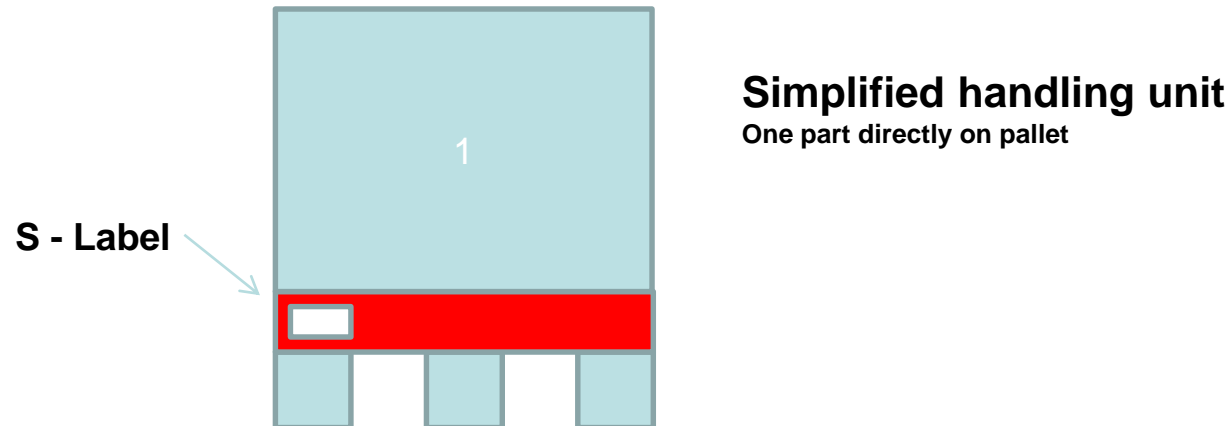
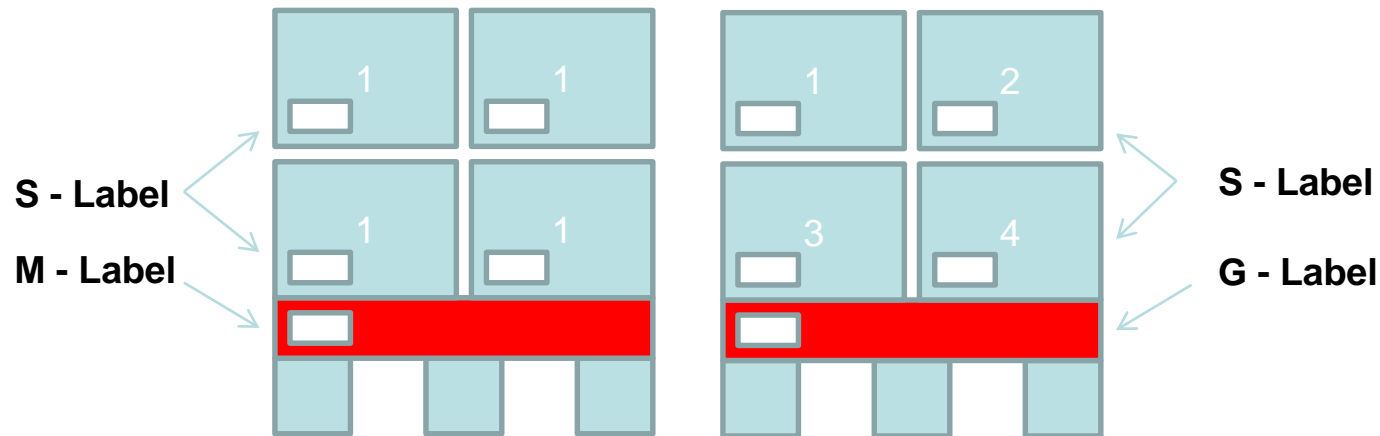
Smallbox handling

Homogenous handling unit

One part per pallet

Mixed handling unit

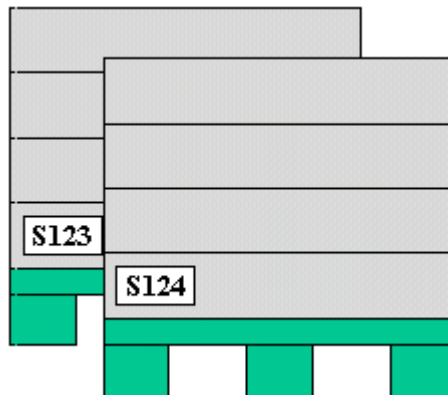
Multiple parts per pallet



Package configurations

Simplified handling unit

Standard Type Master Label (S)



Receiver VOLVO TORSLANDA MONTERING		Dock / Date TVV	
Advice Note No (N) 113776 [Barcode]		Supplier address SUPPLIER NAME	
Part Number (P) 1234567 [Barcode]		Net Weight (Kg)	Gross weight (Kg) 123
Quantity (Q) 128 [Barcode]		No. of boxes	
Supplier ID (V) ABCD1 [Barcode]		Date D010	
Serial Number (S) 123 [Barcode]		Batch No (B) [Barcode]	

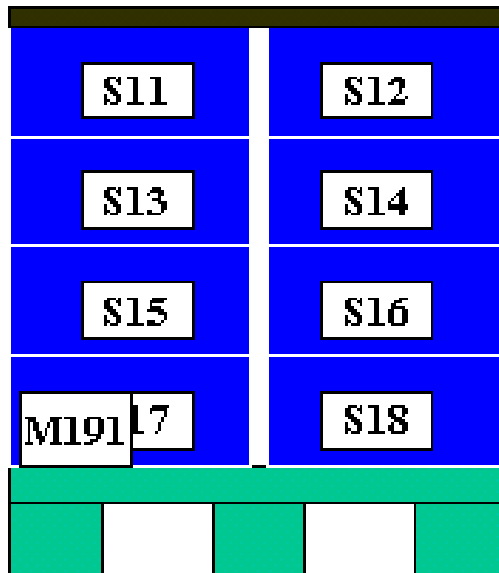
Receiver VOLVO TORSLANDA MONTERING		Dock / Date TVV	
Advice Note No (N) 113776 [Barcode]		Supplier address SUPPLIER NAME	
Part Number (P) 1234567 [Barcode]		Net Weight (Kg)	Gross weight (Kg) 123
Quantity (Q) 128 [Barcode]		No. of boxes	
Supplier ID (V) ABCD1 [Barcode]		Date D010306 Eng. Change	
Serial Number (S) 124 [Barcode]		Batch No (B) 456789001 [Barcode]	

Package configurations

Homogeneous handling unit (1 pallet, 16 smallboxes)

Master Type Label (M)

Receiver VOLVO TORSLANDA MONTERING		Check / Date TVV	
Advice Note No (N) 113776		Supplier address SUPPLIER NAME	
		Net Weight (Kg) 123	Gross weight (Kg) 16
Part Number (P) 1234567			
Quantity (Q) 896		Description ITEM 1	
		Logistic Reference	
Supplier ID (S) ABCD1		Date D010306 Eng. Change	
		Serial Number (M) 191	
		Batch No (H)	



Standard Type label (S) - 4 OTL out of 16

The diagram shows four overlapping Standard Type labels (S) for OTLs 1, 2, 3, and 4. Each label contains the following information:

- Receiver: VOLVO TORSLANDA MONTERING
- Check / Date: TVV
- Advice Note No (N): 113776
- Supplier address: SUPPLIER NAME
- Net Weight (Kg): 123
- Gross weight (Kg): 16
- Part Number (P): 1234567
- Quantity (Q): 896
- Description: ITEM 1
- Logistic Reference
- Supplier ID (S): ABCD1
- Date: D010306
- Eng. Change
- Serial Number (M): 191
- Batch No (H)

- Business processes and procurement methods - JIT/JIS

● Business processes and procurement methods – JIT/JIS process

- Incentives
- Information flow
- JIS application samples
- Roles of the involved parties
- Detailed review including technical aspects like data exchange, formats, subsets, syntax, Auto Id and labelling, message functions and logics, systems support.
- JIT/JIS process
 - KanBan
 - Caldel
 - Sequence
 - Long distance
- Label requirements

- Business processes
 - Sequence (JIS) incentives

Sequencing is a forecast driven concept mainly used for:

- Bulky or heavy items
- High price components
- Item variants:
 - Colour
 - Model
 - Chassi/body specific

- Business processes
 - Kanban (JIT) incentives

Kanban is a consumption driven concept mainly used for:

- Bulky items
- Items where consumption is very varying
- Common in internal flows . Not that often in external flows

Business processes

– JIT/JIS Scenario information flow

OEM

Commercial agreement, paper document with business rules.

Long horizon forecasts on requirements.

Firm orders to deliver.

Self billing invoice, monetary transaction message based on one despatch note.

Information flow

Order (Blanket order)

Forecast

JIT/JIS Instructions

ASN* & Labels

*only in trucks sequencing

Invoice

Self billing invoice

Supplier

Electronic despatch note/delivery note with Item and package information with corresponding labels.

Commercial invoice based on one despatch note.



