



# GS1 eCom for the retail industry

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# Agenda

- Short introduction to GS1 and GS1 Sweden
- Overview of GS1's global standards
- Introduction to eCom and GS1 Sweden's eCom user profiles
- Overview of eCom based business processes
- Master Data and the use of a data pool
- Ordering of goods
- Delivering goods
- Invoicing of goods
- General principles and conditions
- Wrap-up and discussion

# **SHORT INTRODUCTION TO GS1 AND GS1 SWEDEN**



## GS1 in a nutshell



The global  
language of  
business

**GS1** is a not-for-profit organisation that develops global standards for the identification of goods and services.

GS1's standards foster **cooperation** and encourage **information-sharing** worldwide.

GS1 helps businesses and organisations improve the **efficiency** of their supply and demand chains by adding useful information to any exchange of goods or services.

# GS1 Member Organisations



■ Countries with a  
GS1 Member  
Organisation

■ Countries served on a  
direct basis from GS1  
Global Office (Brussels)

110 Member Organisations.  
150 Countries served.  
Local services, global reach.



# GS1 in numbers

International organisation created in **1977** (EAN International)

- Over **30** years of experience
- **110** member organisations spanning 5 continents
- Over a **million** companies doing business across **150** countries
- Serving **all points** in the supply chain
- Over **20** sectors (FMCG, healthcare, transport, defence...)
- Over **5 billion** transactions daily



# GS1 Values

- GS1 is a not-for-profit organisation
- GS1 is neutral from our business partners
- GS1 is user-driven and user-governed
- GS1 serves all companies: from multinationals to SMEs
- GS1 is a platform for collaborative agreement between partners

# Some key user companies

## Retail

**METRO** Group

**Ahold**

**TESCO**

**groupe carrefour**

**WAL\*MART**

**BEST  
BUY**

## Consumer Goods

**P&G Gillette**

**Kimberly-Clark**

**Unilever**

**LEGO**

**L'ORÉAL**

## Food & Beverage

**Nestlé**

**Kellogg's**

**Coca-Cola**

**Cadbury Schweppes**

**GENERAL MILLS**

## Healthcare & Life Sciences

**Johnson & Johnson**

**Bayer**

**Pfizer**

**Baxter**

**AstraZeneca**

## Electronics & High Tech

**SONY**

**PHILIPS**

**hp**  
invent

**SAMSUNG**

**Microsoft**

## Logistics & Transport

**DHL**

**ups**

**EUROPOOL SYSTEM**

**FedEx**

**MAERSK LINE**



# Some key user companies

## Aerospace & Defense



**Honeywell**



## Chemical



**ExxonMobil**



## Industrial

**3M**



## Footwear & Apparel



Levi Strauss & Co



PERRY ELLIS



## Automotive





# GS1 Sweden

*“GS1 Sweden simplifies companies’ local and global trade”*

Through cooperation, GS1 develops sector-neutral standards and services which enable efficiency improvements in the flow of information and goods





# Our development in Sweden

- Started in Sweden in 1977
- Focus on supply chain
- Formerly known as EAN Sweden
- 10 000 customers
- Owned by the Consumer Goods Retail Industry





# Some of our customers



Welcome





# Validoo – Our Business Services

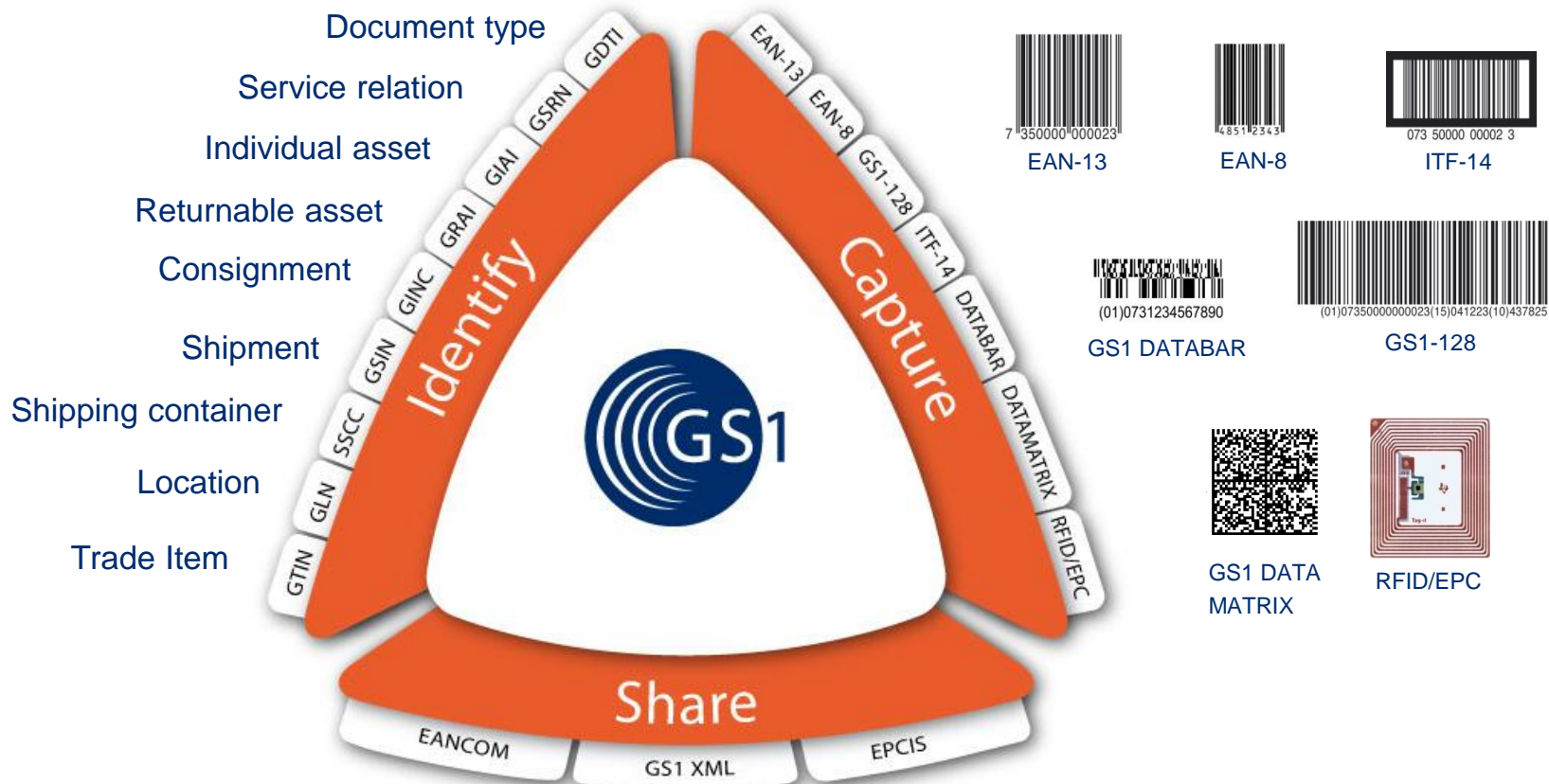
Used by suppliers and retailers for exchange of high quality master data and verification of GS1 standard compliance

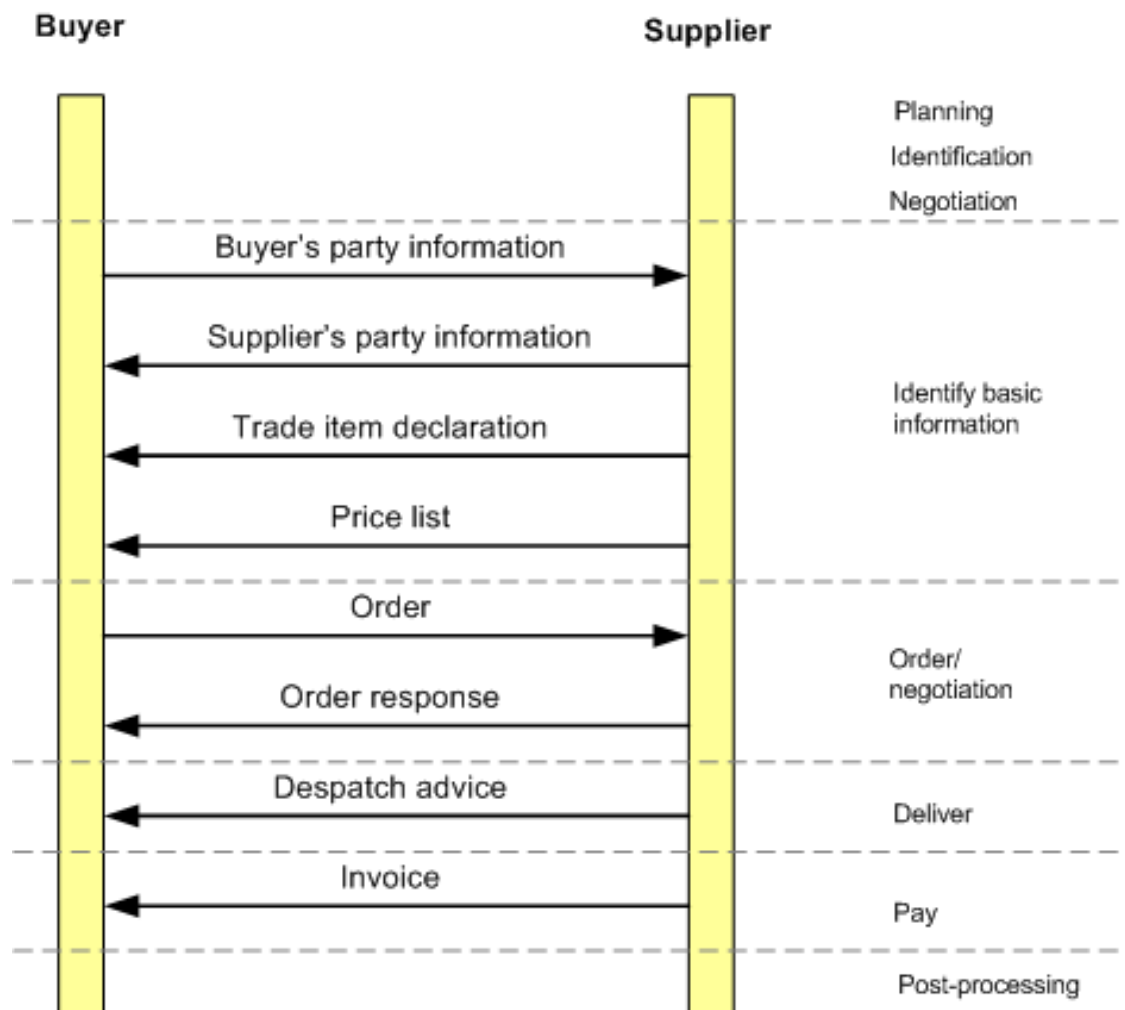
- **Validoo Item** checks, stores and distributes trade item master information
- **Validoo Q-lab** verifies that trade item master data is aligned with the actual trade item
- **Validoo Directory** allows users to publish and search for party and location information
- **Validoo BarCodeCheck** verifies barcode quality and readability



# OVERVIEW OF GS1'S GLOBAL STANDARDS

# The GS1 System

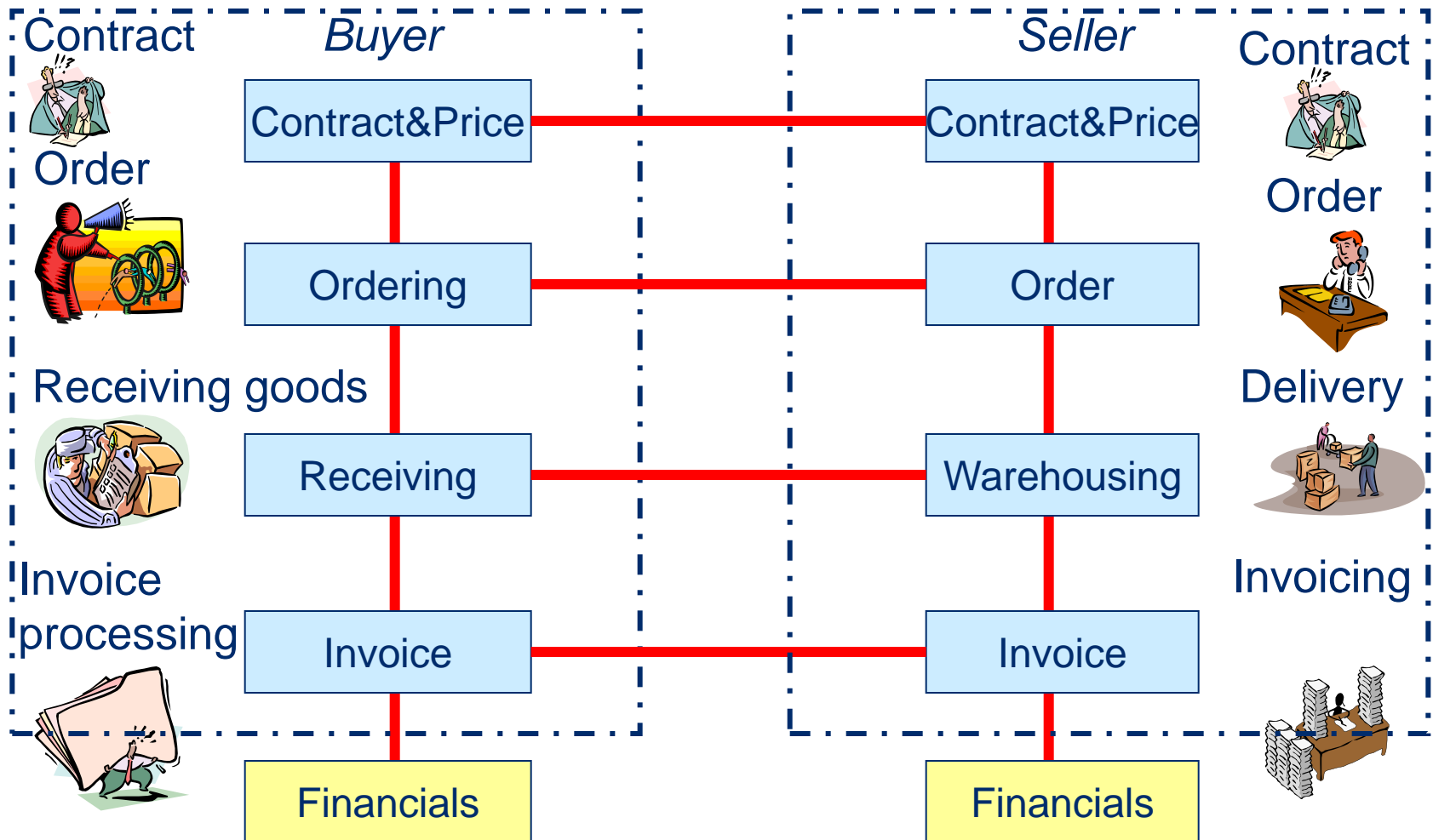






# **INTRODUCTION TO ECOM AND GS1 SWEDEN'S USER PROFILES**

# Cooperating IT systems and organisations





# GS1 Sweden's harmonized business processes

- Call-off against frame contract
- Periodic invoicing
- Retail supply chain
  - Basic retail supply chain
  - Contract settlement
  - Returns
- 3<sup>rd</sup> Party Logistics