Procurement processes

- JIT/JIS – Messages

- DELFOR A delivery schedule/instruction
- DESADV An electronic delivery/despatch note with information on the shipment with unique identities on each package, corresponding with labels on the goods
- DELJIT Firm order and packing instructions (sequencing)
- INVOIC A debit invoice from supplier to buyer or buyers agent normally under the concept of one delivery note (one DESADV) equals one invoice
- SBI A credit advise from buyer to supplier normally under the concept of one delivery note (one DESADV) equals one credit advise

● Business processes

- Differences in Sequencing Cars & Trucks (JIT/JIS)

Car producer (Volvo Cars)

- DELFOR: Forecast information
- VCCBOM: Containing information of ingoing parts in a modul
- Lineup Message. Containing preliminary production information for 24h ahead
- DELJIT: Sequence message
- Approx 4h before assembly of a part
- One message per car.
- Frequence 3 – 4 minutes
- No ASN

Truck production (AB Volvo & Scania)

- DELFOR: Forecast information
- PRODAT: Containing information of ingoing parts in a modul (Only AB Volvo)
- DELJIT: Sequence message
- Approx 8 – 24 days before assembly of part
(AB Volvo only firm orders. Scania both preliminary and firm orders)
- Frequence one per day
- ASN with chassi numbers

Business processes – JIS applications

– Sequence Car producer

Syncro Monitor - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address <http://fw-got.encode.se/rieter/syncro.html>

control

Sekvenser i buffert: 71
Sista utskrivna pall: 40
Senast utskrivna sekvensnummer: 1222030
Högsta godkända sekvensnummer i buffert: 1222052

[Uppdatera](#) [Radera sekvens](#)

[Skriv ut](#) [Manuell SYNCRO](#)

71

banan

Aktuell banhastighet 0 bilar i timman

PUREN	2005-03-14 06:54:00	CAR ON LINE	2005-03-14 06:54:00
1221588		1221783	
SISTA LOPNR	2005-03-14 06:54:00	BEORDNING	2005-03-14 06:54:00
1222018		1222035	

pack

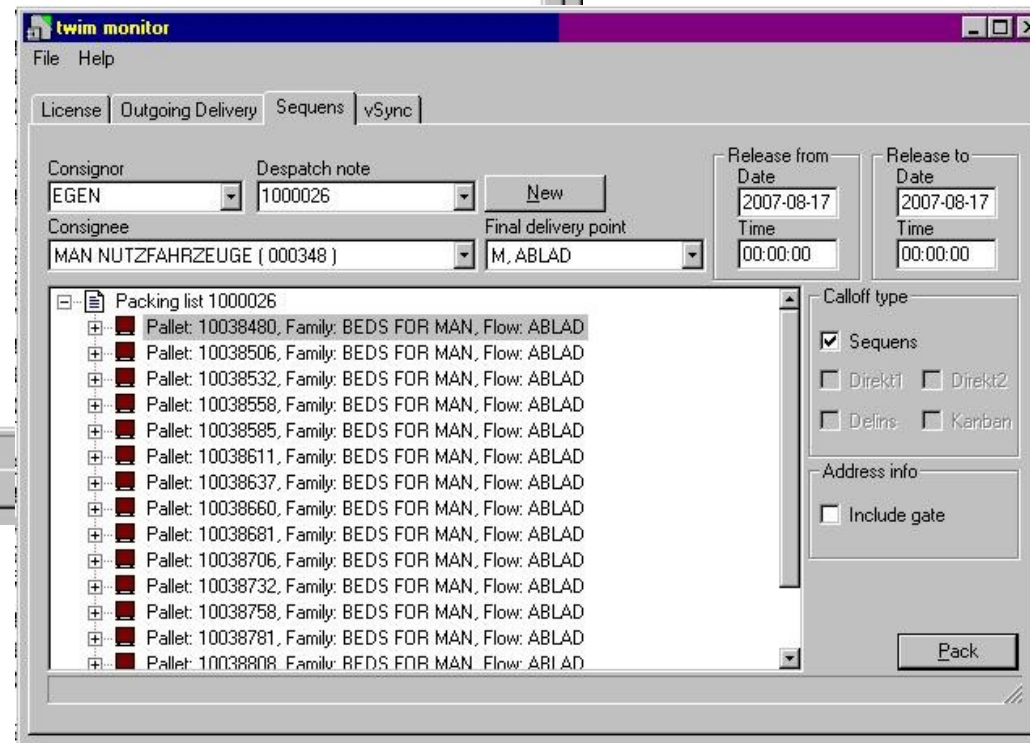
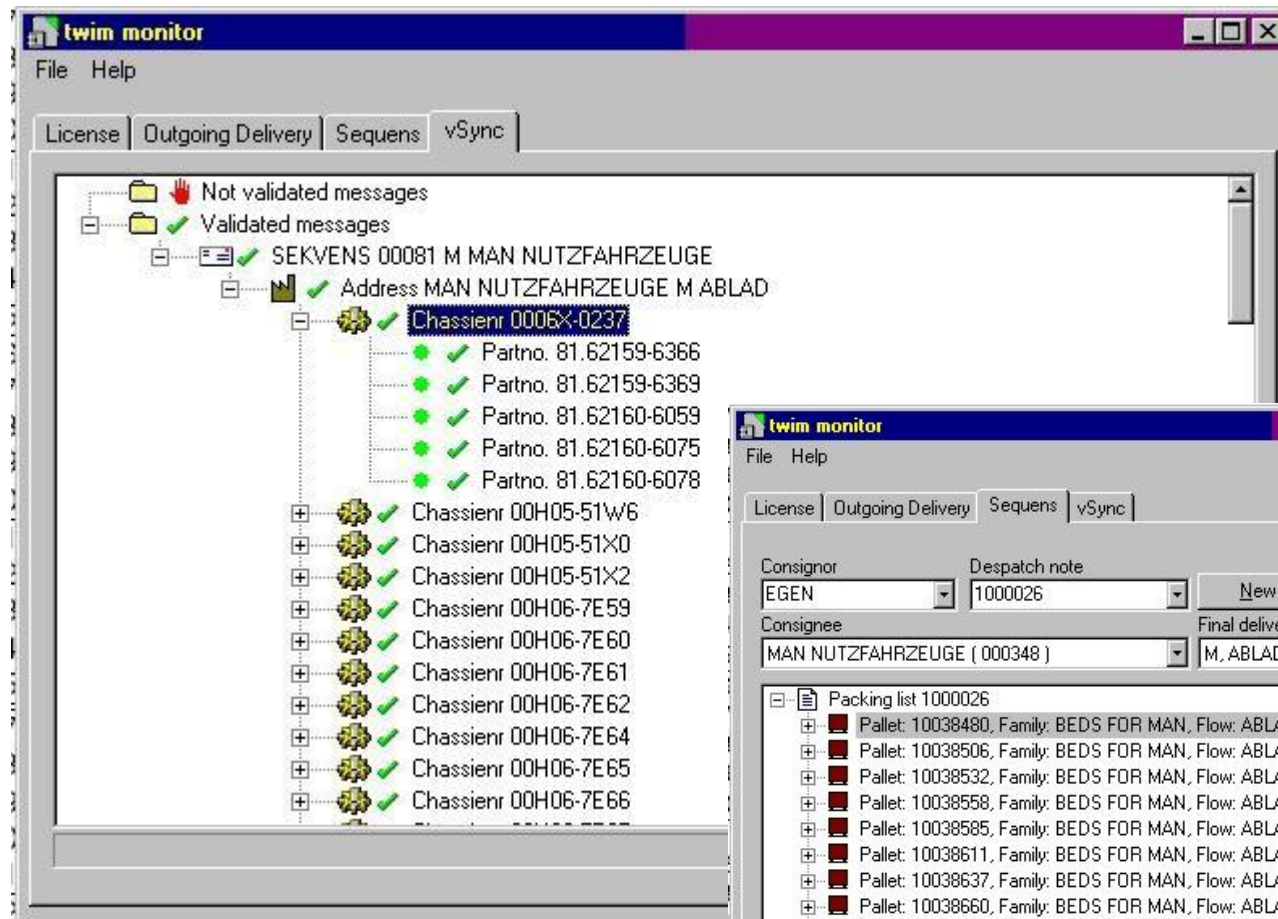
Utskrift	Flöde	Löpnr	Antal	I kö	Artikelnummer	Beskrivning	Racknr
<input checked="" type="checkbox"/>		MFV 1222031-1222042	12	10			41
<input type="checkbox"/>		MFV 1222042	1		39899323/39899323	GREY P28 LHD/LH d	
<input type="checkbox"/>		MFV 1222041	1		39991849/39991849	OAK P23/P26 LHD/LH p	
<input type="checkbox"/>		MFV 1222040	1		39899317/39899317	GREY P28 LHD/LH p	
<input type="checkbox"/>		MFV 1222039	1		39991860/39991860	GREY P23/P26 LHD/LH d	
<input type="checkbox"/>		MFV 1222038	1		39899318/39899318	OAK P28 LHD/LH p	
<input type="checkbox"/>		MFV 1222037	1		39991848/39991848	GREY P23/P26 LHD/LH p	
<input type="checkbox"/>		MFV 1222036	1		39899323/39899323	GREY P28 LHD/LH d	
<input type="checkbox"/>		MFV 1222035	1		39991849/39991849	OAK P23/P26 LHD/LH p	
<input type="checkbox"/>		MFV 1222034	1		39899317/39899317	GREY P28 LHD/LH p	
<input type="checkbox"/>		MFV 1222033	1		39991860/39991860	GREY P23/P26 LHD/LH d	
<input type="checkbox"/>		MFV 1222032	1		39991904/39991904	GREY P28 LHD/LH d	
<input type="checkbox"/>		MFV 1222031	1		39991848/39991848	GREY P23/P26 LHD/LH p	
<input checked="" type="checkbox"/>		MFH 1222019-1222030	12	22			39
<input checked="" type="checkbox"/>		MBA 1222020-1222048	15	2			15
<input checked="" type="checkbox"/>		MAB 1222019-1222047	15	2			81
<input type="checkbox"/>		MBX 1222020-1222052	17	0			15

log

Done Internet

Business processes – JIS Applications

– JIT/JIS Truck producer



Business processes

– JIT/JIS - Parties

- Buyer
- Carrier/LSP
- Supplier
- Ship From
- Ship To
- Assembly station



Business processes

– JIT/JIS - Roles

Buyers responsibilities:

- calculation of demands
- sequence order / Kanban loop administration
- transmitting information
- providing carrier/LSP (normally)
- reporting deviations
- packaging instructions
- payments
- customs issues



Business processes

– JIT/JIS - Roles

Suppliers responsibilities:

- receiving and interpreting demands
- delivering according to demands
- following packaging instructions
- following sequence order /Kanban loop order
- ordering transport
- ordering packaging material
- transmitting ASN (only in trucks sequencing)
- labelling of goods
- all transport related documentation



Business processes

– JIT/JIS - Roles

Carrier responsibilities:

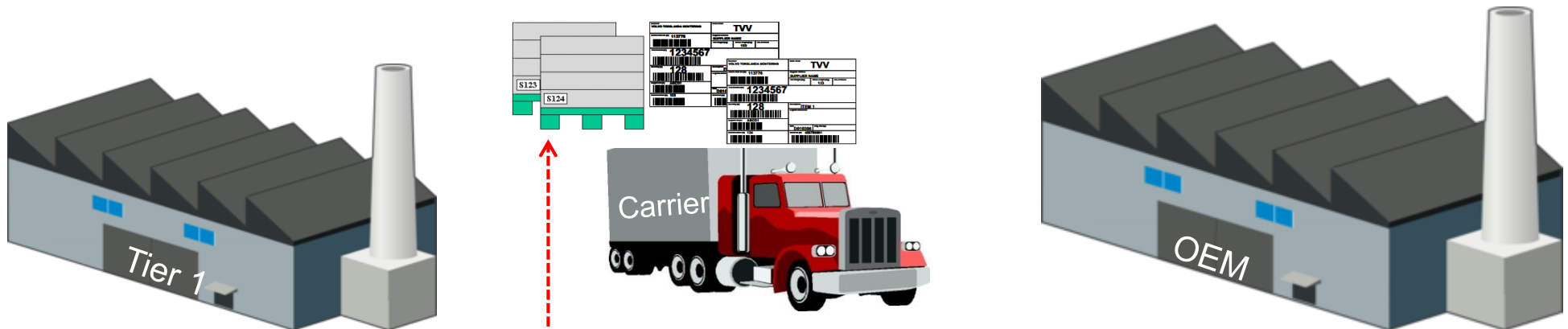
- booking system
- pickup
- keeping transport lead time
- occasionally responsible for packaging material.
- occasionally responsible for packaging material replenishment



Business processes

– JIT/JIS – Detailed review - Information flow

← Jit/Jis Information (DELJIT)
← Delivery schedule/forecast (DELINS/DELFOR)



→ Despatch note/ASN (AVIEXP/DESADV)

→ Invoices (INVOIC)

OR

← Self Billing Invoice(INVOIC)

Business processes

– JIT/JIS process - KanBan

The DELINS/DELFOR message contains forecasts Information. Objective is to give Tier 1 suppliers and their sub suppliers the current situation on deliveries, in the short horizon and a chance to plan and secure resources in the long horizon.

Structure (DELINS/DELFOR):

HEAD: Consignee – Consignor – Carrier – Validity (horizon)

LINE: Part No – Previous deliveries – Cumulative quantity – Delivery point

REQ: Quantity – Date – Status - Reason

The DELJIT(KANBAN) message contains consumption Information and package instructions.

Structure (DELJIT/KANBAN):

HEAD: Ship From – Ship To – Date

LINE: Part No - Delivery point

REQ: Quantity – Date - KANBAN card No

Business processes

– JIT/JIS process - Sequence

The DELINS/DELFOR message contains forecasts information. Objective is to give Tier 1 suppliers and their sub suppliers the current situation on deliveries, in the short horizon and a chance to plan and secure resources in the long horizon.

Structure (DELJIT (Sequence):

HEAD: Ship From – Ship To .

LINE: Sequence No – Chassie No- Assembly date/time – Variant instructions..

REQ: Part No - Quantity – Variant Instructions – Assembly Station address.



Business processes

– JIT/JIS process – AVIEXP/DESADV Logic

The AVIEXP/DESADV message is a pre advise (ASN, Advanced Shipping Note) on a delivery. Objective is to have the ASN in the OEM system before the goods arrive and use the corresponding goods labels (with the same serial No's as transmitted in the ASN), to achieve a highly automated goods reception process.

Structure (AVIEXP/DESADV):

HEAD: Buyer – Seller - Ship From – Ship To – Carrier – Date – Place of discharge.

PACK: Package (Inner) – Package (Outer) – Serial No – ASN No – Kanban car No – Sequence No

Chassi No - Production reference No

PART: Part No – Quantity in pack – Quantity total – Revision – Part consignment No.

Structure (LABEL):

Consignee/Destination

Supplier

Serial No (of package)

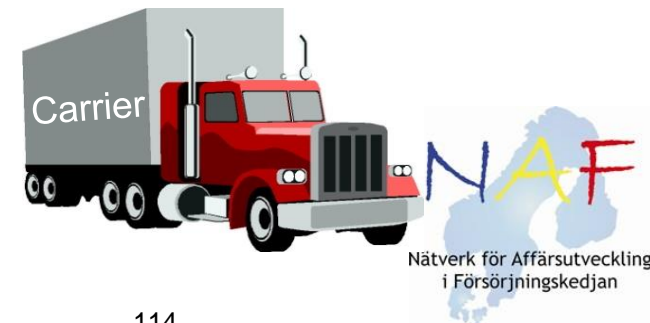
Kanban card No or Sequence No or

Chassi No or Production reference No

ASN No

Part No (dependant)

Quantity (dependant)



Business processes

– JIT/JIS process – INVOIC Logic

The INVOIC message is normally in a one-to-one relation with an ASN to create balance with what has been delivered. The SBI invoice is more a transaction information from buyer to vendor that a monetary amount will be transferred on a certain date.

Structure (INVOIC):

HEAD: Buyer – Vendor – Consignee – Date - Terms





LINE: Part No – Quantity – Price

SUM: Summary - Taxes



Business processes

- Example of Odette label(Sequence)

<small>Receiver</small> VOLVO LASTVAGNAR AB TUVE		<small>Dock / Gate</small> LB21 27100 020	
<small>Advice Note No (N)</small> 100001 		<small>Supplier name & address</small> Supplier	
		<small>Net Weight (Kg)</small> 24.0	<small>Gross Weight (Kg)</small> 54.2
		<small>No. of boxes</small> 6	
<small>Part Number (P)</small> SEQUENCE			
<small>Quantity (Q)</small> 6 		<small>Description</small> PART DESCRIPTION	
		<small>Vehicle ID/Assembly date/time</small> 744443 - 744499 130517 08:15	
<small>Supplier (V)</small> 23456 		<small>Date</small> D130516	
		<small>Eng. Change</small>	
<small>Serial Number (G)</small> 200000001 		<small>Batch no (H)</small>	

Business processes

- Example of Part label

Vehicle no. 744443	Date & Time 130517 0815	Part no./Module no. 21562461
Additional Internal Destination LB21 27100 020	Serial no. 100000006	Variant L-STWP

Business processes

- Example of Odette label (Kanban)

Receiver VOLVO LASTVAGNAR AB TUVE		Dock / Gate F-11 020	
Advice Note No (N) 100001 		Supplier name & address Supplier	
		Net Weight (Kg) 24.0	Gross Weight (Kg) 45.0
		No. of boxes 1	
Part Number (P) 2345678 			
Quantity (Q) 6 		Description PART DESCRIPTION	
		KANBAN card No (15K) 001 	
Supplier (V) 23456 		Date D130516	
		Eng. Change	
Serial Number (S) 10000002 		Batch no (H)	

Business processes

– VMI / CMI (Vendor (Collaborative) Managed Inventory)

The DELINS/DELFOR message contains forecasts information. Objective is to give Tier 1 suppliers and their sub suppliers the current situation on deliveries, in the short horizon and a chance to plan and secure resources in the long horizon.

- Customer gives gross quantity demand adapted to agreed unit load
- VMI signal indicates the net quantity demand
- INVRPT and DELFOR in conjunction



OFTP general overview

- Odette Sweden also offers a one day training course focusing on OFTP2.

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OFTP2 User Directory

This searchable directory lists companies worldwide that are OFTP2-enabled and able to exchange data securely over the public internet

[Register/Update](#)
[OFTP2 Home](#)

Search OFTP2 users

-- All --

-- Choose a country --

Search

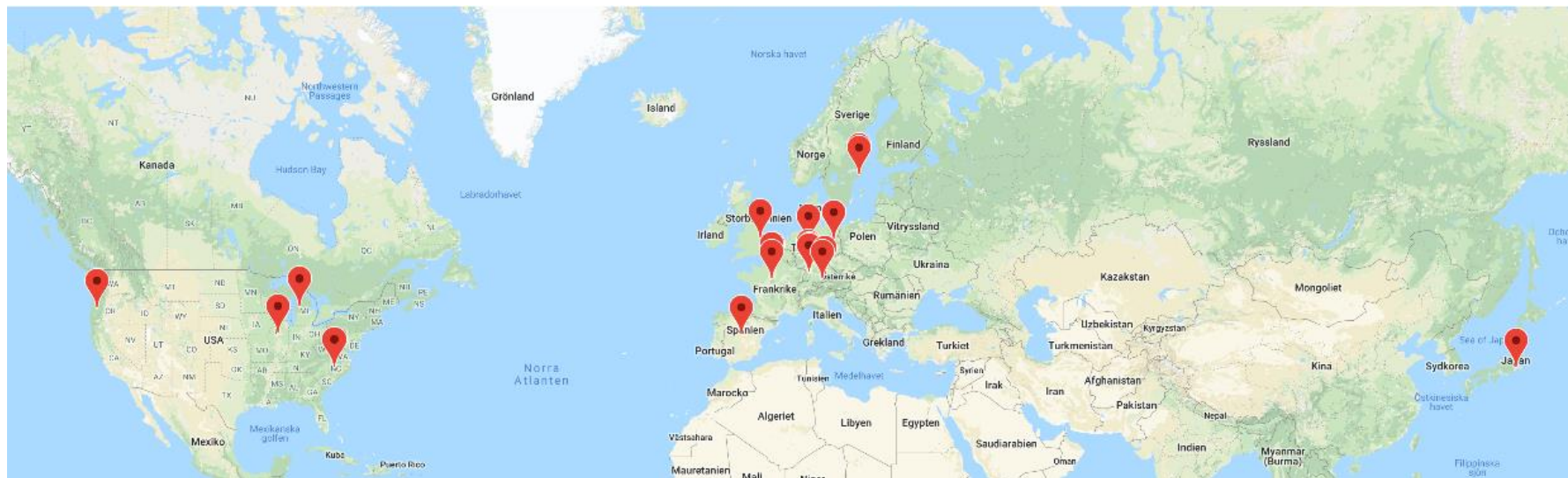
[Reset search](#)

There are currently 3013 registered OFTP2 users.

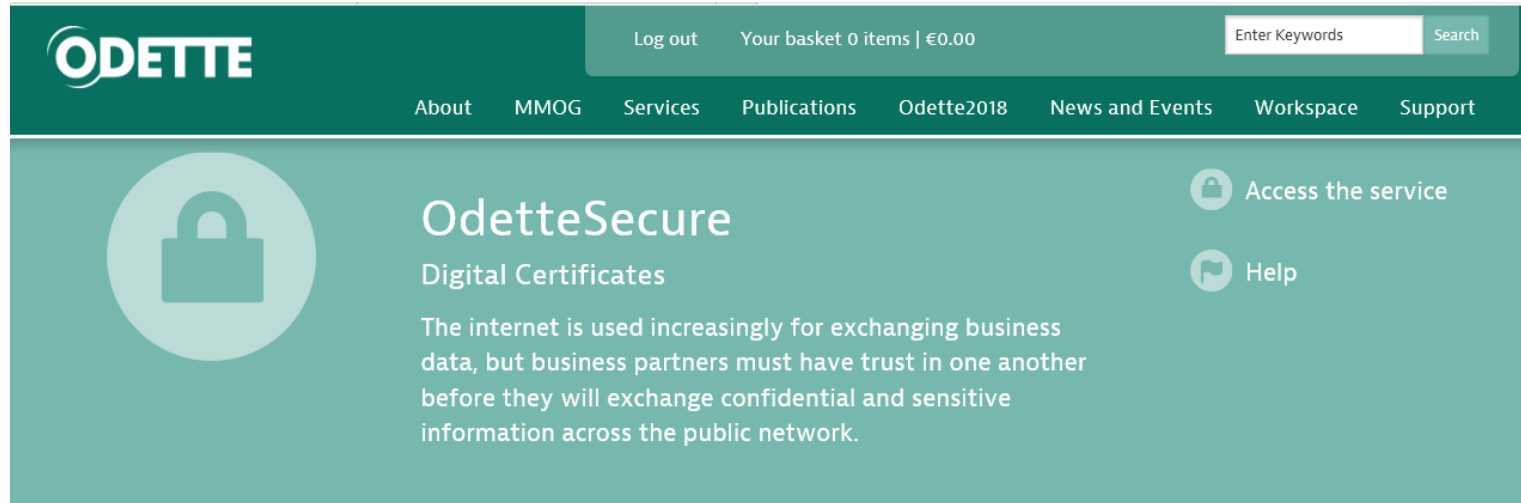
Company	Location	Country
1TNC	Wolfsburg	Germany
1zu1 Prototypen	Dornbirn	Austria
2M-Kunststofftechnik GmbH	Walting	Germany
3 Dimensional Services	Bad Homburg	Germany

<https://www.odette.org/services/oftp2/software>

- List of Certified (interoperability tested) OFTP2 SW Providers (30 companies)
- Find your OFTP2 SW Provider



Odette Secure



The screenshot shows the OdetteSecure website. At the top is a dark teal header with the ODETTE logo on the left. To the right of the logo are links for 'Log out' and 'Your basket 0 items | €0.00'. Further right is a search bar with the placeholder text 'Enter Keywords' and a 'Search' button. Below the header is a navigation menu with links: 'About', 'MMOG', 'Services', 'Publications', 'Odette2018', 'News and Events', 'Workspace', and 'Support'. The main content area has a teal background. On the left is a large circular icon containing a padlock. To the right of the icon is the heading 'OdetteSecure' followed by 'Digital Certificates'. Below this is a paragraph: 'The internet is used increasingly for exchanging business data, but business partners must have trust in one another before they will exchange confidential and sensitive information across the public network.' To the right of this text are two links: 'Access the service' and 'Help', each with a small icon.

Working with major players from the sector, Odette has developed an internet security framework optimised for the automotive industry.

What is a digital certificate?

Certificates are used in a Public Key Infrastructure, where an asymmetric key pair is used to protect your data and communication. This key pair consists of a private key and a public key. The private key must remain securely on your computer and is not to be given to any other partner (including Odette). The public key is the one you share with your partners. It bears a number of attributes which identify the entity to which it belongs.

A certificate is a public key that has been signed by a Certification Authority (CA), a trusted third party entity, indicating that the information on the certificate has been checked and actually represents the entity that is listed as subject of the certificate.

Latest News

[Register now for the Odette2018 Conference](#)

[Odette CA and OSCAR services are moving to OdetteSecure](#)

[Odette2018: Keynote Speakers announced](#)