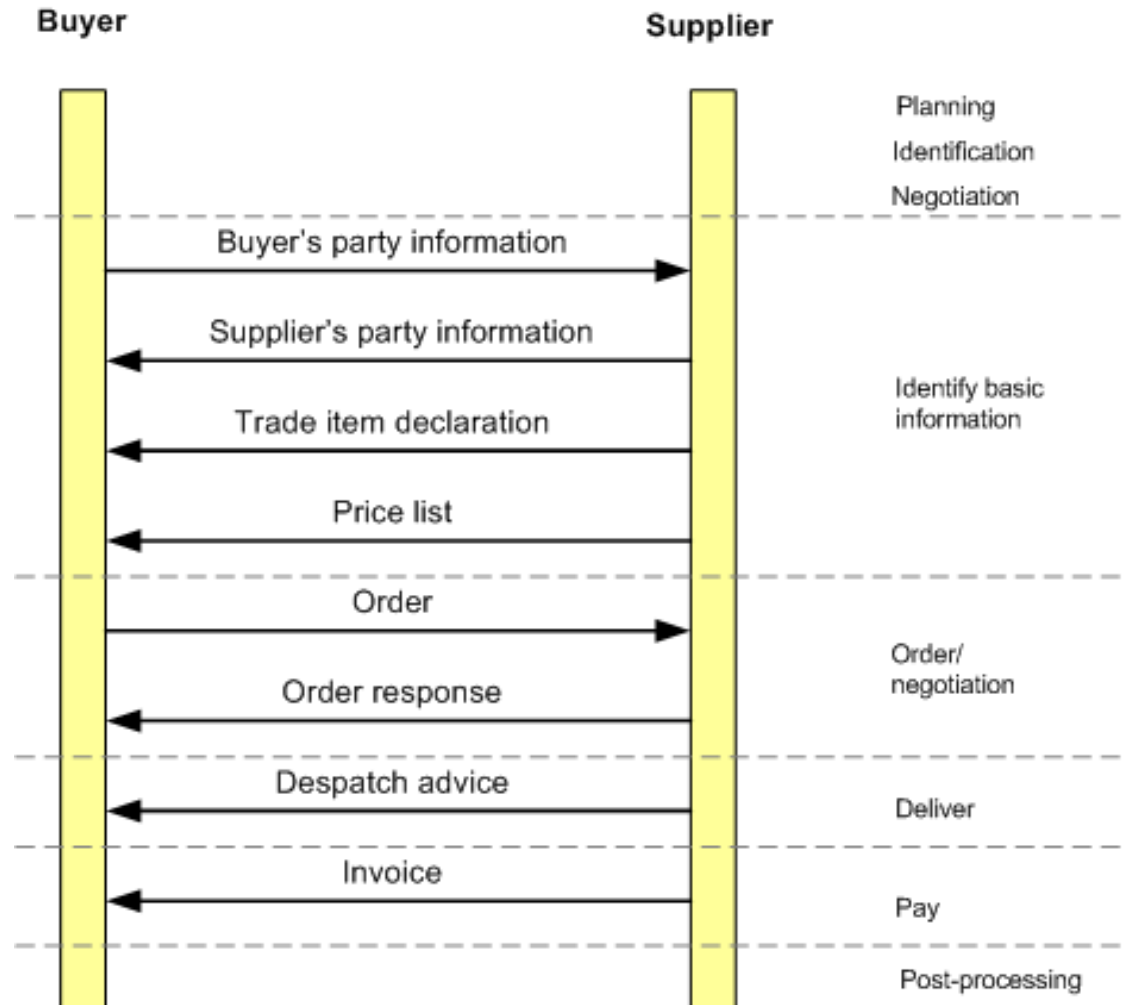


# Basic Retail Supply chain

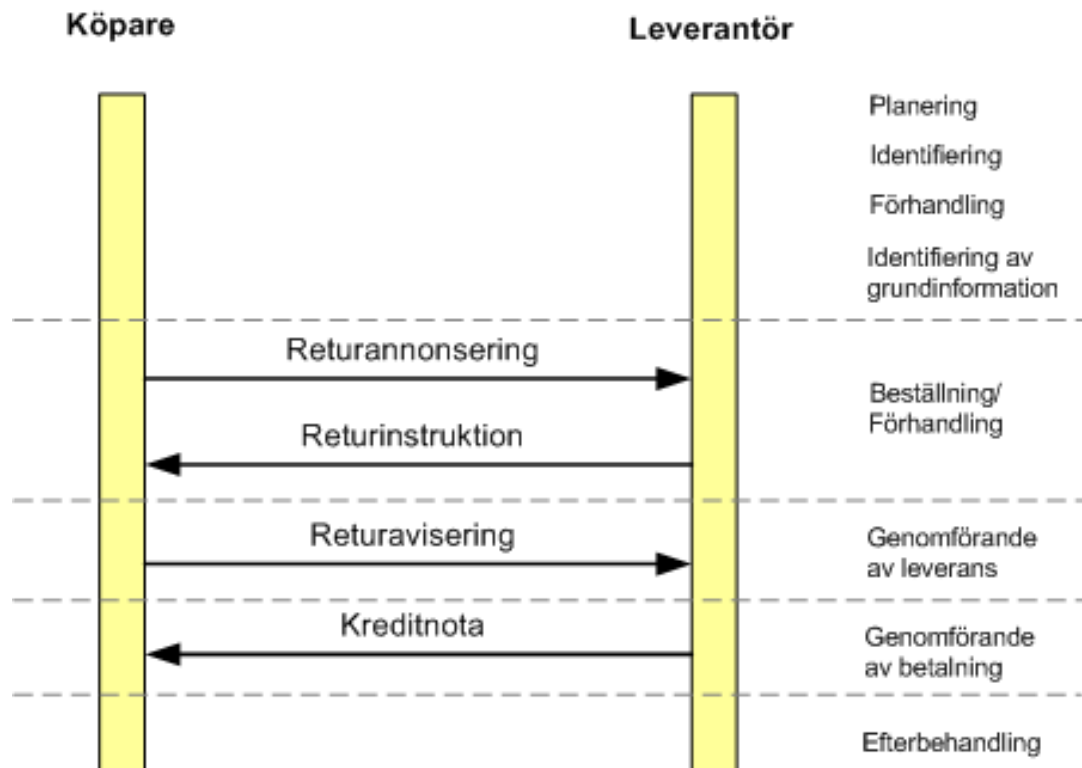
- A structured business process designed to improve supply chain efficiency by electronic document exchange
  - Efficient logistics
  - Traceability
  - Automated invoice processing
- Measurable effects
  - Example: Konsum Nord – 90% savings on administration (small Swedish retailer)