OdetteSecure customers receive

- EDIFACT Format and syntax, detailed walkthrough Segment architecture

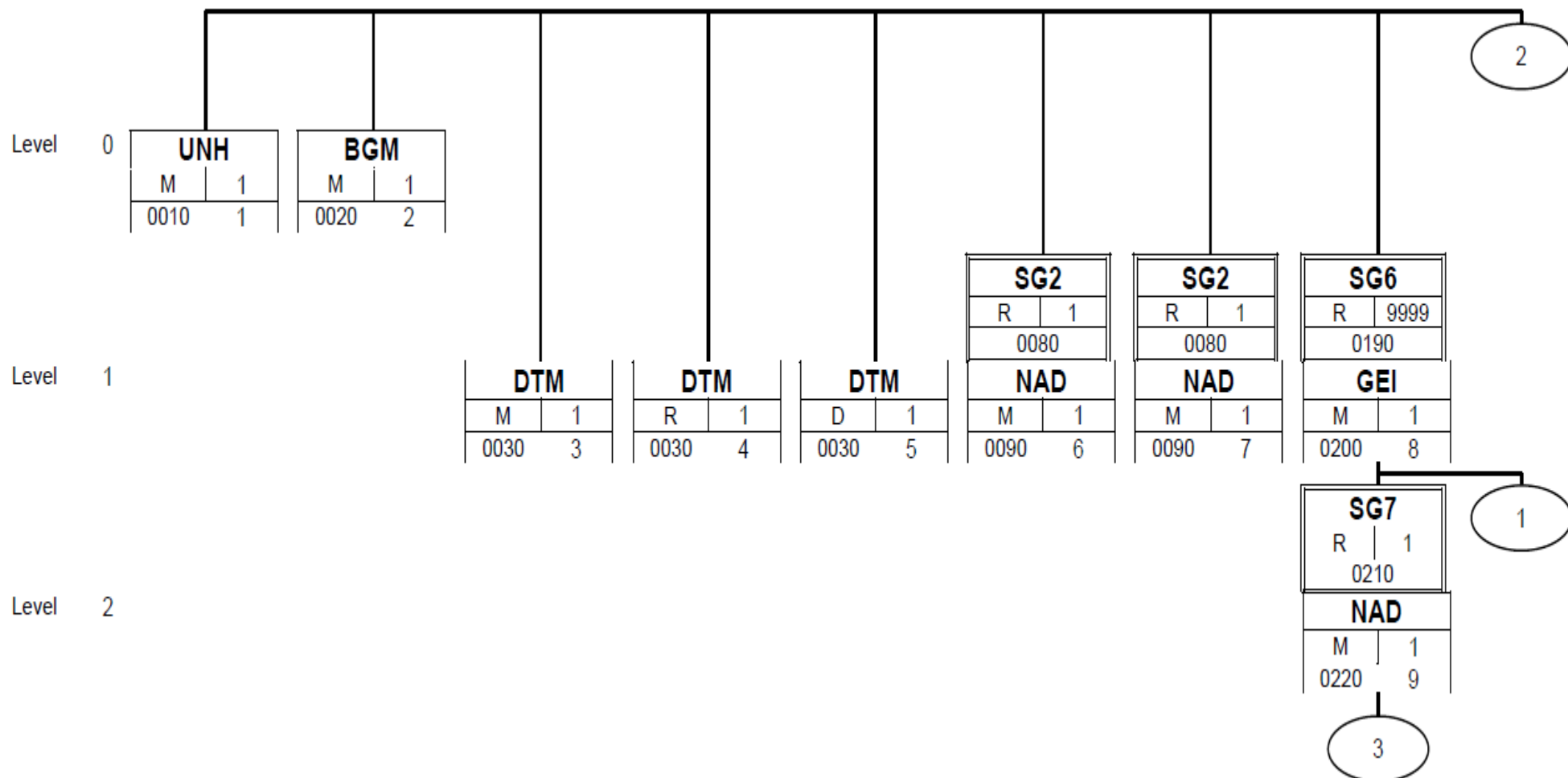
Terminology

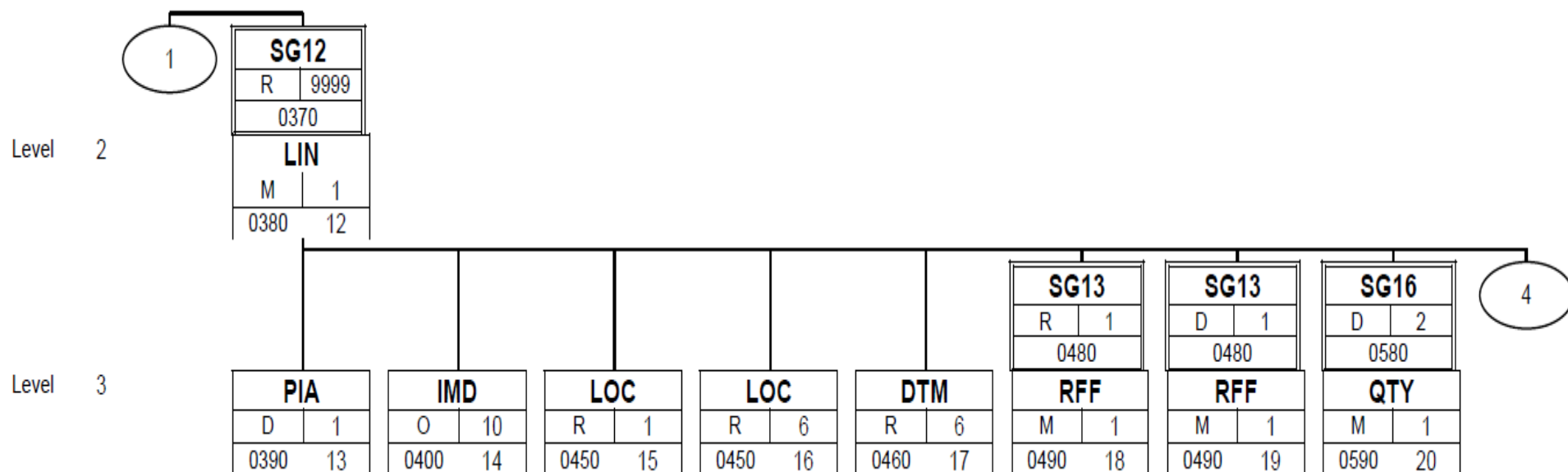
DELFOR D04A

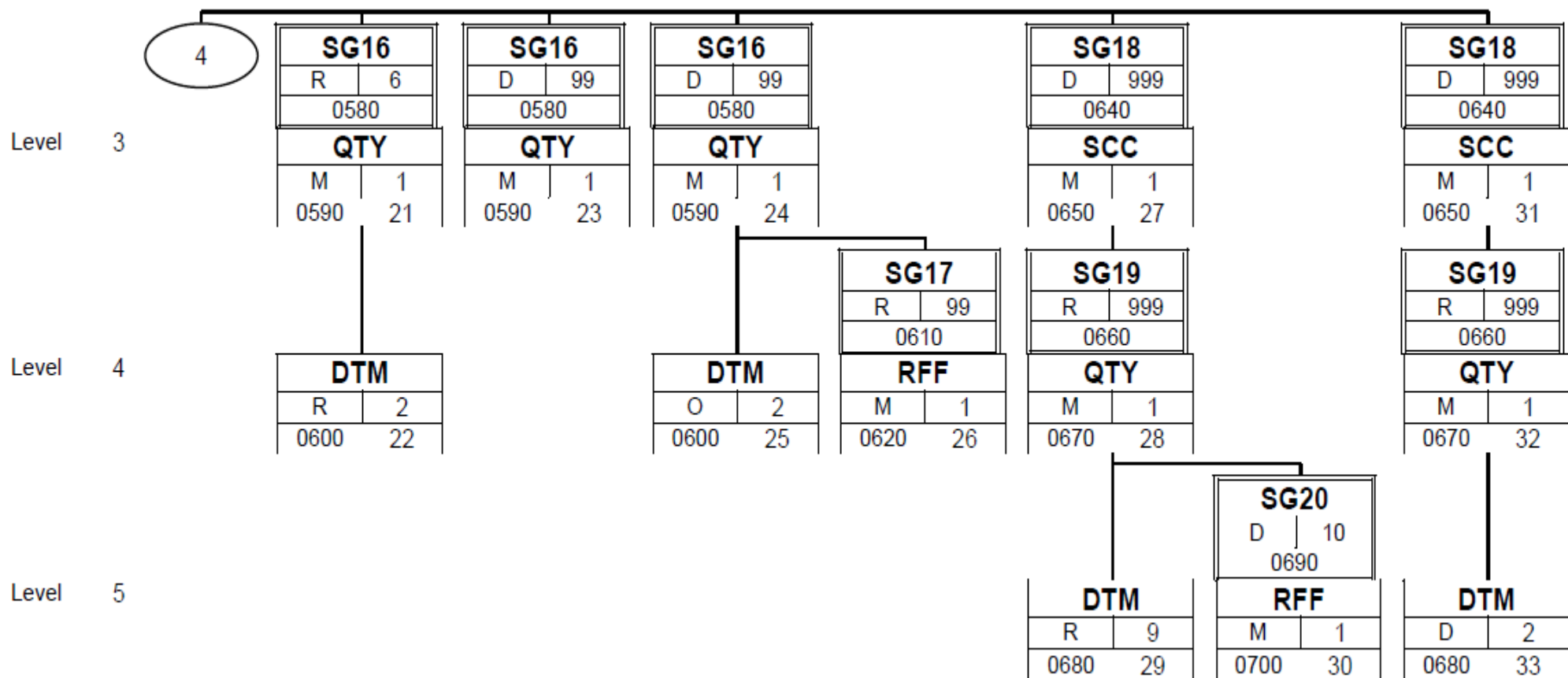
Message type Status Catalogue Revision

TAX+7+VAT+++:0.00+AA'

Segment Composite separator Data element Sub-element Composite Segment delimiter







Group: **SG12** Status: R Max. Occ.: 9999 Scheduled Article Details

Segment: **LIN** Seq. No.: 12 Level: 2 Line item
Status: M Max. Occ.: 1
Counter: 0380

Name: Line item

Description of segment:

UN/EDIFACT			Implementation	
	Name	St Format	St Format	Use / Remarks
LIN				
1082	Line item identifier	C an..6	N	not used
1229	Action request/notification description code	C an..3	R an..3	Code indicating action required as a result of the new instruction. Code 9 - Amendments - means the schedule lines of a previous forecast/ instruction are replaced only for the specific horizon indicated. All figures before and after remain valid. This requires an effective from and an effective to date on header level. Code 38 - the complete previous forecast / instruction for this line item is replaced by new figures for the full horizon. It is business practice to use at least one time a zero quantity schedule line for articles that have been part of previous schedules but are now no longer part of the schedule in the case of the 'complete replacement' situation. 9 = Amendments 38 = Replaced
C212	Item number identification	C	R	Article ID(s) as assigned by one or more of the involved parties.
7140	Item identifier	C an..35	R an..35	Information directly relating to the identification of an article by the buyer's identification system. Note: The term article is synonym with the term item. Since in Odette and in the global joint automotive projects the term article has been used, this naming convention has been continued. Volvo's Article number.
7143	Item type identification code	C an..3	R an..3	IN = Buyer's item number
1131	Code list identification code	C an..17	N	not used
3055	Code list responsible agency code	C an..3	N	not used
C829	Sub-line information	C	N	not used
5495	Sub-line indicator code	C an..3	N	not used
1082	Line item identifier	C an..6	N	not used
1222	Configuration level number	C n..2	N	not used
7083	Configuration operation code	C an..3	N	not used

Remark:

A product required by the buyer, which is scheduled to be delivered

All segments in the detail section following the LIN segment refer to the line item.

The supplier is responsible for converting Volvo's article number into the supplier's own internal number.

Key information in the DELFOR message

BGM+241+**20131001113000'** ←
 DTM+137:**20131001:102'** ←
 DTM+157:**20131001:102'** ←
 NAD+BY+**8442::92'** ←
 NAD+SE+**46243::92'** ←
 GEI+3'
 NAD+ST+**8442::92++VOLVO TRUCK CORP - KALUGA'** ←
 LIN++38+**1083377:IN'** ←
 LOC+11+**051::92'** ←
 LOC+159+**00 051::92'** ←
 DTM+257:**20131001:102'** ←
 RFF+ON:**000000000051'** ←
 RFF+AIF:**201309281131'** ←
 QTY+70:**1616'** ←
 DTM+51:**20130101:102'** ←
 QTY+12:**12'** ←
 QTY+48:**12'** ←
 DTM+11:**20130927:102'** ←
 RFF+AAK:**83050542'** ←
 QTY+12:3'
 QTY+48:3'
 DTM+11:20130925:102'
 RFF+AAK:83044602'
 QTY+12:7'
 QTY+48:7'
 DTM+11:20130925:102'
 RFF+AAK:83044587'
 SCC+**24'** ←
 QTY+113:**7'** ←
 DTM+10:**20121001:102'** ←

Message Number.
 Message Date/time.
 Validity start date.
 Buyer number, allocated by Volvo.
 Seller number , allocated by the Volvo.

Ship to Volvo plant No.
 Item number.
 Place of discharge.
 Additional internal destination.
 Calculation Date/Time
 Volvo Order No.
 Previous delivery instruction number.
 Cumulative quantity received.
 Cumulative start date.
 Despatch quantity.
 Received quantity.
 Despatch date.
 Despatch Note No.

** Note the group QTY,QTY,DTM,RFF could be repeated 0 - 3 times depending on the number of received despatch notes.

Forecast indicator.
 Quantity to deliver.
 Delivery date.