# OVERVIEW OF ECOM BASED BUSINESS PROCESSES

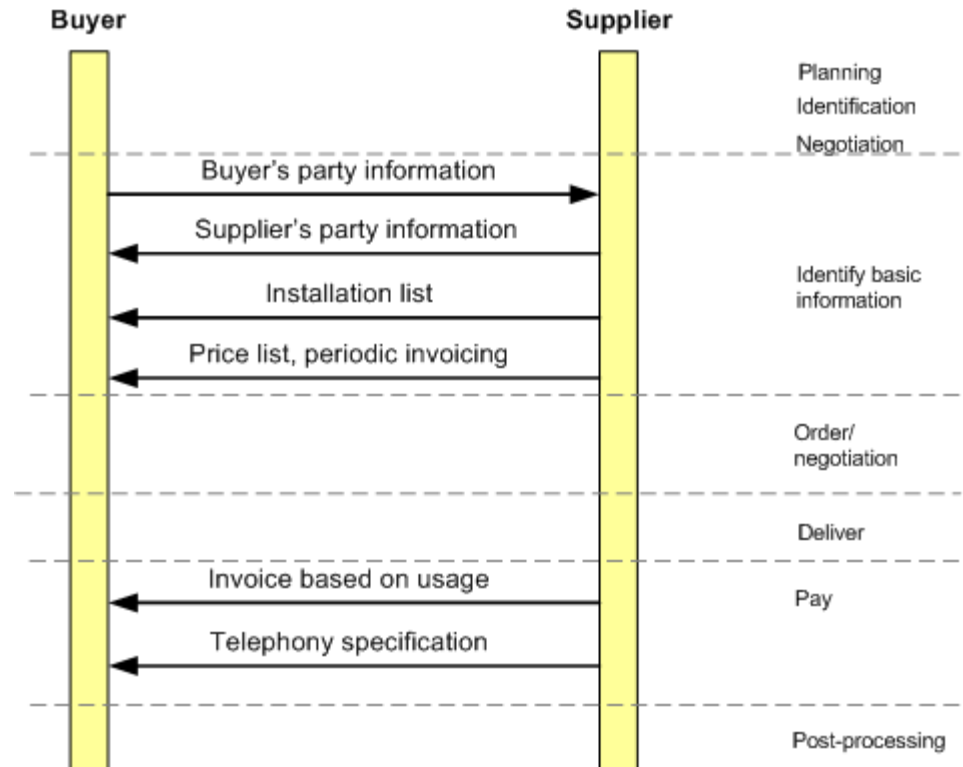
# Basic Retail Supply Chain



# Returns process

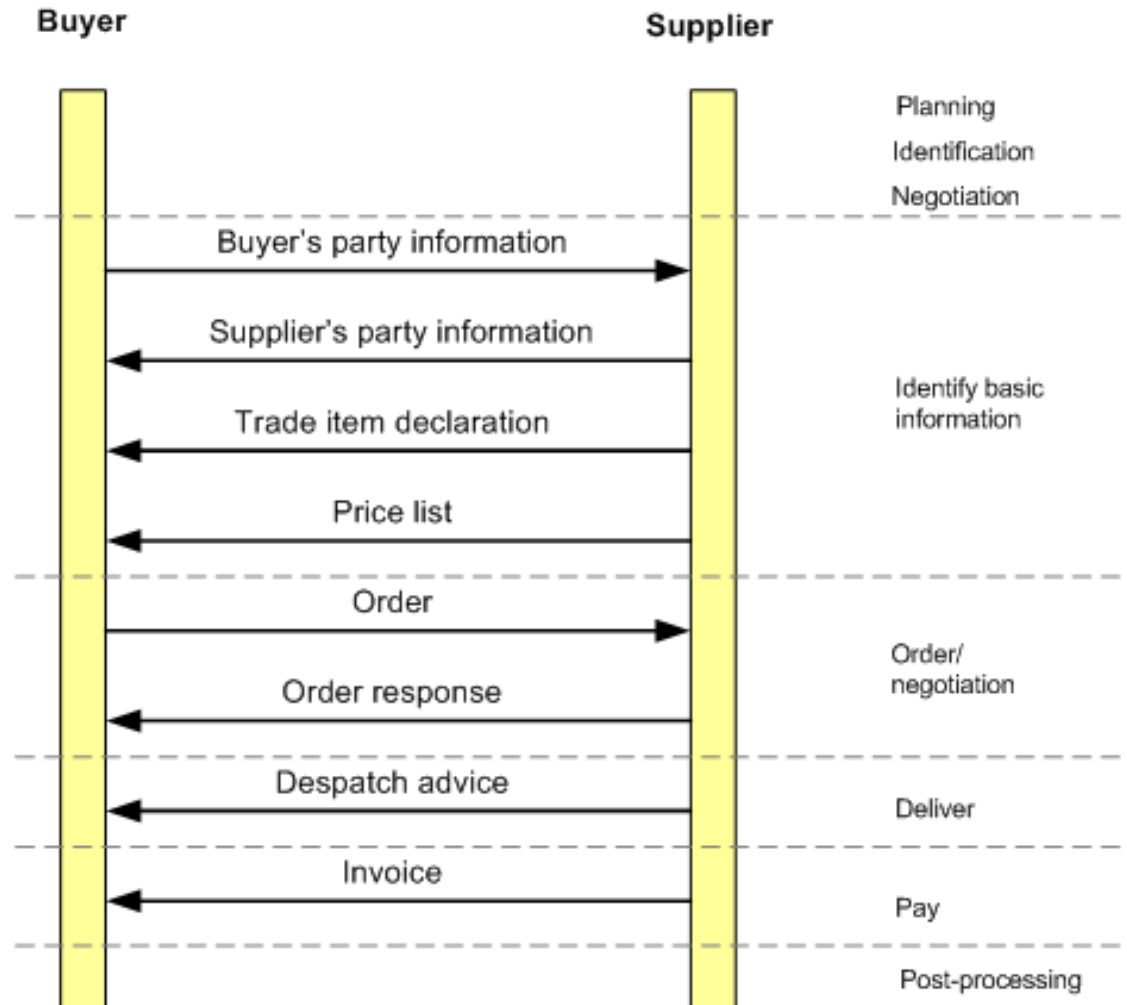


# Periodic invoicing (electricity, telephony)

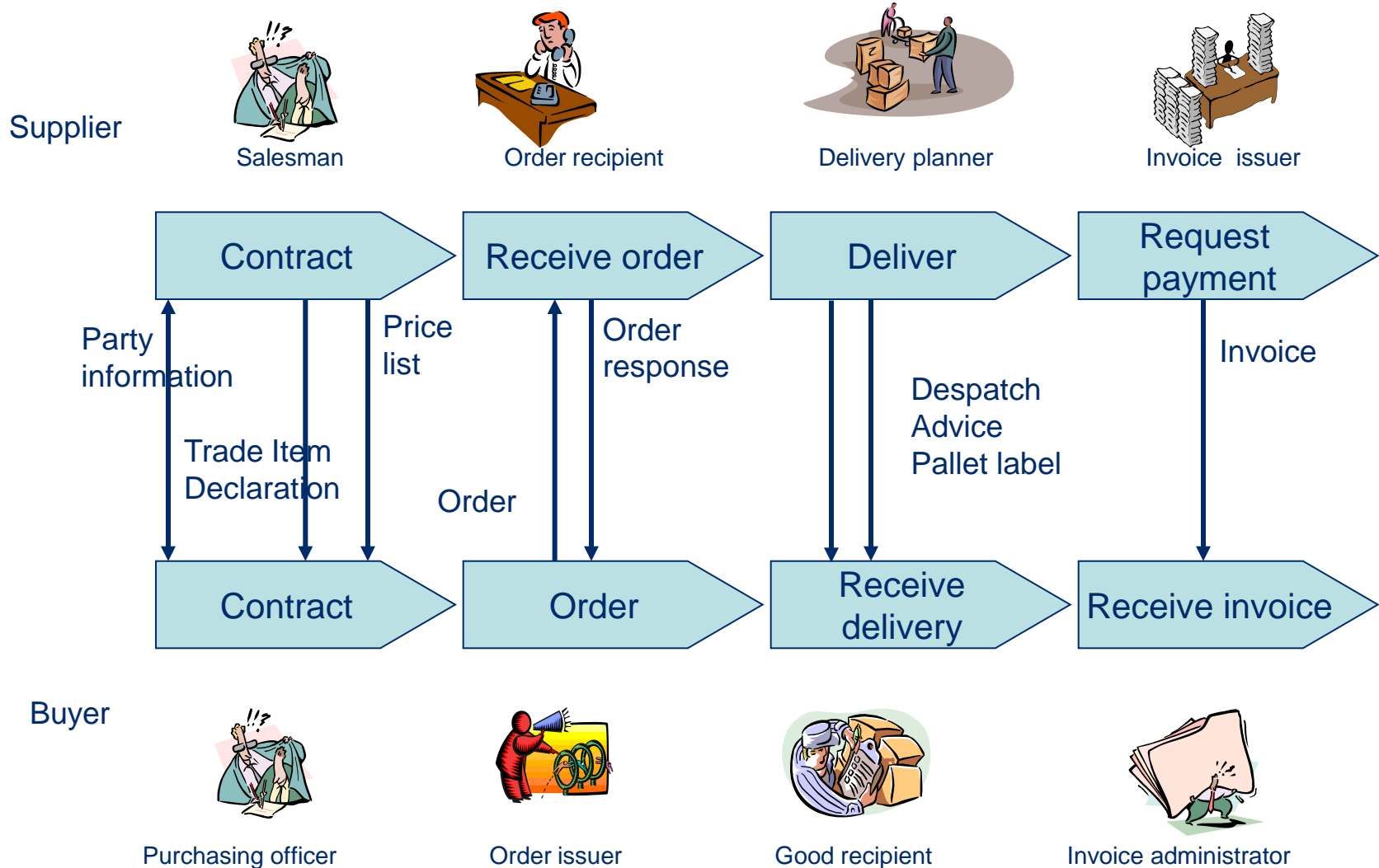




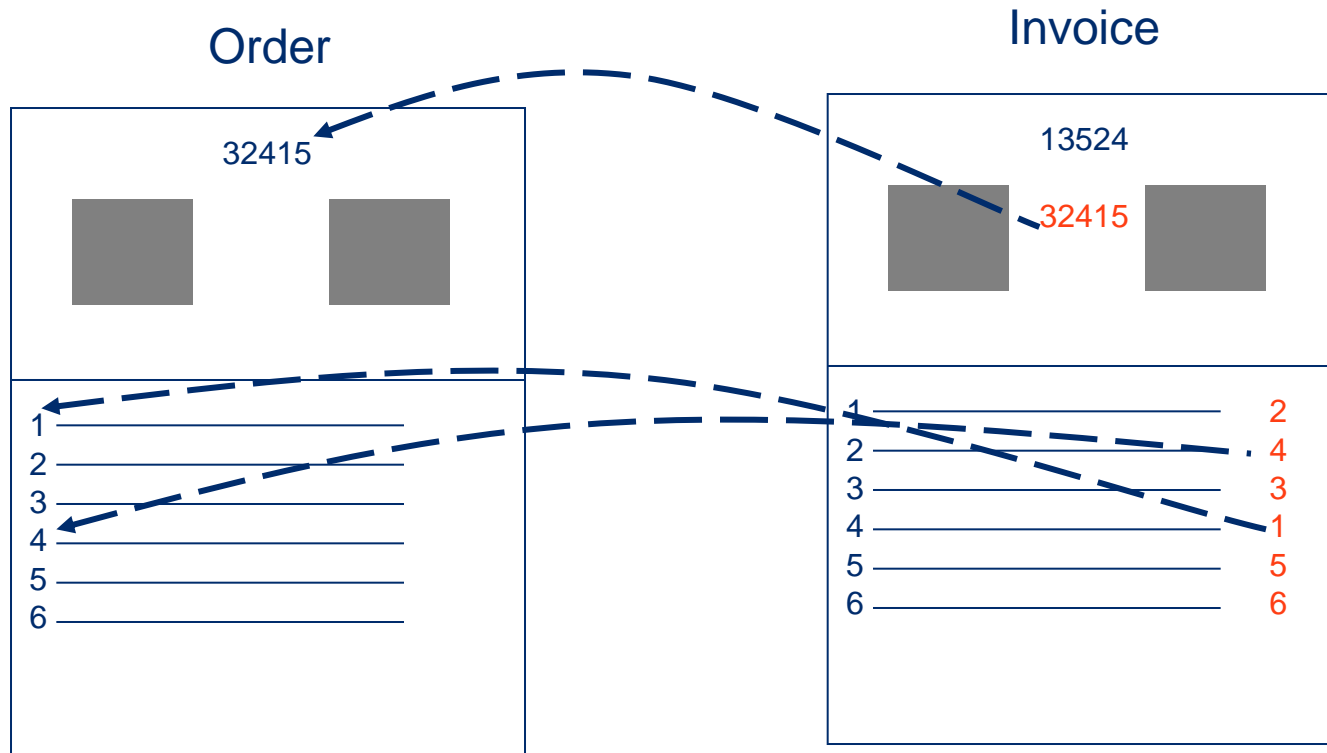
# Basic Retail Supply Chain



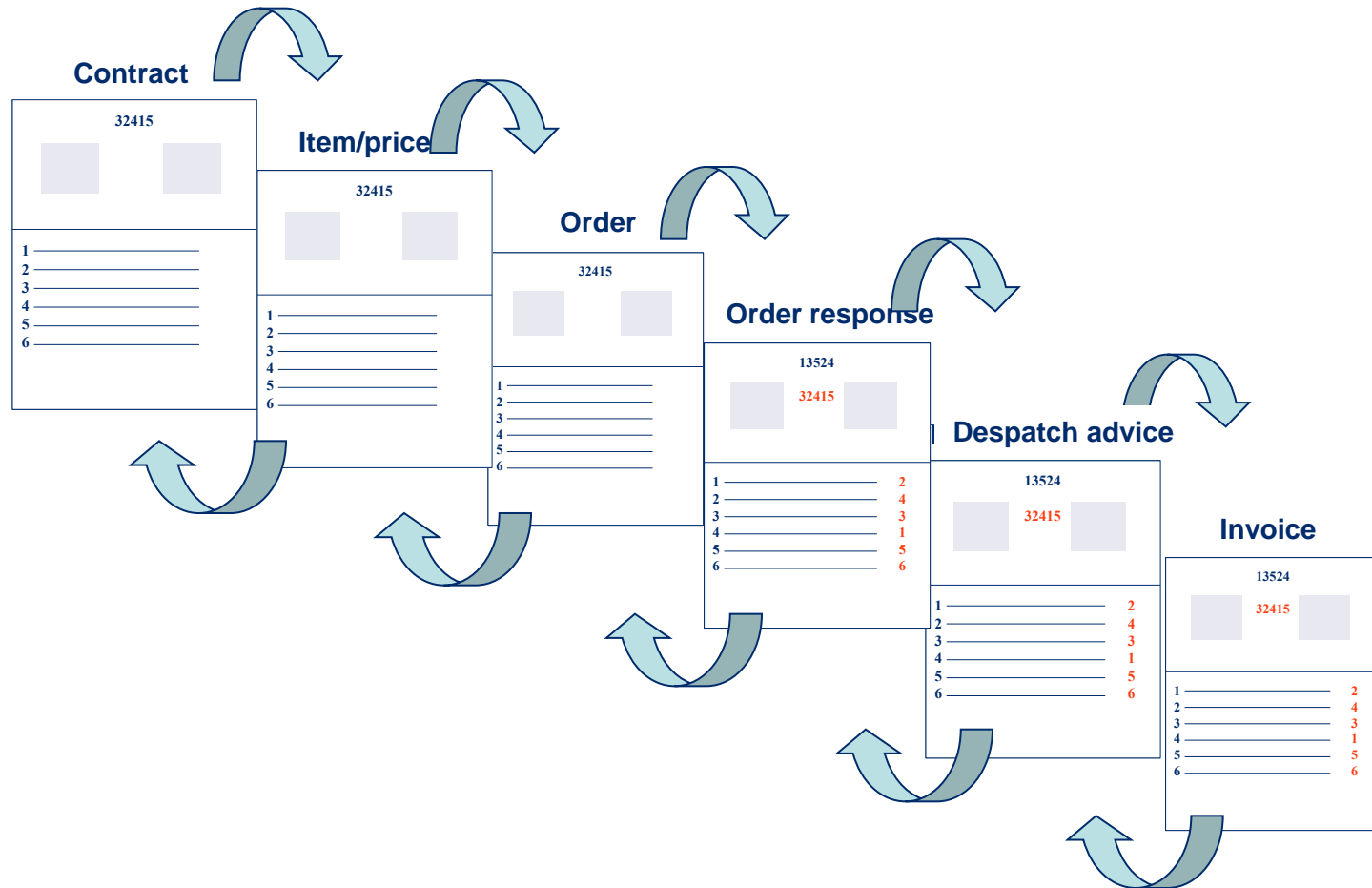
# Business Process Interaction



# Chain of references between business documents



# Chain of references between business documents



# MASTER DATA AND THE USE OF A DATA POOL



# Master Data

- Master Data
  - Contracts (not a GS1 standard)
  - Supplier – Customer data (party information)
  - Trade Item Information
  - Price
- Automatic processing
  - No manual data entry at recipient side
  - Requires manual verification and approval



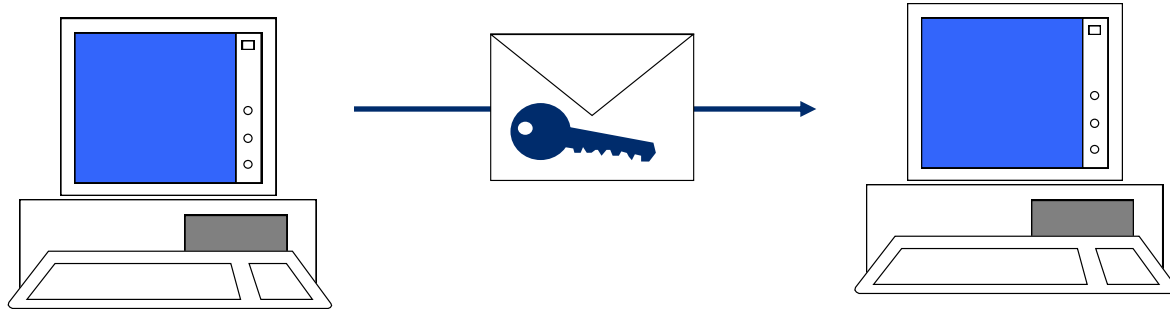
# Ownership of Master Data

- The Information Provider **owns** the master data
- If the master data is incorrect, the **information provider** is asked to correct the information and resend
- Master Data must be synchronized

# Party information

## GLN – the key to information

7334567890129



Identification of locations enables an effective **flow of goods and information** between trading partners :

- Exchange of EDI messages
- Route information
- Physical marking of locations



# Party Master Data

## ❖ Example

- Information from seller to buyer
  - GLN global location number
  - Name
  - Addresses
  - Payment instructions (account number, etc)
  - .....
- Information from seller to buyer
  - GLN global location number
  - Role
    - Commercial buyer (Axfood)
      - » Name
      - » Address
    - Consignee information (Dagab)
    - Delivery place (t ex Dock no 12)
  - .....

# THE FLOW OF ITEM MASTER DATA

# Inbound deliveries to DC



# Outbound deliveries from DC





# Retail store operations

Tvättm Sensitive  
Ariel 750 g

X 6  
03/27  
P 150

1710342



Jämförpris

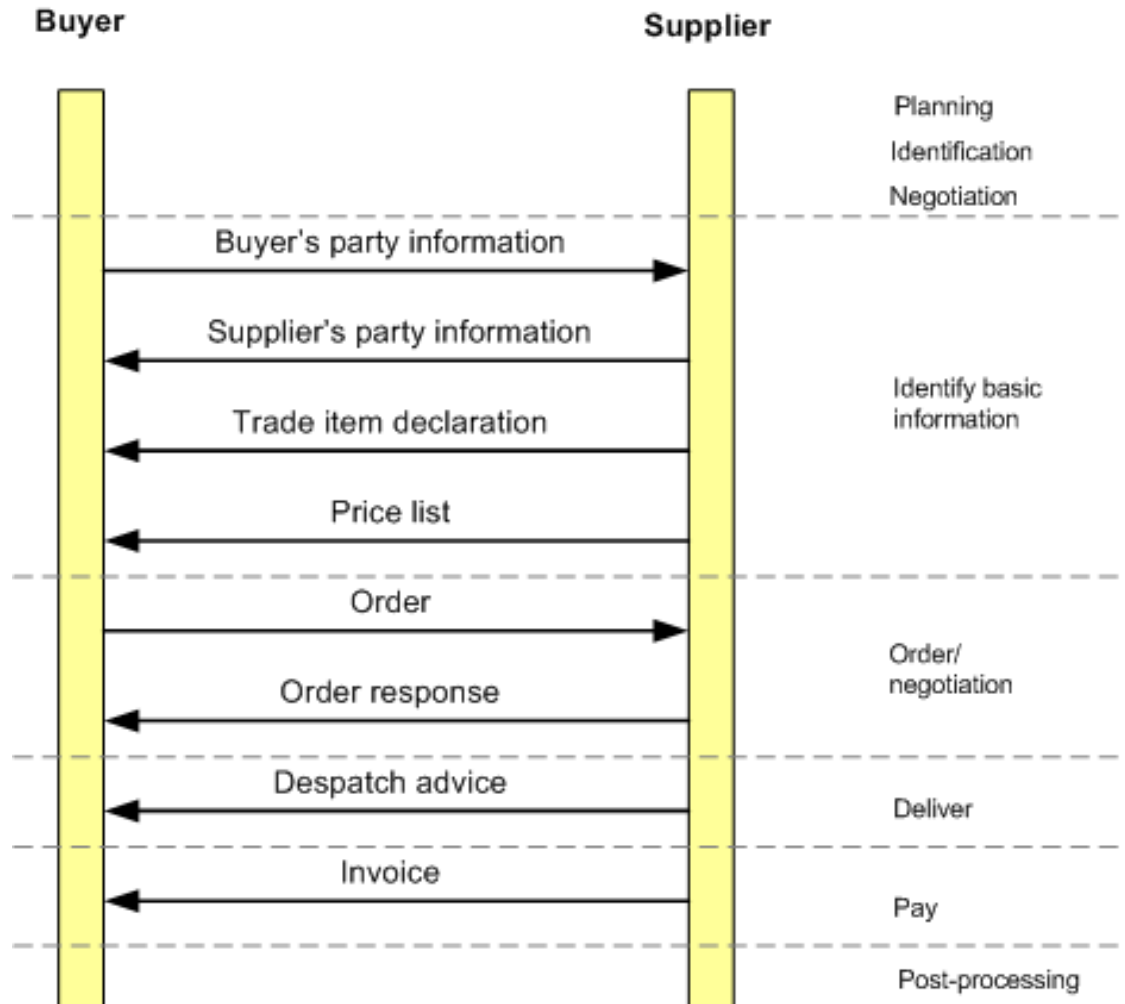
1.50

Kr/tvätt

29<sup>90</sup>  
Kr/Förp

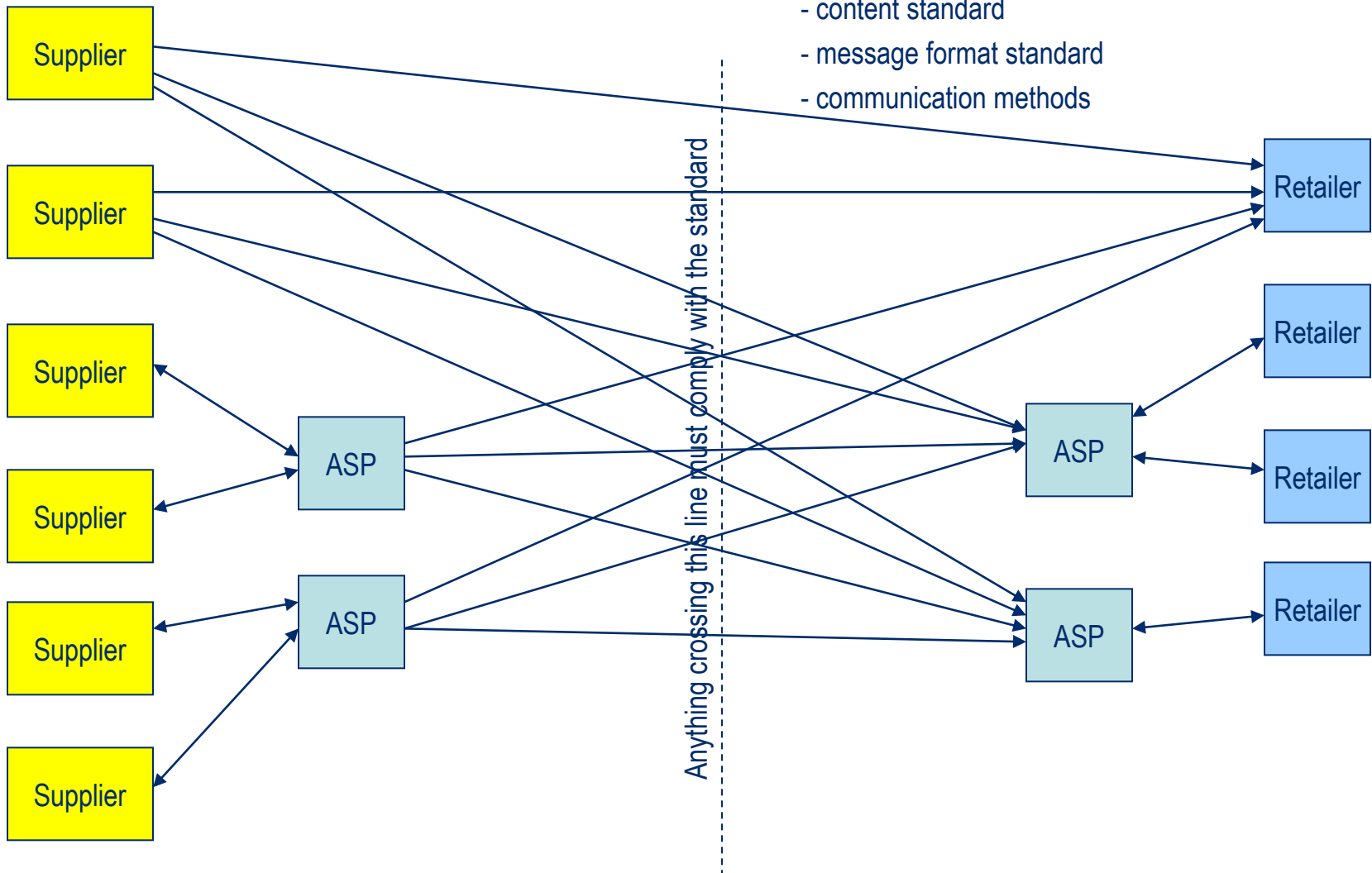


# Retail Supply Chain - ESAP 20



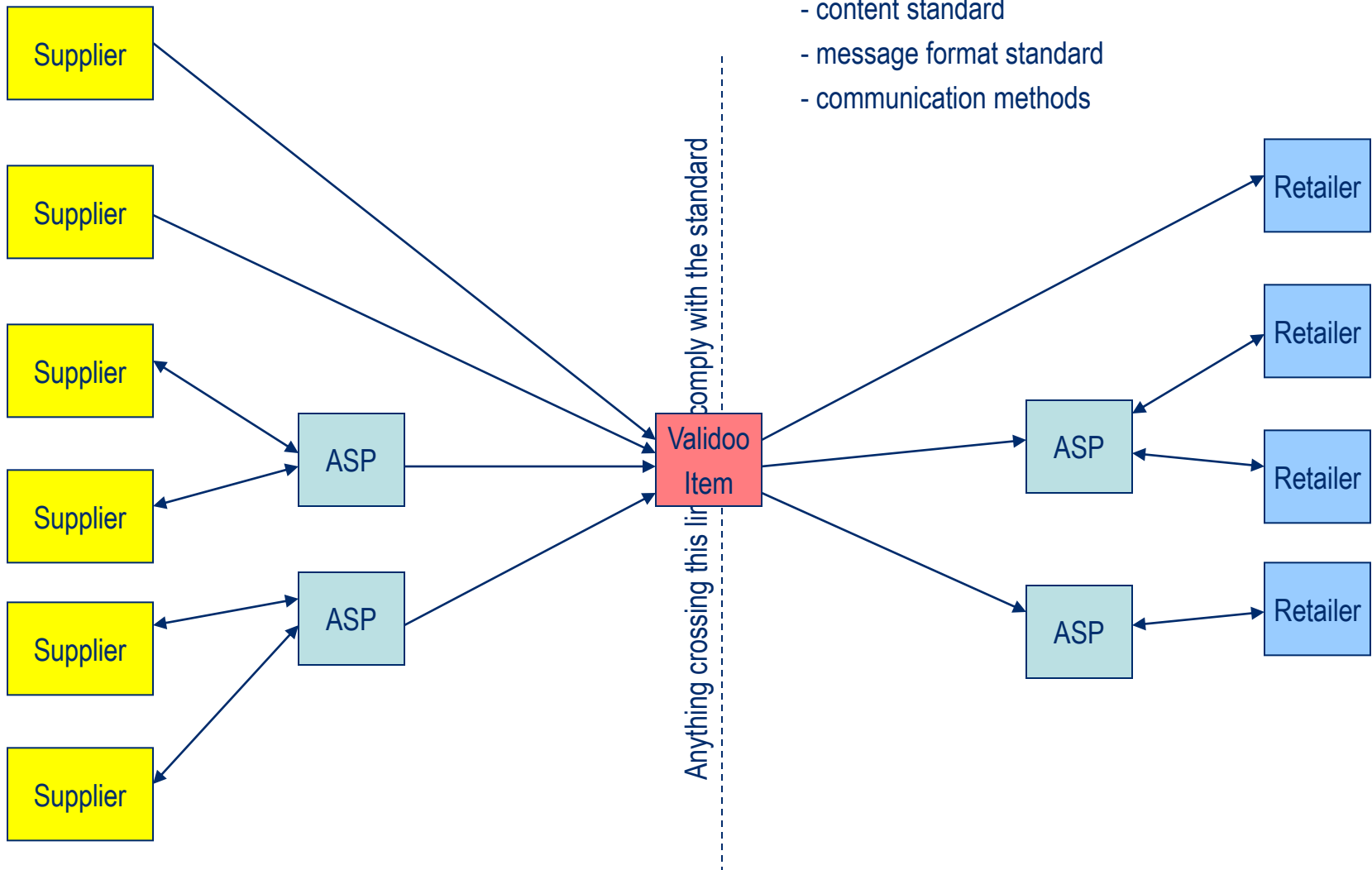
Standardized interface, specified by users and GS1:

- scenario
- content standard
- message format standard
- communication methods



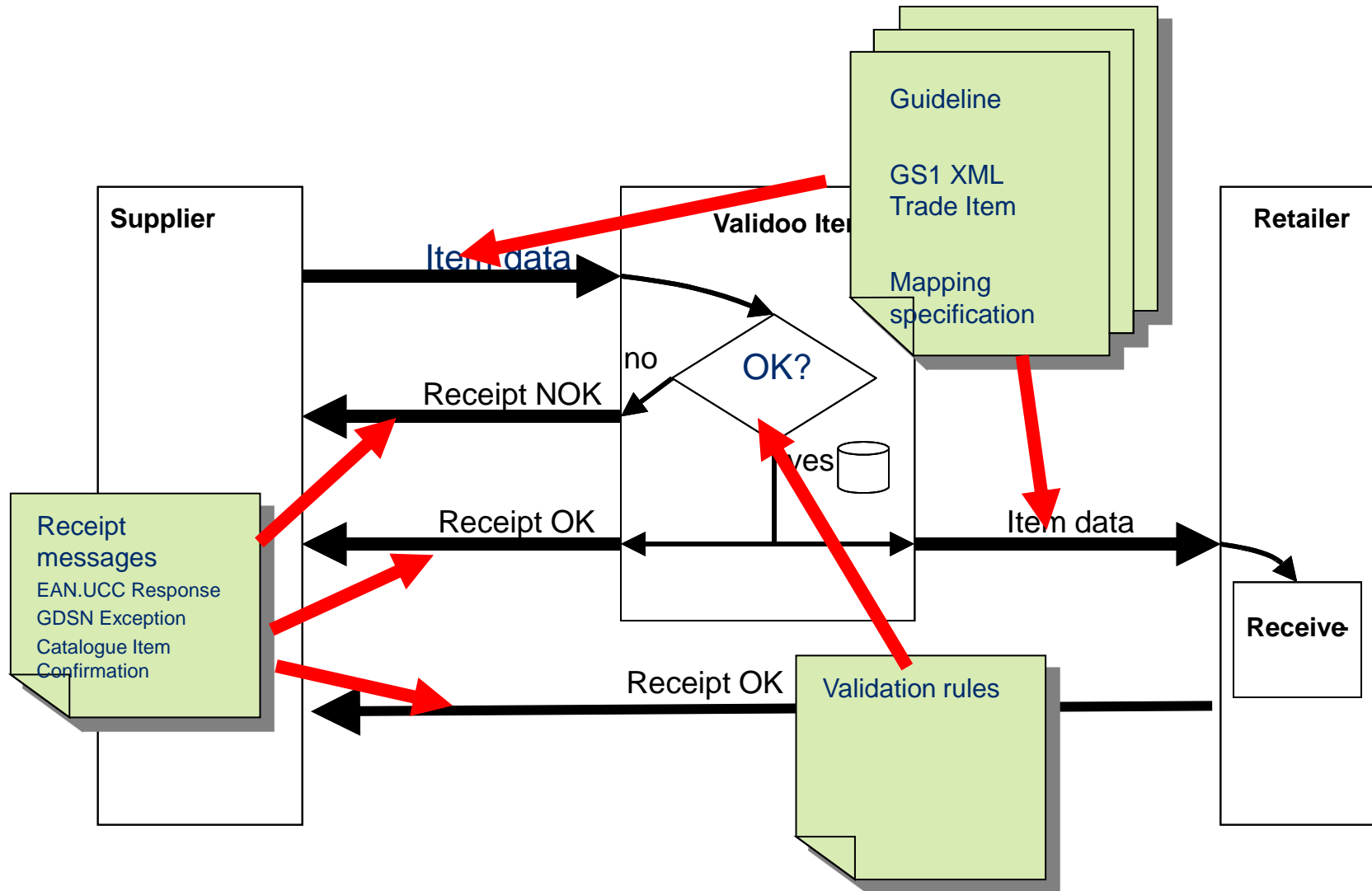
Standardized interface, specified by users and GS1:

- scenario
- content standard
- message format standard
- communication methods





# Flow through Validoo Item



All documentation available at [www.gs1.se](http://www.gs1.se)



# Deployment Status Item Information

- Suppliers: 1377 connected
- Recipients: Axfood, COOP, ICA, Konsum Nord, Konsum Värmland, Konsum Gävleborg, Bergendahls, Menigo, Apoteket, Kuponginlösen, Nielsen
- 10 verified supplier solutions
- 96% of all new FMCG items for FMCG retailers

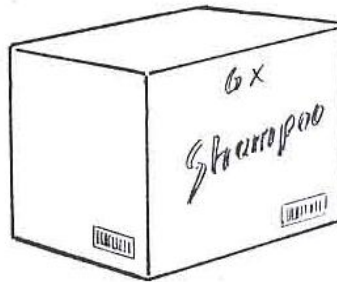


# **CONTENT OF GS1 TRADE ITEM INFORMATION**

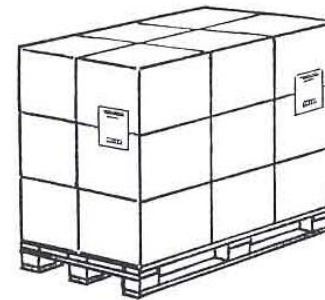
# Item hierarchy - example



**Base unit**

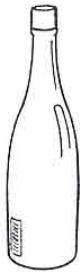


**Case**



**Pallet**

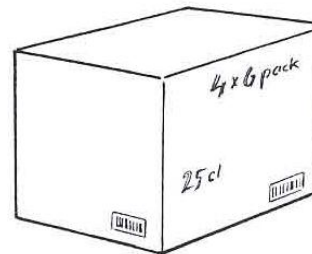
# Item hierarchy - example



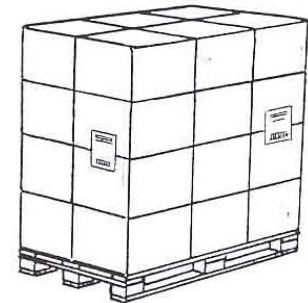
**Base unit**



**Case 1**



**Case 2**



**Pallet**



# Trade Item Status

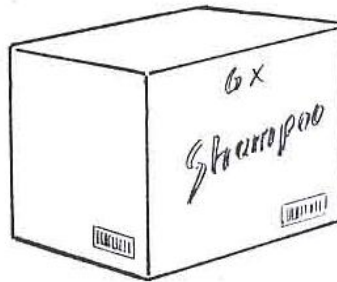
Each trade item can be a:

- Consumer unit
- Orderable unit
- Despatch unit

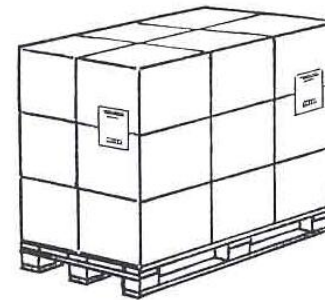
# Item hierarchy – examples with status



Base unit  
**Consumer item**

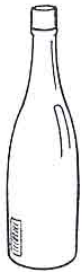


Case  
**Orderable item**



Pallet  
**Despatch unit**

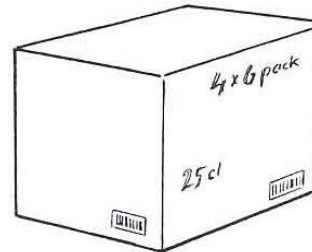
# Item hierarchy – examples with status



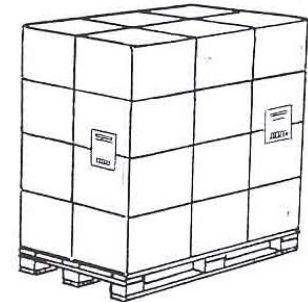
Base unit  
Consumer unit



Case 1  
Consumer unit



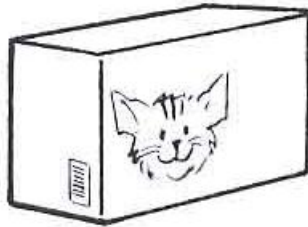
Case 2  
Orderable unit



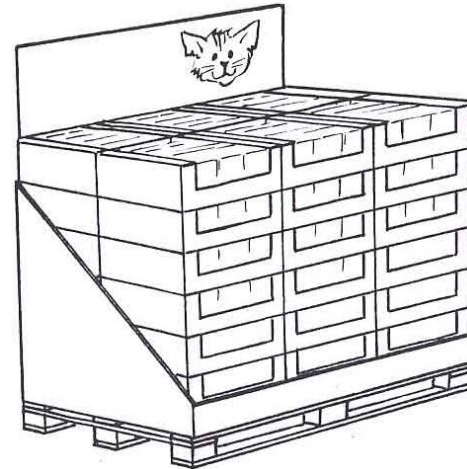
Pallet  
Despatch unit



# Item hierarchy – example display full pallet



Base unit  
**Consumer unit**



Pallet  
**Orderable unit**  
**Despatch unit**

# Item hierarchy – example food service item

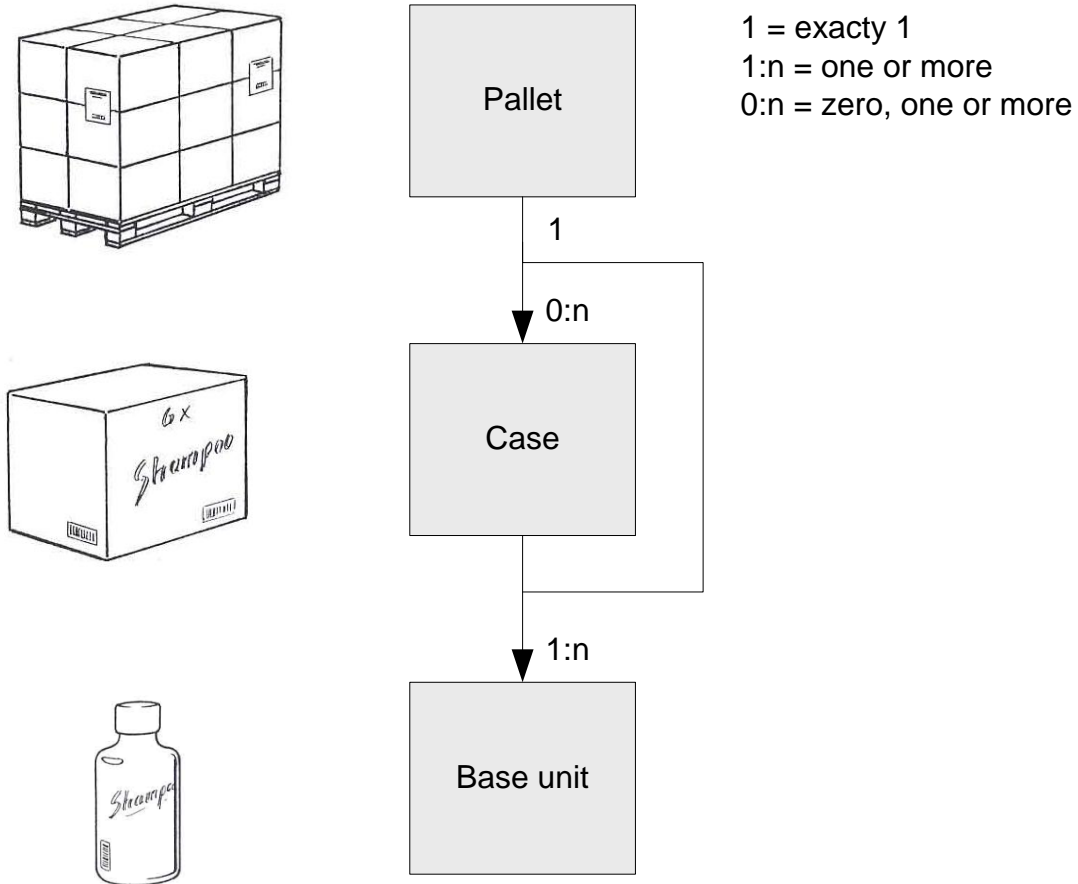


Case unit  
**Orderable unit**

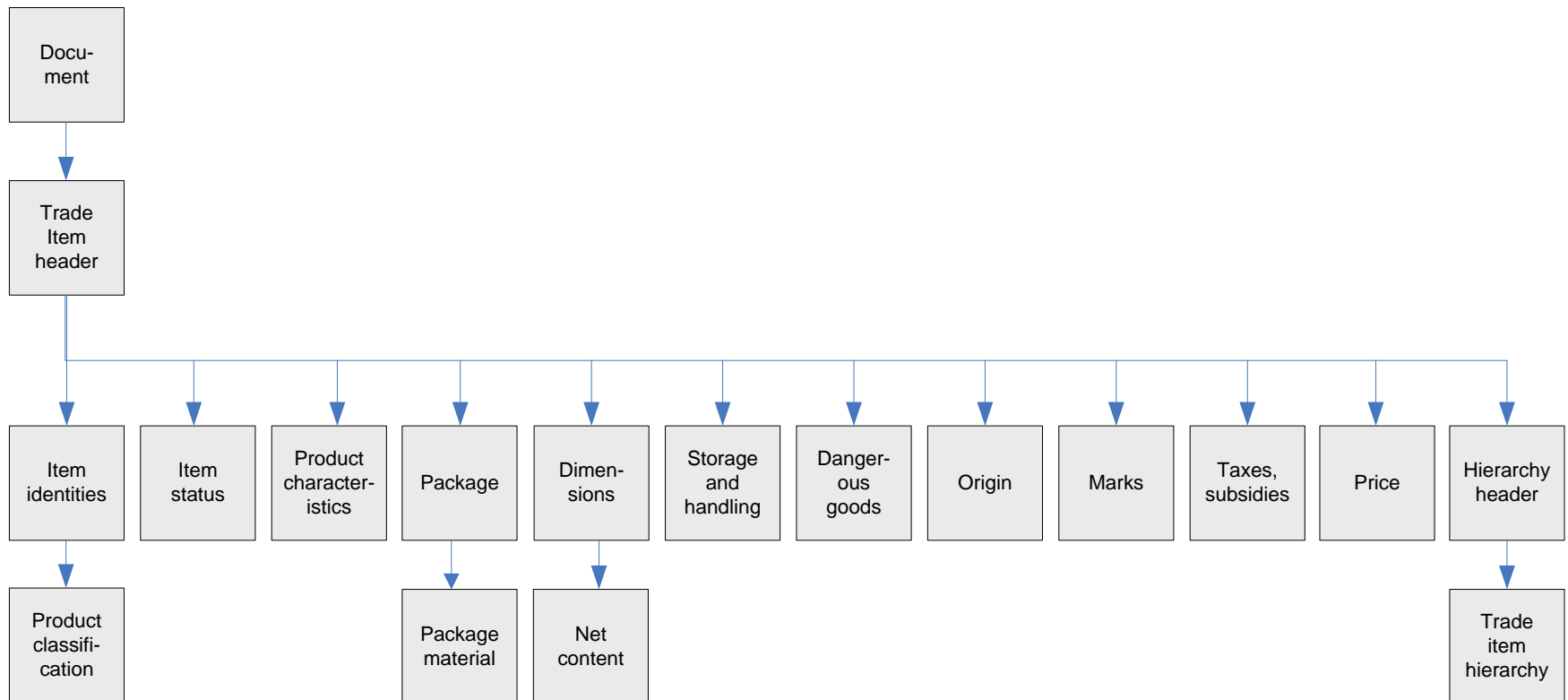


Pallet  
**Despatch unit**

# Item information structure

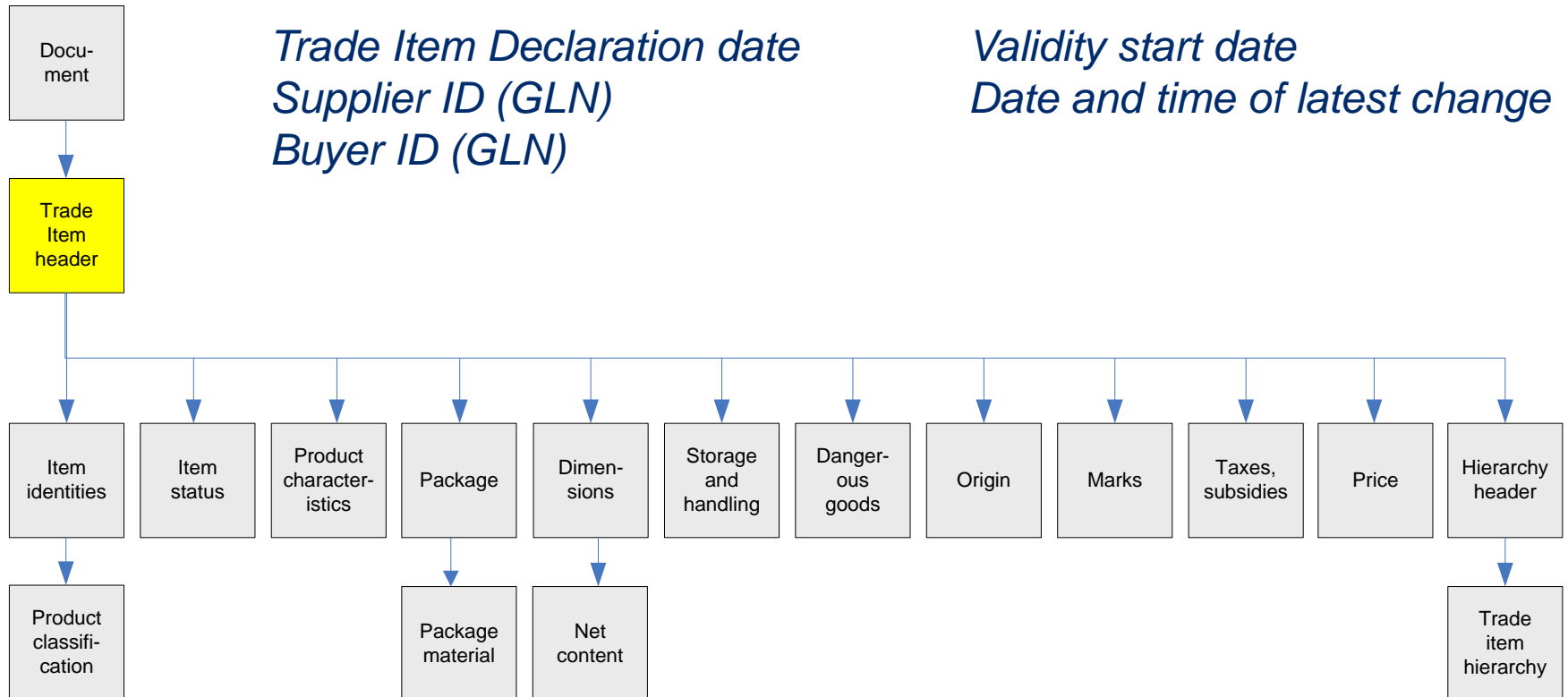


# Item structure



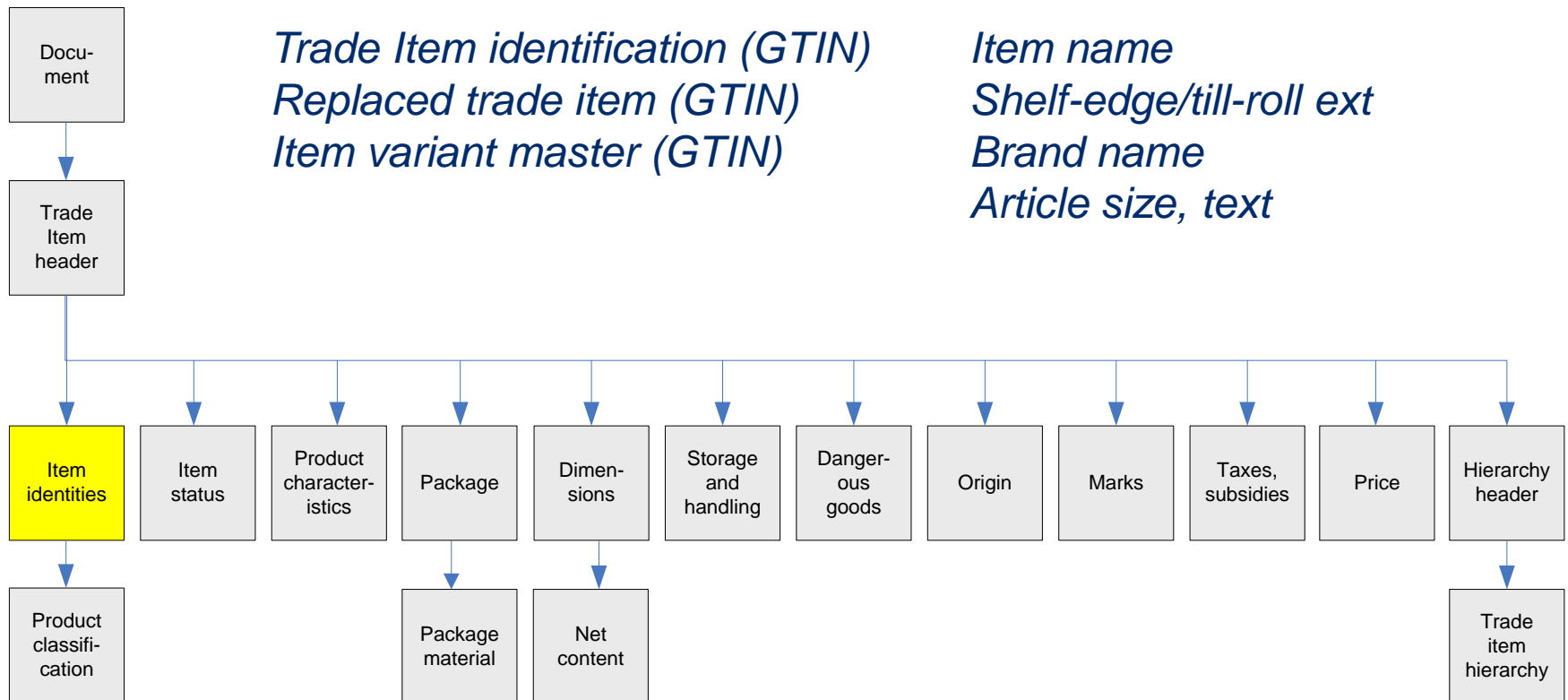
# Item structure

## Trade Item header



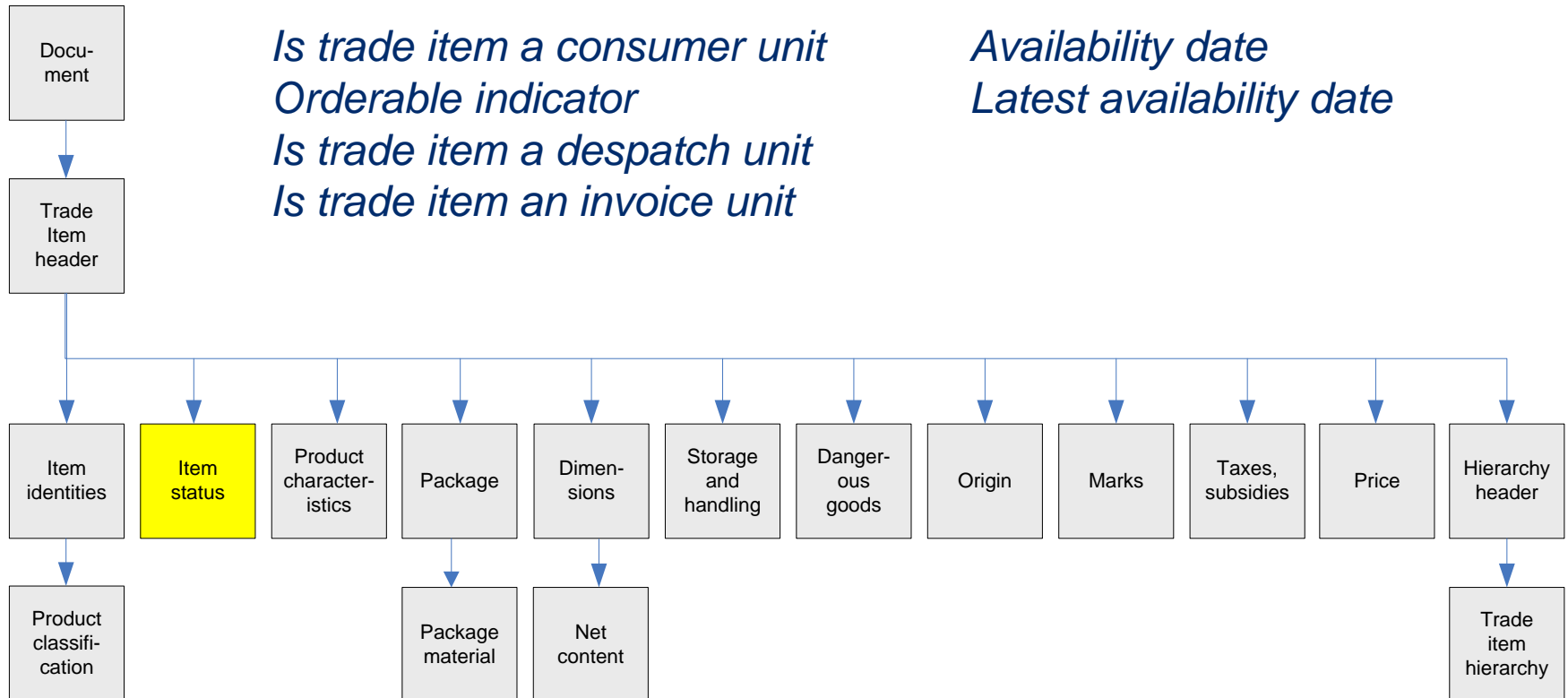
# Item structure

## *Item identities*



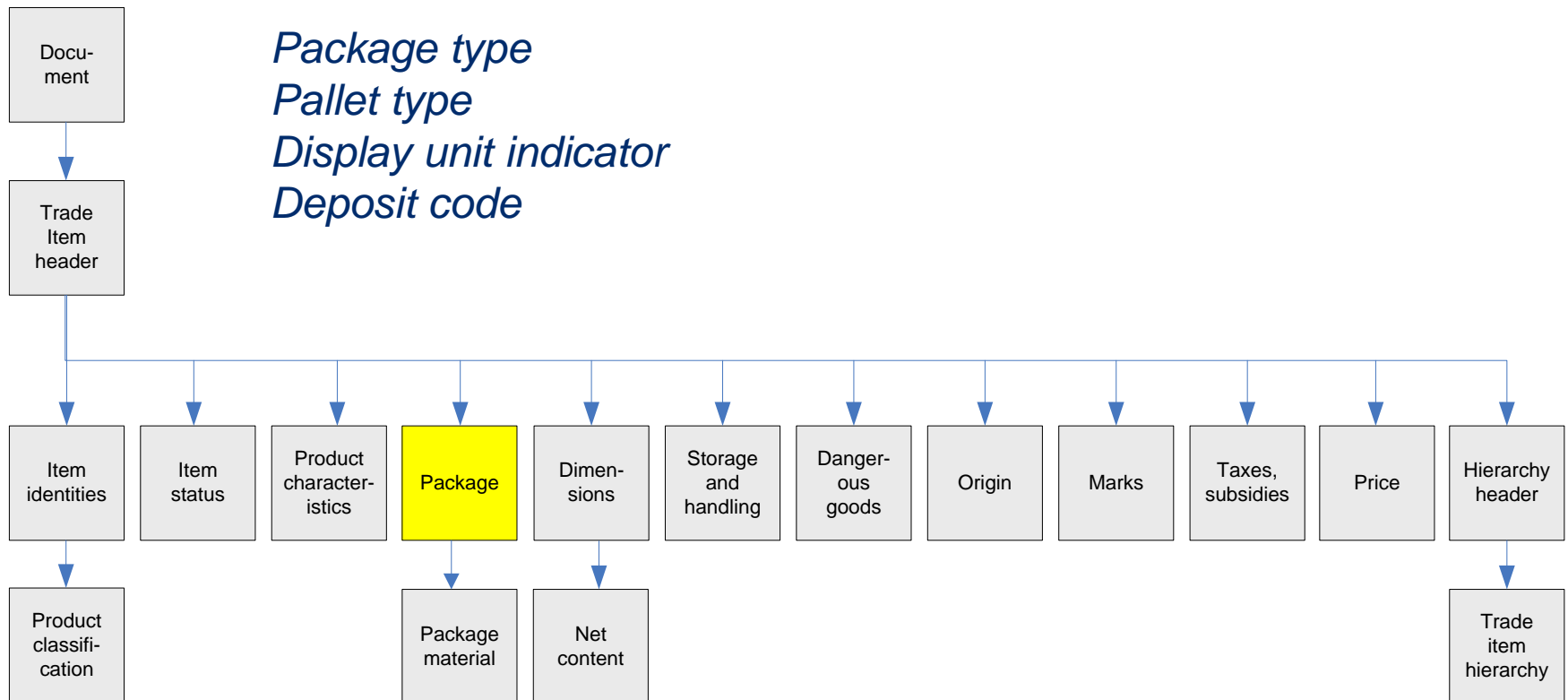
# Item structure

## *Item status*



# Item structure

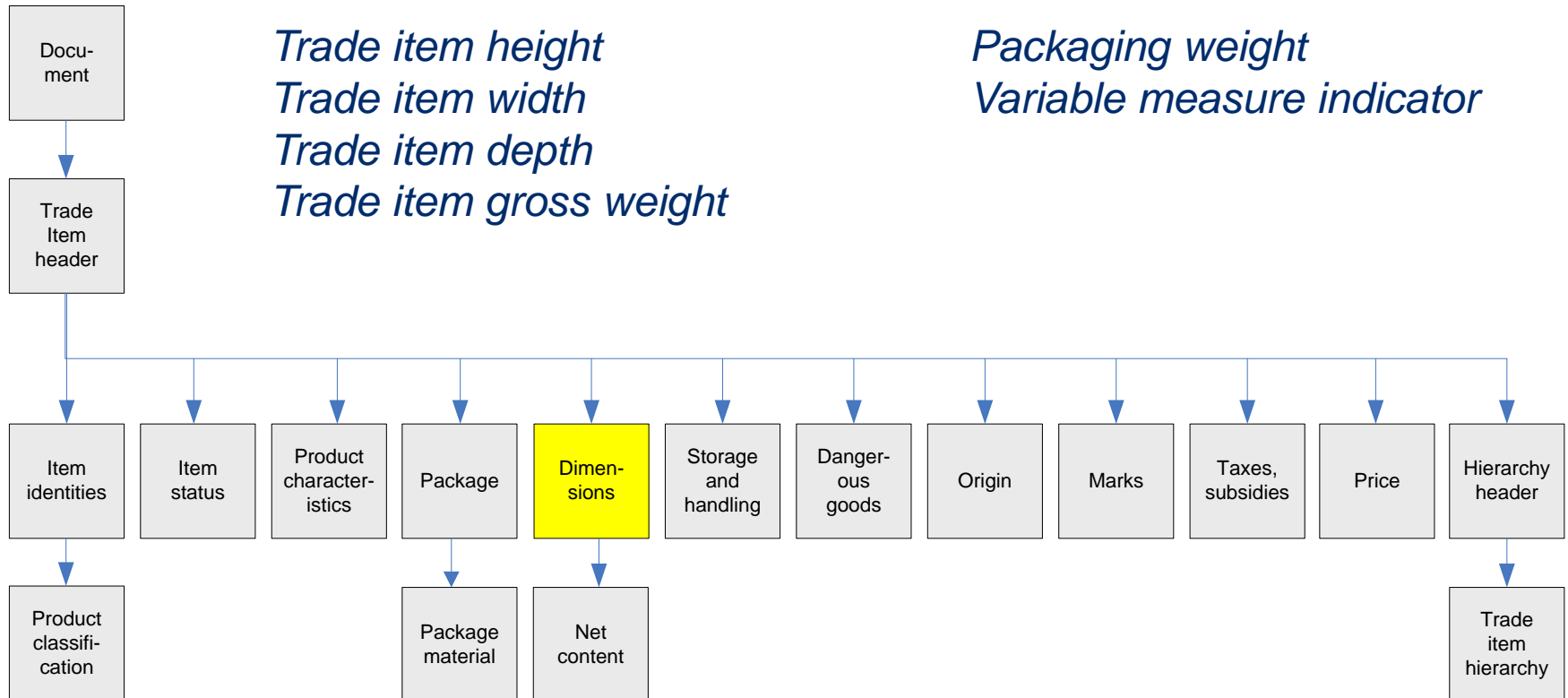
## *Package*





# Item structure

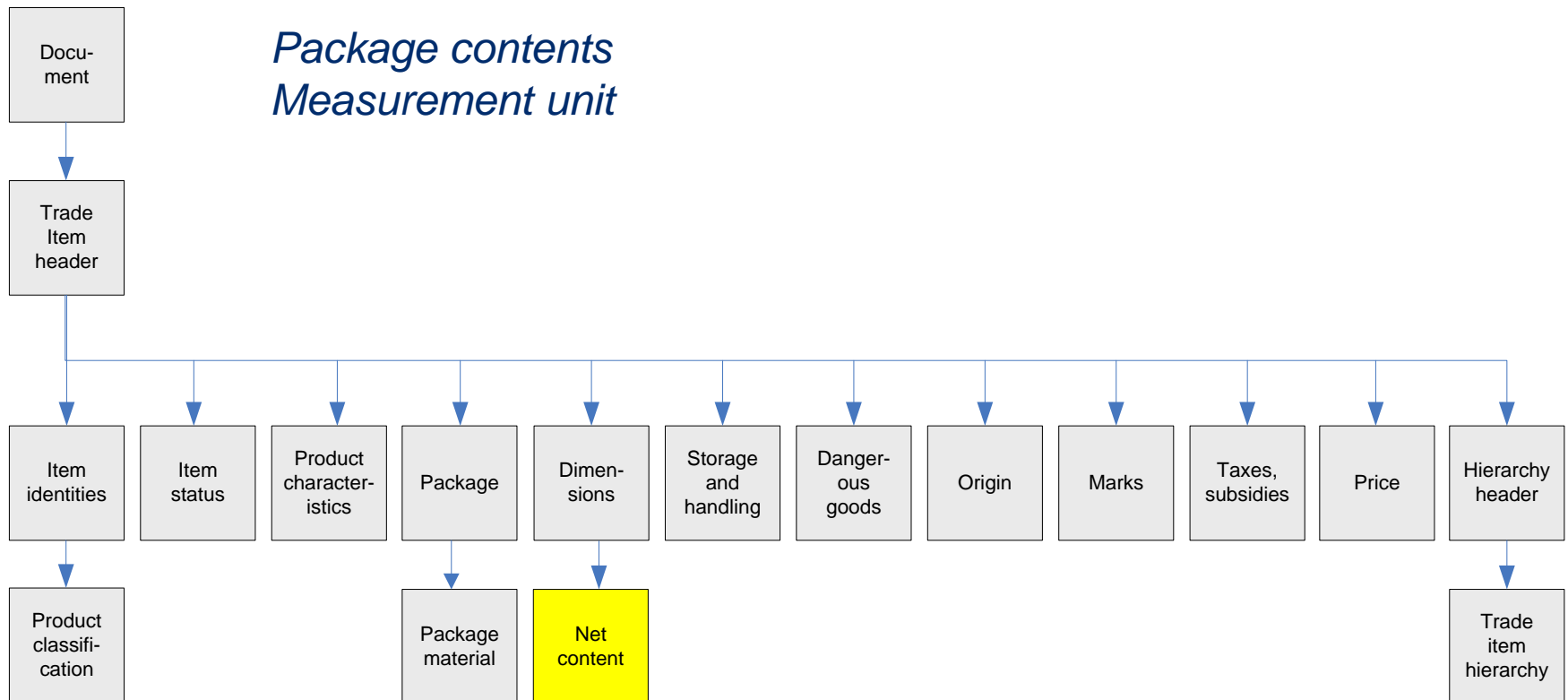
## Dimensions



# Item structure

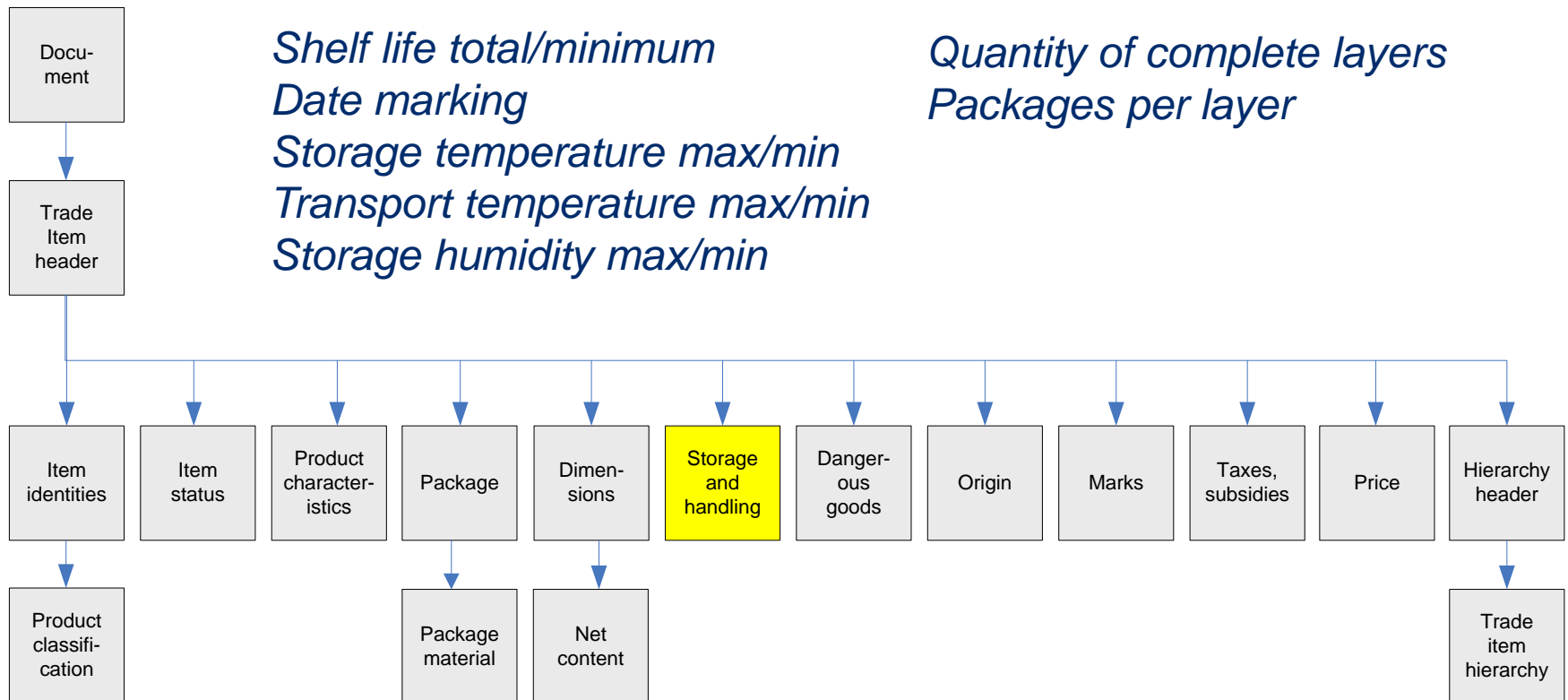
## *Net content*

*Package contents*  
*Measurement unit*