Key information in the DELJIT message

BGM+30::10+20121023200745'	←	Message number.
DTM+137:201210232007:203'	←	Message Date/time.
NAD+CZ+46243::92'	←	The supplier number , allocated by Volvo. Use in DESADV and on Odette label.
NAD+BY+1020::92'	←	The buyer number , allocated by Volvo. Use in DESADV
NAD+CN+8442::92++VOLVO TRUCK CORP'	←	Volvo's plant number. Use in DESADV and on Odette label
LOC+11+051'	←	Place of discharge. Use in DESADV.
SEQ+3+482118'	←	Production sequence number.
DTM+194:201311272030:203'	←	Assembling Date/Time. Use on Odette label
GIR+4+109385:VV'	←	Vehicle identification number. Use in DESADV and on Odette label
LIN+++20755211:IN'	←	Item number. Use in DESADV and on Odette label
IMD+++::PROPELLER SHAFT C2060/235'	←	Detailed Description.
LOC+159+L41 14030 051'	←	Additional internal destination.Stated on Odette Label
QTY+131:1'	←	Quantity. Use in DESADV and on Odette label

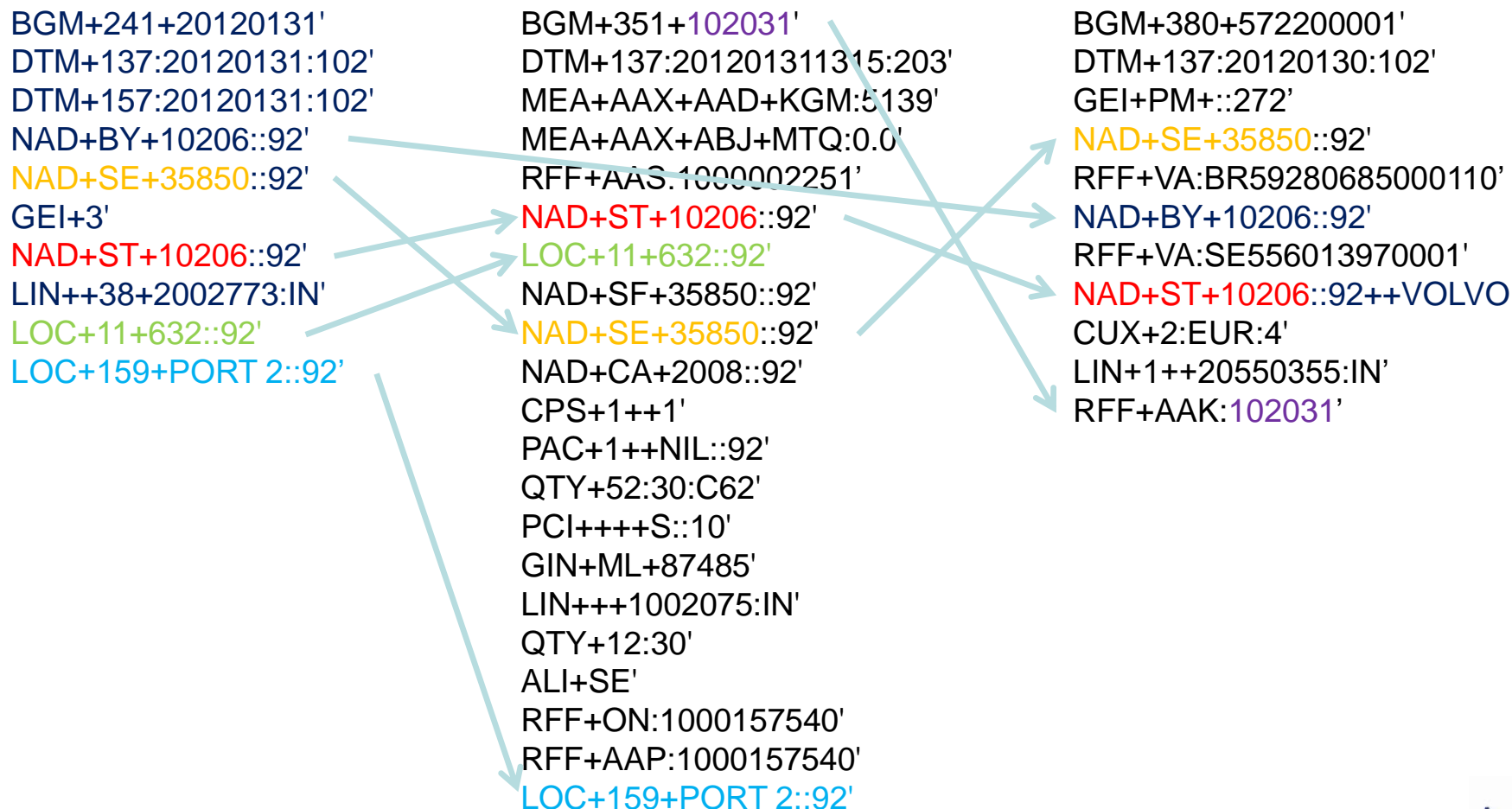
SEQ+40+482102'	}
DTM+194:201311270949:203'	
GIR+4+109369:VV'	
LIN+++1068154:IN'	
IMD+++::PROPELLER SHAFT C2060/170'	
LOC+159+L41 14040 051'	}
QTY+131:1'	
SEQ+40+482104'	
DTM+194:201311271051:203'	
GIR+4+109371:VV'	
LIN+++1067758:IN'	}
IMD+++::PROPELLER SHAFT C2055/180'	
LOC+159+L41 14040 051'	
QTY+131:1'	

For each new Chassi number there will be a repetition of SEQ,DTM,GIR,LIN,IMD, LOC and QTY.

Key information in DESADV

BGM+351+ 102698 '	←	Despatch Note Number. Printed on Odette Label
DTM+137: 201310010904 :203'	←	Despatch Date/time. Printed on Odette Label
RFF+AAS: 21627 '	←	Transport document number.
NAD+ST+ 8442 ::92'	←	Volvo's plant number, allocated by Volvo.
NAD+SE+ 46243 ::92'	←	The Seller number , allocated by the Volvo.
NAD+SF+ 46243 ::92'	←	The supplier number. Printed on Odette Label.
LOC+11+ 051 ::92'	←	Place of discharge.
NAD+CA+ NIL ::92'	←	Carrier Coded
CPS+1++1'		
PAC+1++NIL::92'		
QTY+52:4:PCE'		
PCI++++S::92'		
GIR+3+ 428089 :ML'	←	Package serial number. Printed on Odette Label
LIN+++ 21522366 :IN++0'	←	Item number. Printed on Odette Label.
QTY+12:4:PCE'	←	Quantity in package. Printed on Odette Label.
ALI+ RU '	←	Country of origin.
GIN+VV+ 638960 '	←	Vehicle identification number connected to this package. Printed on Odette Label.
RFF+ON: 340904758051 '	←	Volvo Order No.
LOC+159+ 051 ::92'	←	Additional internal destination. Printed on Odette Label.

Information heritage between DELFOR , DESADV and INVOIC



Coffee Break



Practical tasks

- <http://www.unece.org/trade/untdid/d96a/trmd/trmdi2.htm>
- EAN is now GS1 (example www.gs1.se)