# Item structure

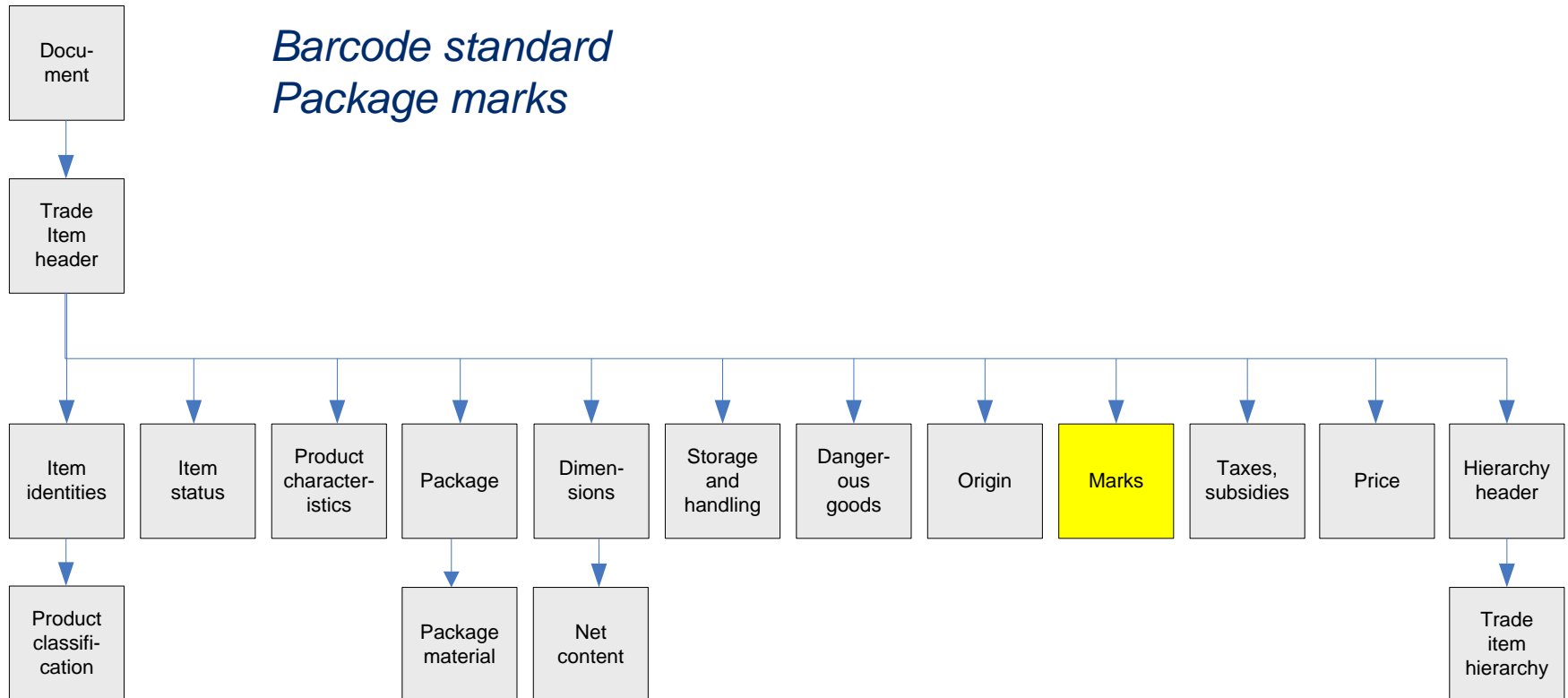
## Storage and handling



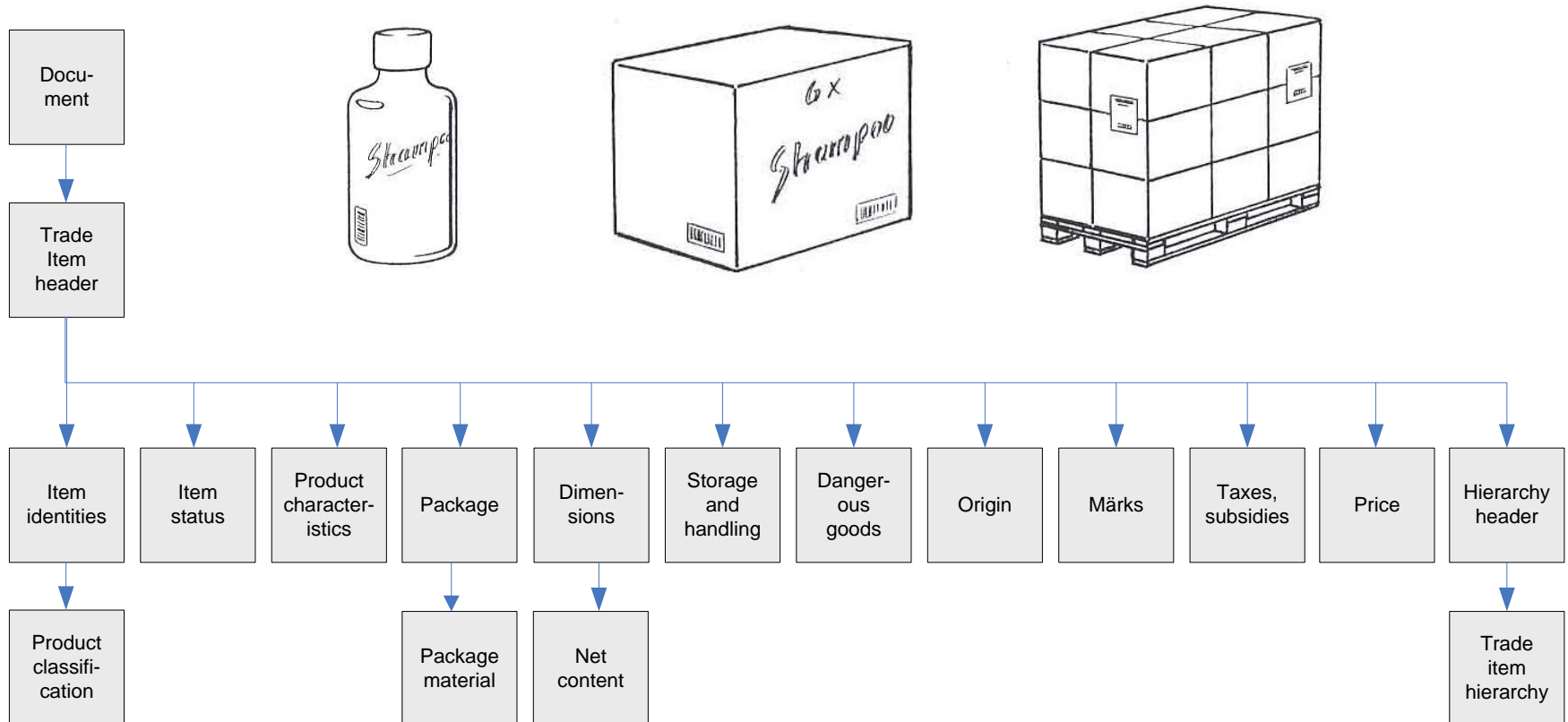
# Item structure

## Marks

*Barcode standard*  
*Package marks*



# Item structure



# Consumer items

Base or case level trade item

Information used for:

- Shelf planning
- Temperature management
- Till roll/receipt information
- Shelf edge labels
- Etc.



<p><b>Tvättm Sensitive</b> <b>Ariel 750 g</b></p>	<p>Jämförpris</p>	<p><b>1.50</b></p>	<p><b>29<sup>90</sup></b> Kr/Förp</p>
<p>X 6 03/27 P 150</p>	<p>1710342</p>		<p>Kr/tvätt</p>

# Orderable units

Base, case or pallet level trade items

- For transport capacity management
- For optimal packing in roll cages
- For correct storage (temp/humidity/special handling)





# Despatch unit

Case or pallet level trade items

- Management of inbound logistics
- Temperature zones
- Optimization of order quantities







# Solutions for more product information

- Traditional Master Item Data
  - Supports all processes up to consumer point-of-sale
  - Information about the trade items outside characteristics
- Expanded information
  - More product types
  - More processes
  - Product properties
  - Achieved by extensions to GS1 Trade Item



# Extensions

- Current extensions
  - Apparel & Home Fashion
  - Hardlines
  - Office Supplies
  - Promotional Trade Items
  - Food & Beverage
  - Electronic Games
  - Movie Publications
  - Music Recordings
  - Healthcare items
- Under development
  - Books
  - Chemical ingredients
  - Plumbing HVAC