Implementation issues

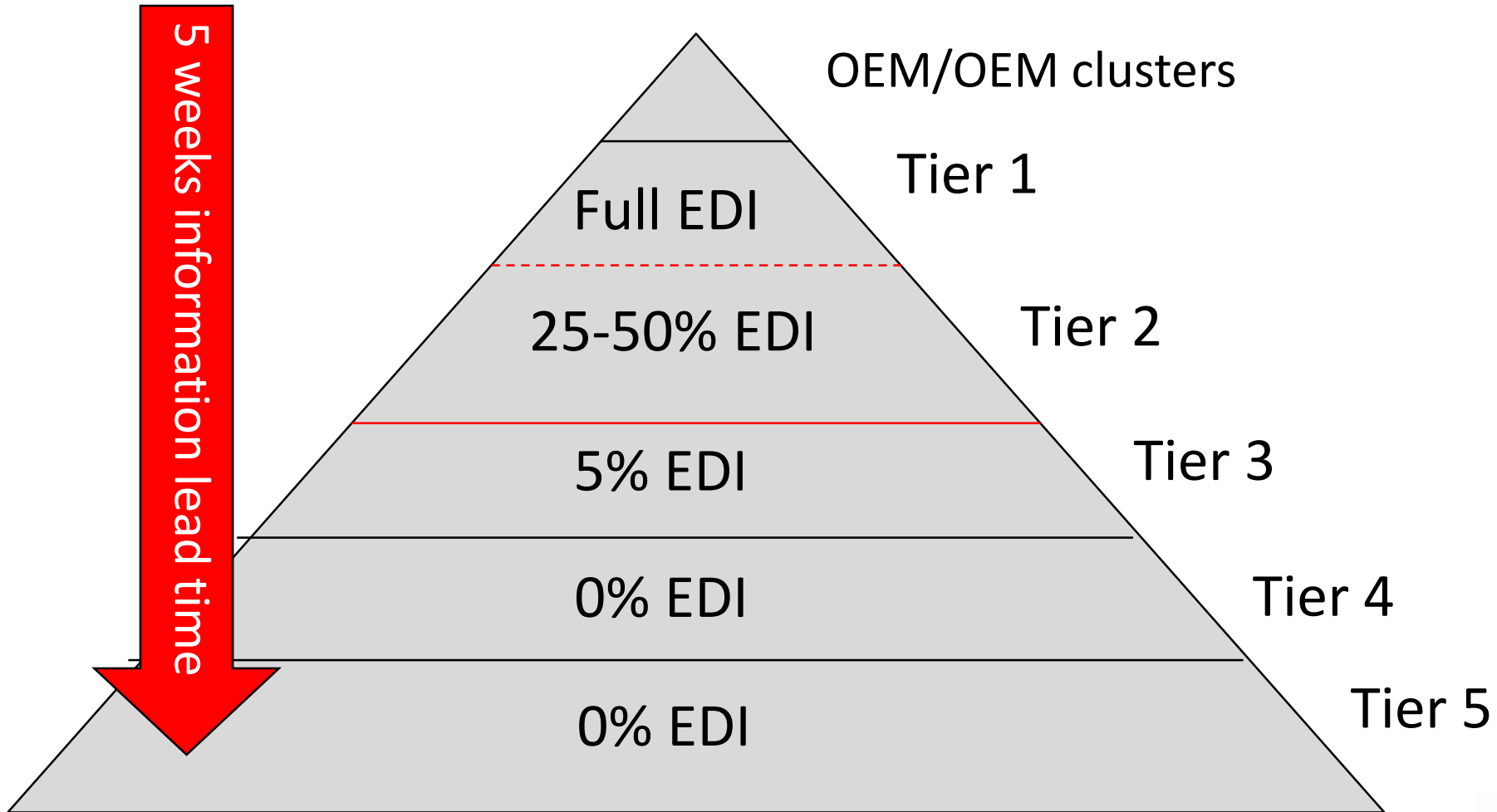


Implementation issues

- Driving forces

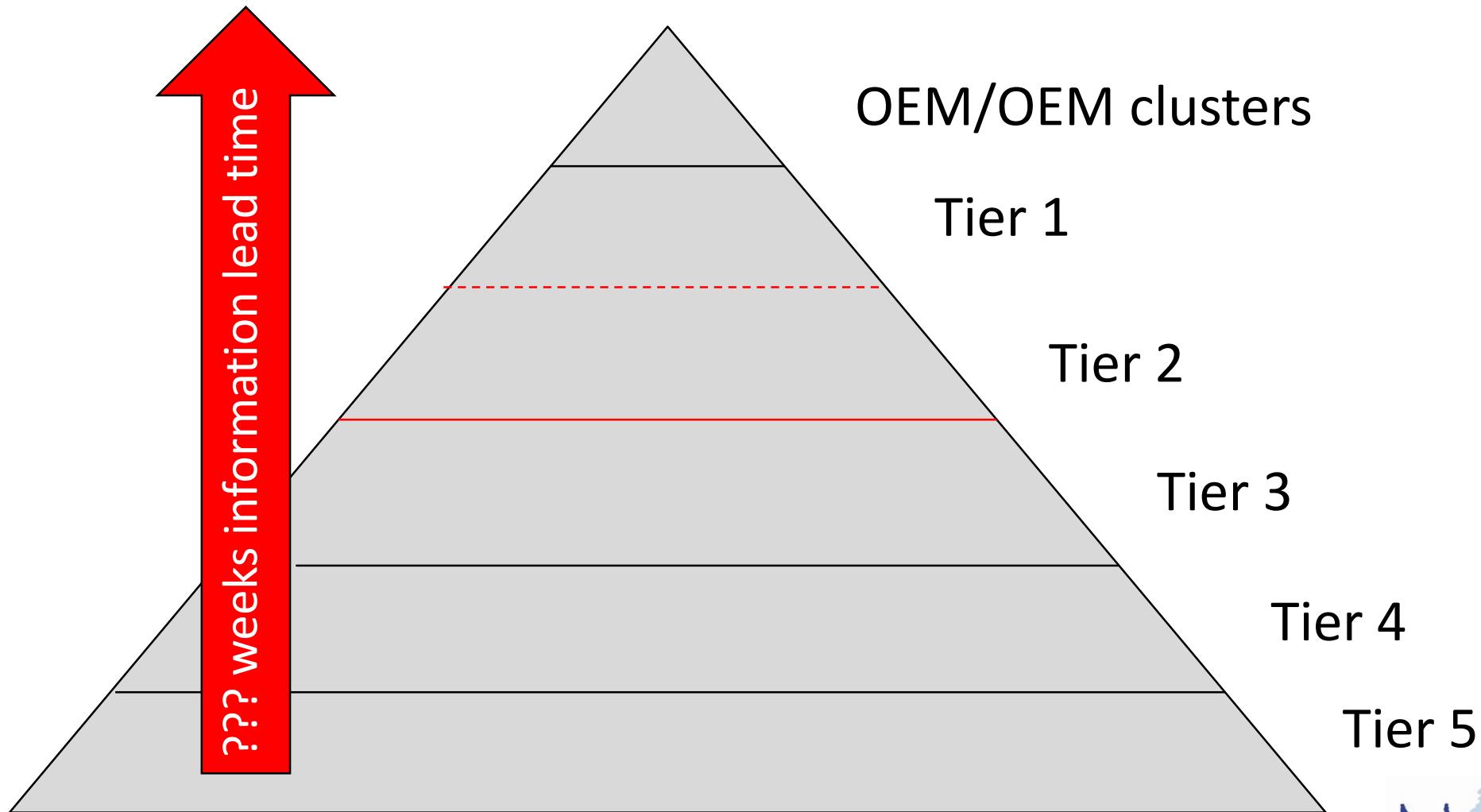
Implementation issues

- Driving forces - Complete supply chain penetration



Implementation issues

- Driving forces - Complete supply chain penetration



Implementation issues

- Suppliers reality – differences at OEM

- One OEM gives status 4, one gives status 9.
- One OEM gives 1 for firm order another gives 4.
- One OEM gives ship-from-date another gives deliver-to-date.
- One OEM uses a packaging reference code, the package owner uses another code
- One OEM respects the frozen period, another does not.
- Some OEM:s give feedback on previous despatches, some give feedback on received goods, some give both.
- Some OEM never give zero for the demands when moving a part to a different location.
- One factory gives firm orders, another does not.

Implementation issues

- Supplier challenges

- No or little understanding of data exchange and system integration.
- No competence and experience from formats (EDIFACT).
- Using an ERP system with no automotive vertical.
- Differences in business rules between customers.
- Less specialization in systems further down in the supply chain.
- Different communication protocol requirements.
- Differences between different plants of a customer.
- Different label demands from different customers.
- Different label demands depending on packaging type.
- Bad or no history on previous schedules/forecasts.
- Bad understanding between IT and business.

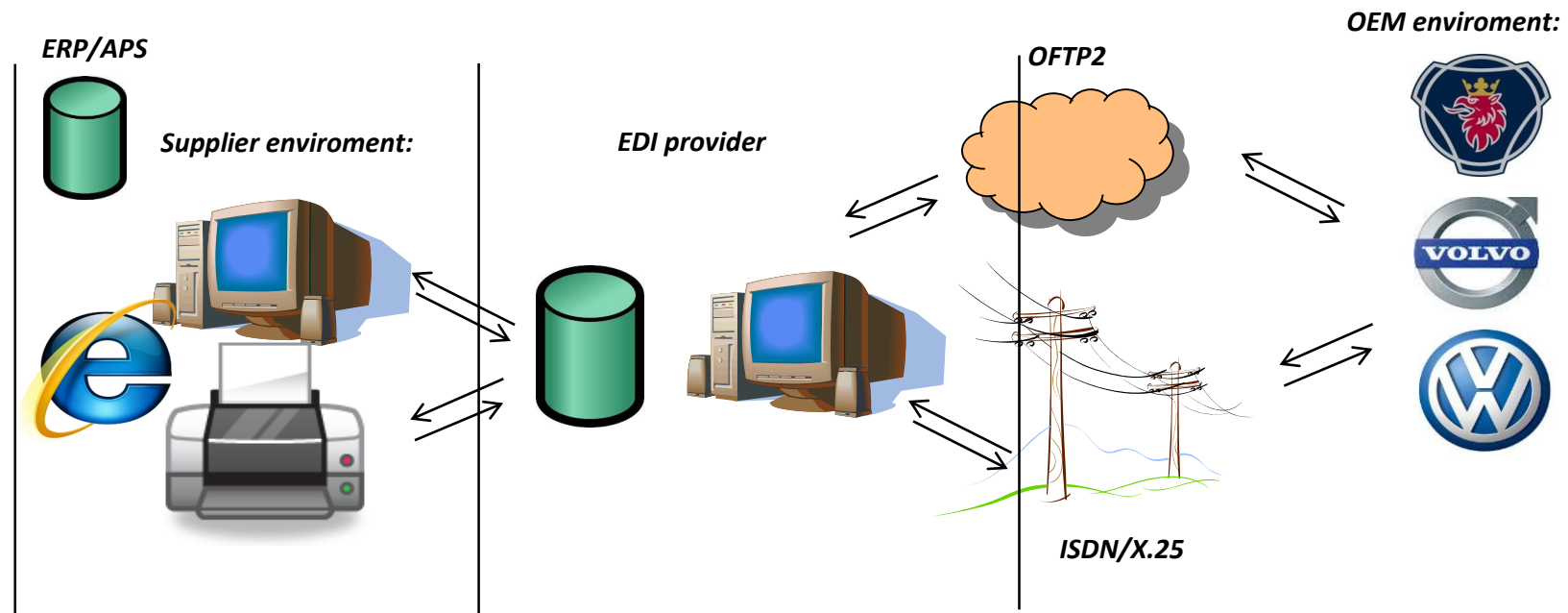
Implementation issues

- Solutions for EDI and labels

Using SaaS with relevant integration to ERP

EDI-provider – solution for multiple OEM

Definition: The EDI-provider have direct communication with OEM or its VAN and provide an interface for interpreting item requirements and an interface for generating ASN and goods labels. No, partial or full integration with ERP.



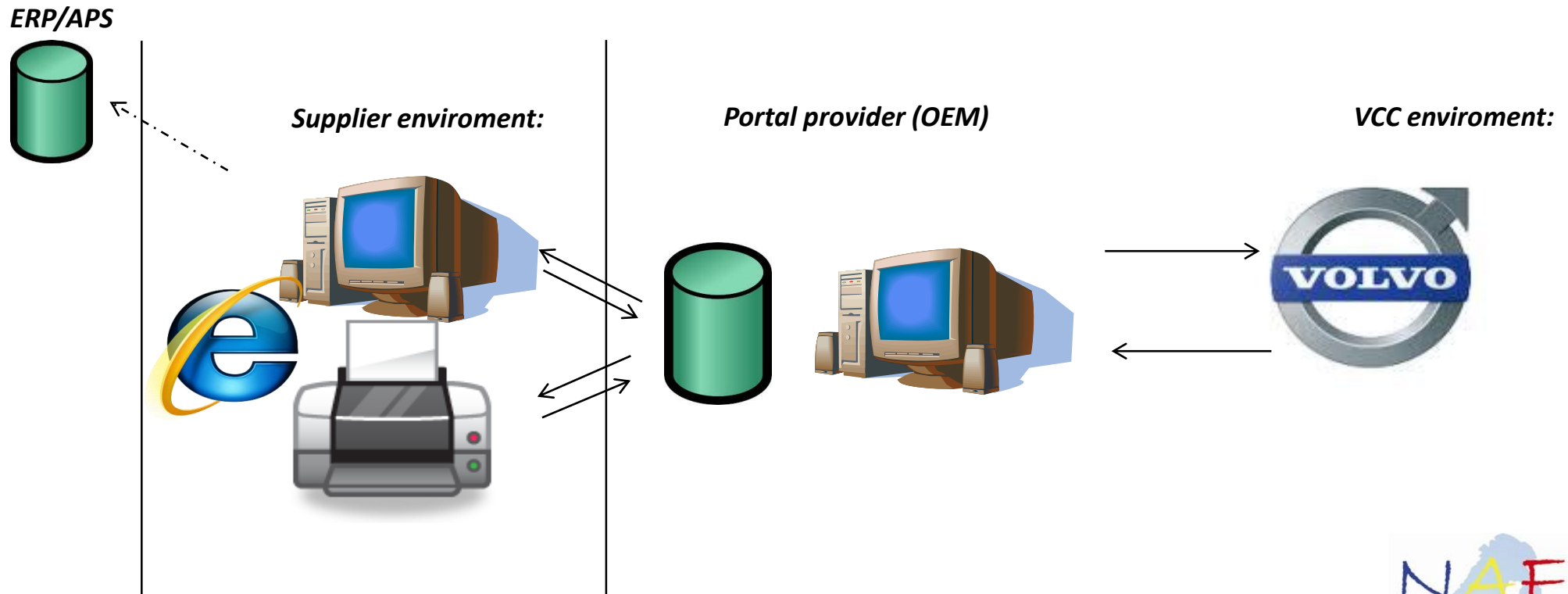
Implementation issues

- Solutions for EDI and labels

Stand alone solution – OEM Portal

Web-EDI for unique OEM (portal) – browsed solution for single OEM

Definition: The OEM provide an interface for interpreting item requirements and an interface for generating ASN and goods labels. Possible integration towards supplier ERP.



Summary & discussion

Glossary

Term/ abbreviation	Meaning	Definition
AIAG	Automotive Industry Action Group	North American Automotive EDI Association
APS	Advanced Planning System	A business system with advanced MRP capability
AS2	Applicability Statement 2	Internet standard for file transfer communications, mainly used in retail and trading
ASN	Advanced Shipping Note	Electronic Despatch Note, equal to DESADV message
Bill of lading		A document which evidences a contract of carriage by sea
Call-off	Call-off/Call-in/Daily Shipping instruction	Short horizon order/requirement document
Carrier	Transporter	Party undertaking transport of goods from one point to another
CMR note	Convention relative au contrat de transport international de Marchandises par route	A document which evidences a contract of carriage by road
Consignee		Party to which goods is to be shipped to
Consignment		Load of one or more shipments to one consignee
Consignment note		A document which evidences a contract of carriage by any means
Consignor	Despatch party	Party sending goods
Consolidation Point	Consignment point/Grouping center	Location where consolidation of consignments takes place.
Data Element		Lowest level of data occurrence
Data Element Separator		The special character used to separate data elements in a data format.
DI	Data identifier	Character(s) to qualify a meaning of data for Auto ID
DM	Data model	Information model connecting data to business process
DELFOR	Delivery forecast/Delivery Instruction	Electronic order/requirement document

Glossary

Term/ abbreviation	Meaning	Definition
Delivery party		Sub-contractor/hub/LSP/supplier
DESADV	Despatch advise	Electronic despatch/delivery note (ASN)
EDI	Electronic Data Interchange	Means to electronically transmit structured data
EDIFACT	Electronic data interchange for administration, commerce and transport	Framework for EDI Exchange, developed by UNECE
ERP	Enterprise resource planning (system)	
(S)FTP	(Secure) File transfer protocol	Commonly used file transfer protocol over Internet
Forwarder	Carrier, transporter	Party arranging the carriage of goods
Freight		Goods in transit
Freight invoice		Invoice issued by carrier for transport cost
FCL		Full container load
FTL		Full trailer load
Hub	Hub/cross docking	Central collection point of goods for further distribution
HRI	Human readable interpretation	Characters readable to the human eye
Incoterms coded		Code specifying terms of delivery and/or transport
Packaging item	Package/kolli	Package identified by unique label number
Intermodal transport		Load of goods forwarded by more than one mode of transport
INVOIC		Commercial invoice message
Invoicee		Party to which invoice is addressed
JAMA		Japan Automobile Manufacturers Association
Kanban		A pull replenishment system, with Kanban card indicating minimum stock.

Glossary

Term/ abbreviation	Meaning	Definition
Kanban number	Card number	Unique identifier for a pull signal from buyer
License Plate		Unique transport unit identifier
Linear symbol		One dimensional bar code symbol
LSP	Logistic service provider	Party taking consignment responsibility for other party
Master Load	Master load/transport carrier	Unit that hold inner packages with same items.
Material release	DELFOR/CALLOFF/ORDER	An order against a blanket order for a requirement
Message		A continuous stream of data elements
Message envelope		Message header and trailer surrounding message
Message Function Coded		A code specifying function (purpose) of message
Message Header		Group of characters defining start of message
Message trailer		Group of characters defining end of message
Message Type Code		Code specifying type of message
Message version		Code specifying version of message
Mixed load	Mixed load (G pallet)	A transport carrier with inner packages with different items
ODETTE	Organisation for Data Exchange by TeleTransmission in Europe	Organization for EDI and Auto-ID in the European Automotive Industry
OEM	Original equipment manufacturer	Commonly used to describe actors in top of value chain
OFTP/OFTP2	Odette file transfer protocol (2)	
Packaging instruction	Package instruction	Agreed packaging instruction for an item, equipment or module

Glossary

Term/ abbreviation	Meaning	Definition
Packaging type code		A code to specify a packaging type
Packing list		Document specifying individual packages and content
Payee		A party to which payments are made
Place of delivery	Place of delivery/discharge	Place of delivery according to terms of transport
Place of despatch		Place where goods is taken over for carriage
Proforma Invoice		Invoice document with same info as conventional invoice. Mostly used for customs declarations
Proof of delivery		Signed copy of delivery receipt (reception receipt)
Pull method		Order based on static stock and replenishment order is immediate upon consumption
Push method		Order based on specified due dates and est transport lead time.
Quiet zone		Blank space surrounding a bar code
Reader		Equipment to read and decode bar codes
RECADV	Reception advise	Reception advise from buyer to supplier on received goods (corresponding with DESADV)
RFID	Radio Frequency identity	Wireless electromagnetic method for data transfer
SBI	Self billing invoice	Invoice (monetary transfer) document from buyer to supplier
Shikyu process	Shikyu process	Shipment of components to a supplier for assembly to a larger component ready for final assembly
Ship-from	Ship-from (Consignor)	Shipping party

Glossary

Term/ abbreviation	Meaning	Definition
Ship-to	Ship-to (Consignee)	Receiving party
Shipment		Load of one or multiple transport carriers shipped from one consignee to one consignor
Shipper	Shipper (Consignor)	Party sending goods
Subset	Subset/application of framework	Framework (business rules) within larger framework
Symbology		Framework for bar codes standard
Syntax	Data grammar	Data grammar, data sequence framework
TOD	Terms of delivery	Conditions agreed between buyer and seller on delivery
TOF	Terms of freight	Conditions agreed between buyer of transport and carrier
TOT	Terms of transport	Conditions agreed as above for physical transport of goods
Tracing	Tracing (traceability)	Function to trace goods, items, consignments and so on
Tracking		Function to maintain trace of goods, items, consignments and so on
Transshipment		Transition from one means of transport to another
THU	Transport handling unit	One separately identifiable transport unit (eg pallet)
Transport instruction		Generic term document with details to arrange transport
Tier	Tier 1, Tier 2 ...	Level in supply/value chain
VAN	Value added network	Communication hub with features added
VDA	Verband Der Automobilindustrie	German Automobile Manufacturers Association
Web-EDI	Web-EDI	Web accessible EDI system (via Portal)

Glossary

Term/ abbreviation	Meaning	Definition
Ultimate consignee		Final place of discharge (consumption place)
UML	Unified modeling language	Set of diagrams communication requirements of a business process
UN/CEFACT		United Nations Centre for Trade Facilitation and Electronic Business
Waybill	Consignment note	A document which evidences a contract of carriage by any means
XML	Extensible markup language	Data format
X.12		American EDI framework for EDI
X.25	X.25	Datapak, older analog communication network
X.400	X.400	Older but still existing communication network