Food & Beverage launched in  
Sweden November 1st, 2009



## Exampel of Food & Beverage Extension



Marketing information		Serving information	
Nutrition claim: -		Number of servings: -	
Health claim: -		Number of smallest units: 180	
Servings suggestion: -		Max number of smallest units: -	
Ingredients		Percentage	Origin
1 Glucose –fructose syrup		-	-
2 Sugar		-	-
3 Gelatine		-	-
4 Surface enhancer (vegetable oil and E903)		-	-
5 Aroma (vanillin)		-	-
6 Acid control agent (lemon acid)		-	-
Nutrientinformation			
Preparation state: PREPARED		Household serving size: -	
Daily value intake reference: -			
Serving size: 100 grams			
Nutrient	Quantity	Precision	Percentage of daily value intake
Energy	1550 kJ	Approx	-
Protein	3,0 g	Approx	-
Carbon hydrate	87 g	Approx	-
Fat	0,5 g	Less than	-
Allergen information			
Allergen claim: -			
Allergen specification			
Allergen type	Level of containment	Agency	Regulation
-	-	-	-
Diet type: -		Preparation type: READY_TO_EAT	
		Preparation instruction: -	
Yield			
Yield type: -			
Yield: -		Yield variation: -	



# Master Data for Price

- Negotiation: Agreement on prices between buyer and seller
- Transmission of master data: The seller creates a price list and sends it to the buyer
- Processing and approval: The buyer checks the prices
  - Error handling: If there are errors – the seller is contacted
  - The seller sends a corrected price list
- Price updates: Both buyer and seller must store price history in their systems
- ❖ The same prices at both parties!

# Price types

- List pris (catalogue price)
- Contract price
- Discounted contract price
- Current price (today's price)
- Discounted current price

# Tolerances for invoice matching

	Order	Invoice
Contract price	<hr/>	<hr/>
Current price	<hr/>	<div><hr/><hr/><div>Max</div><div>Min</div></div>
Discount price	<hr/>	<hr/>

# Processing price lists

- Original price list
  - Always for a new contract
  - All price information about all trade items
    - Prices
    - Discounts
    - Quantities required for discounts
    - Etc

# Processing price lists

- Change price list
  - Only changed trade items included
  - Complete price information about trade items that are changed
  - Reference to previous price list
  - Processing a change price list
    - 1 Make copy of previous price list
    - 2 Update copy with change information
    - 3 Save copy, identify with ID from Change price list





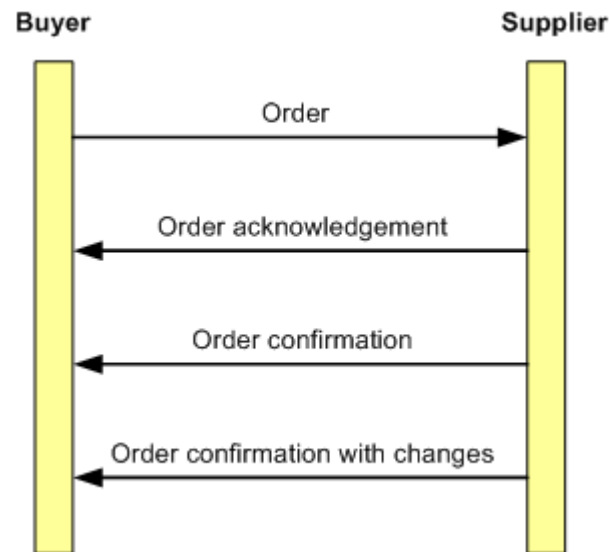
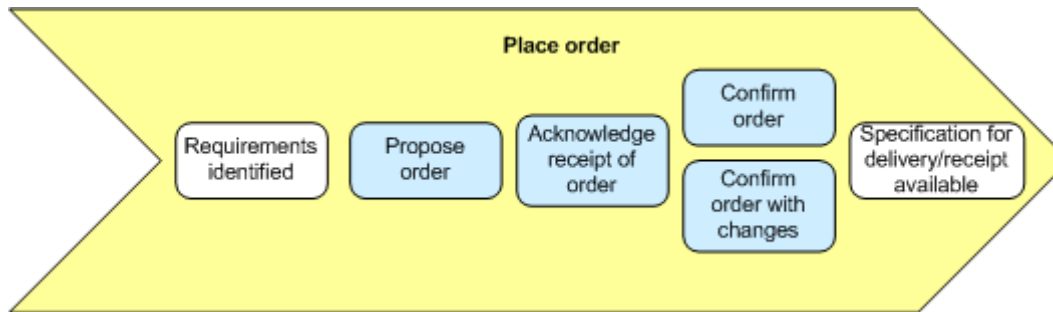
# Processing price lists

## ➤ Replace price list

- Complete price information about all trade items
  - Including unchanged trade items
  - Replaces previous price list completely
  - Includes reference to previous price list

# ORDERING OF GOODS

# Placing an order





# Connection to Master Data

- Party identities
  - Stored in a database for party information (supplier registry)
    - GLN
- Prices
  - Stored in a price/contract database
  - Reference to contract (price list) included in order
- Item information
  - Stored in a database
    - GTIN
    - Supplier's item number
    - Item name
    - Hierarchies
    - Package type
    - Orderable unit
    - etc

# Basic Retail Supply Chain - Order (1)

## ➤ Order header

- Order number
- Order date or Order time
- Supplier ID
- Buyer ID
- Consignee ID
- Delivery place ID
- Invoicee ID
- Invoice recipient ID
- Reference to price list
- Reference to contract
- Requested delivery date or time for the whole order
- Availability date/time
- Shipping marks
- Ultimate consignee (store) ID



# Basic Retail Supply Chain - Order (2)

## ➤ Order line

- Line number
- Ordered item GLN
- Supplier's item number (optional)
- Ordered quantity
- Unit of measure for ordered quantity
- Price mark
- Unit price basis for price mark
- Unit of measure for price mark
- Discounted price

## ➤ Control total

- Total quantity
- Number of order lines



# Basic Retail Supply Chain – Order Acknowledgement

- Order acknowledgement
  - The order has been entered into the ordering system  
ordersystemet
  - Ordered trade items not verified for availability



# Basic Retail Supply Chain - Order Confirmation

- The order has been preprocessed in the system
  - Ordered item quantities verified for availability
  
- Multiple order confirmations can be sent before delivery
  - Depends on timing and contract terms

Order confirmation must be sent before it is too late for the buyer to order another trade item (avoid empty shelves in stores)



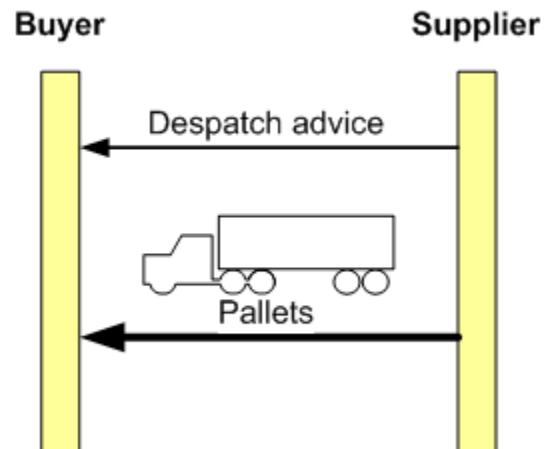
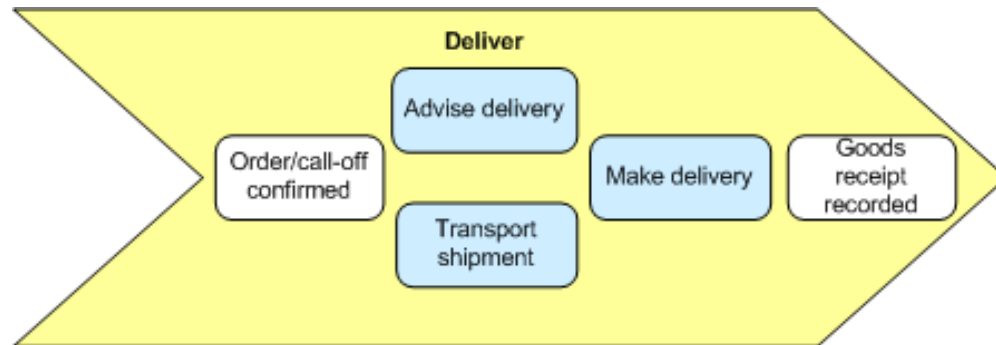


# Basic Retail Supply Chain - Order Confirmation

- Change of delivery date
- Different delivery dates for different trade items
- Replacement trade items
- Quantity variances or back order
  - Back ordered (will be delivered later)
  - Quantity variance (will not be delivered)
- Change reason

# DELIVERING GOODS

# Deliver



# Despatch advice

Multiple business benefits:

- Efficient logistics
  - Refer to the right order
  - Updated delivery time (may differ from order/confirmation)
- Traceability
- Invoice matching
  - The exact trade items and quantities that will appear in the invoice
  - Deviations handled separately or in Returns process




# Despatch advice

- Expected inbound delivery
  - According to order (including updates from order confirmation)
- Despatch advice
  - Reports exactly what is being delivered
    - Batch numbers
    - Best before dates
    - Enables reporting of late changes to the delivery
- Delivery changes, backlog (if agreed in the contract)
  - One despatch advice per delivery
  - One truck = one delivery



# Homogeneous pallet

- GS1 pallet label
  - Each pallet is identified with an SSCC
  - GTIN of trade items on the pallet
  - Number of trade items
  - Best before date
  - Batch number
- Despatch advice
  - Pallet level
    - SSCC
    - Gross weight of pallet
  - Item level
    - GTIN
    - Number of trade items
    - Best before date
    - Batch number

FREE INFORMATION	
e.g. Company Name of Sender, Address, Product Description, ...	
<hr/>	
SSCC:	
<b>390123451234502013</b>	
CONTENT:	COUNT:
9012345057879	160
BATCH/LOT:	BEST BEFORE:
887622	21.4.2008
<hr/>	
	
(02)09012345057879(15)080421(37)0160	
	
(00)390123451234502013(10)887622	

079\_020101030400

# Mixed pallets

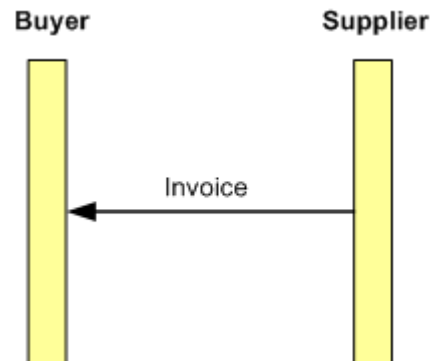
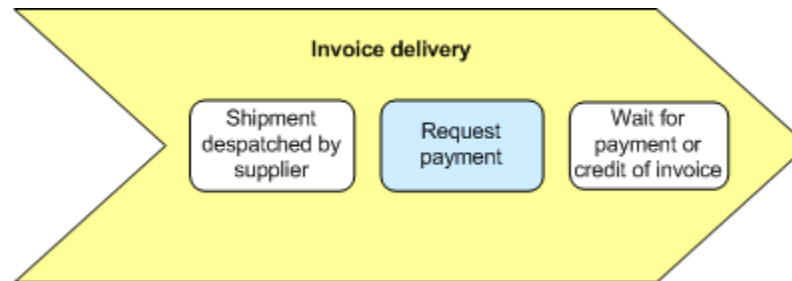
- GS1 pallet label
  - Pallet identified by its SSCC
  - Shipping marks (text from order)
  
- Despatch advice
  - Pallet level
    - SSCC
    - Cross weight of pallet
  - Item level
    - GTIN
    - Number of trade items
    - Best before date
    - Batch number

<p><b>FREE INFORMATION</b></p> <p>e.g. Company Name of Sender, Address, Product Description, ...</p>
<p><b>SSCC:</b></p> <p><b>490123451234500023</b></p>
 <p>(00)490123451234500023</p> <p><small>121 0500300000</small></p>

# INVOICING OF GOODS



# Invoicing of goods





# Invoice header

- Invoice number
- Dates (invoice date, due date, despatch date, etc)
- Tax exempt reason
- References to price list, order, etc.
- Identification of parties (supplier, buyer, consignee, etc)
- Invoice discount
- Charges (freight, service)



# Invoice line

- Invoiced item, ID
- Quantity
- References to order and order line
- Price



# Invoice summary

- Amount due
- Tax information
- Control totals

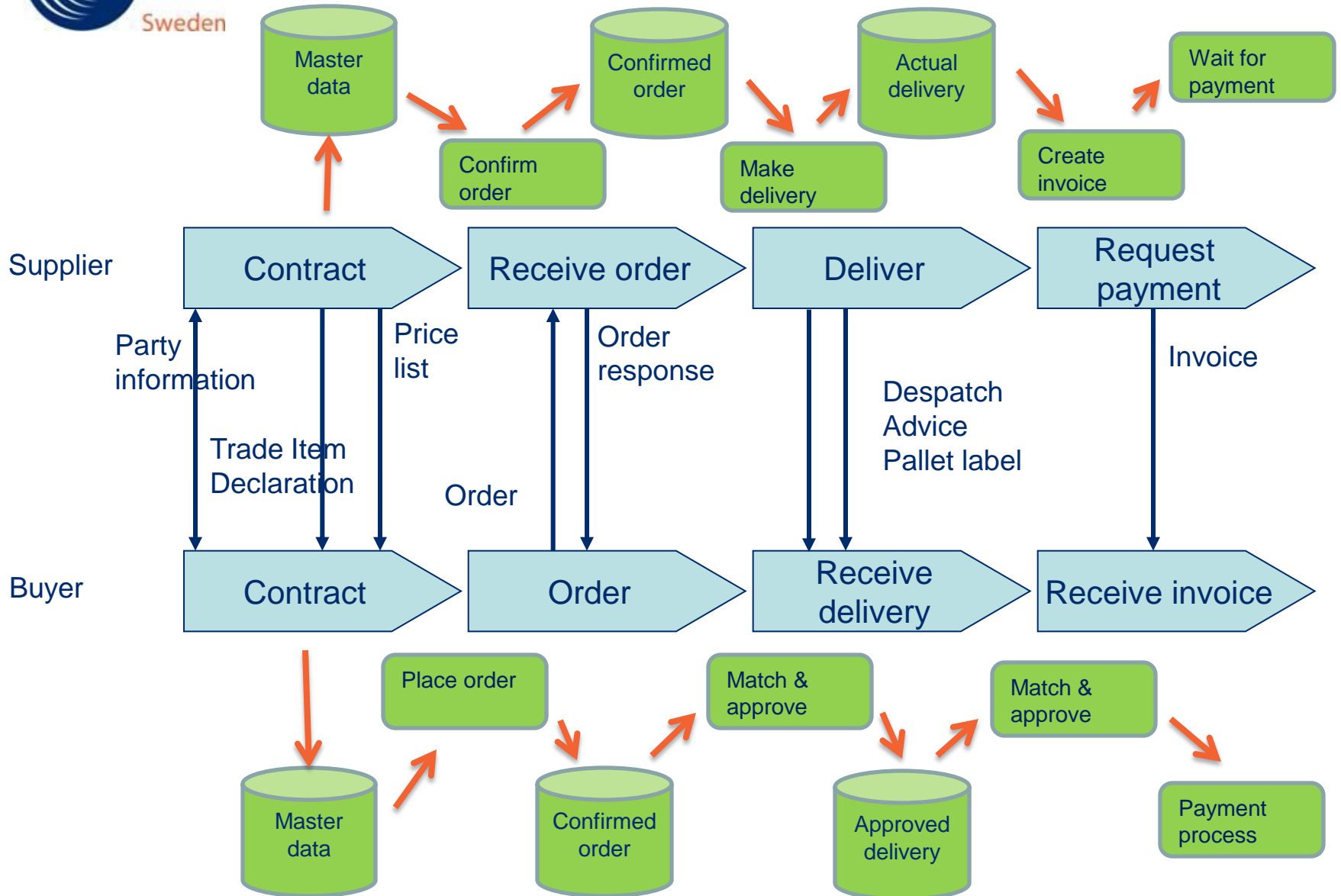
# Invoice and price matching

- Price deviation tolerance
  - Contract price
    - 0%
  - Current price
    - Establish max limit
      - Signal "stop buying"
      - Pay invoice (if not incorrect)
      - Inform purchasing officer
  - Manually discounted price, i.e. short best before date
    - Can not be matched with price list
    - Matched with "Discount price" in order

# Tolerances for invoice matching

	Order	Invoice
Contract price	<hr/>	<hr/>
Current price	<hr/>	<div><hr/><hr/><div>Max</div><div>Min</div></div>
Discount price	<hr/>	<hr/>

# Business Process Interaction



# GENERAL PRINCIPLES AND CONDITIONS





# **GS1 Swedens harmonized business processes – open de facto standards**

- Focused around market demands on common business processes
- Many to many
- IT system independent
- Enables standardized IT system components or modules
- Facilitates connecting new trading partners



# Local guidelines for EANCOM and GS1 XML

- Why make local guidelines?
  - Clarifications
  - Examples
  - Legal requirements
  - Language
  - Common business practice
- User groups
  - Contribution from all involved parties
  - Balanced representation
- Restrictions of the global standard
- Experiences are fed back to the global standard



# Net and gross information

- Master data
  - Exchanged first
  - Updated when needed during contract period
- Transaction data
  - Exchanged as business transactions
  - Internally all information is available and used
    - Code values
    - Text information
  - Business transaction contains only the code
- The receiving system uses the net information to find the corresponding gross information
- When presented to the user, all necessary information is available



# Example net information

## Invoice message:

- Reference to price list
- Only GLN to identify parties
  - No text information
- Only Item Number to identify Trade Items
  - No item name or size
- Internal information is not sent
  - I.e. internal account number, name of contact person
- No clear texts
  - I.e. addresses, item name, contract conditions, payment terms, delivery conditions



# Teknisk information

Specifikationer och handledning finns på

[www.gs1.se/ESAP20](http://www.gs1.se/ESAP20)

# WRAP-UP AND DISCUSSION



# eCom Deployment Status

Survey 2011 – Major Swedish FMCG retailers doing business with around 1400 suppliers

- Trade Item 96 %
- Order 82 %
- Order Response 43 %
- Despatch Advice 11 %
- Invoice 70 %



# Contakt information

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