GS1 eCom Standard (EDI) and its Benefits

Anders Grangard, GS1
Mexico, 15 July 2015
<table>
<thead>
<tr>
<th>#</th>
<th>Topic</th>
<th>Description</th>
<th>Timing</th>
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</table>
| 0  | Introduction       | Welcome
    |                  | Purpose
    |                  | Introductions
    |                  | Practical information
    |                  | Expectations & adjustments of the programme                                   | 9.00 – 9.15 |
| 1  | Intro to eCom      | What is eCom and EDI at GS1
    |                  | Current priorities                                                           | 9.15 – 10.30|
| 2  | Order to Cash      | The O2C process
    |                  | Benefits
    |                  | Implementation aspects
    |                  | Experiences & use cases                                                      | 11.00 – 12.20|
| 3  | Closing session    | Conclusions
    |                  | Q&A                                                                          | 12.20 – 12.30|
Objectives

• A non-technical workshop on a technical matter

• If I am too technical ...
• If I am not enough technical ...

• Please do not hesitate to ask
GS1: Who are we?

GS1 is a not-for-profit standards organisation

38 years of experience

112 member organisations representing all points in the supply chain

Over a million companies doing business across 145 countries

Over 20 represented sectors (FMCG, healthcare, transport, defence…)

Countries with GS1 Member Organisations
Countries served on a direct basis from GS1 Global Office (Brussels)
What is GS1 eCom?

- GS1 eCom stands for standards in electronic business messaging
- GS1 eCom is the GS1 term for Electronic Data Interchange (EDI)
What is electronic business messaging?

• EDI is an acronym for **Electronic Data Interchange**, it can be defined as:

• The interchange of **structured data** according to agreed **message standards**, by **electronic means** with **minimum human intervention**
GS1 standards portfolio

- GS1 has a portfolio of products improving the supply chain

- **Global standards for automatic identification**
  Rapid and accurate item, asset or location identification

- **Global standards for electronic business messaging**
  Rapid, efficient & accurate business data exchange

- **The environment for global data synchronisation**
  Standardised, reliable data for effective business transactions

- **Global standards for RFID-based identification**
  More accurate, immediate and cost effective visibility of information
The GS1 System

The Global Language of Business

- **Identity**: EAN/UPC, ITF-14, GS1 DataBar, GS1-128, GS1 DataMatrix, GS1 QR Code
- **Capture**: RFID/EPC
- **Share**: GS1eCom, GDSN, EPCIS

- **Document type**: Consignment, Shipment, Location
- **Service relation**: Individual asset, Returnable asset
- **Trade Item**: Transaction Data, Master Data, Event Data
• GS1 has three complementary eCom standards
  • GS1 EANCOM®
  • GS1 XML
  • GS1 Profiles of UN/CEFACT XML
EANCOM® is a GS1 standard for classic EDI, a simplified subset of UN/EDIFACT

EANCOM® retains only the message elements relevant for GS1 users

EANCOM® includes GS1 identification keys, allowing integration of physical goods flow with information sent electronically

EANCOM® messages are an equivalent of paper business documents

EANCOM® is used by more than 100,000 companies worldwide
Order number 128576
Message date 30 May 2008
Instruction to pay in Bank Account
Group conditions apply to the entire ORDER
Order based on contract number 652744
Contract date 25 April 2008
Buyer is identified by GLN 5412345000013
Supplier is identified by GLN 5712345001110
Order curr. = Pound; invoice curr. = Euro, exchange rate = 1.3
Period of the exchange rate date: 1 May 2008 – 30 May 2008
Use a truck as the main carriage transport for delivery
Terms of delivery are to be Cost, Insurance and Freight
First product order is identified by the GTIN 5712345001110
Ordered quantity is 48 units
• XML has been designed for information exchange over the internet
• GS1 eCom uses XML for electronic exchange of business messages
• GS1 provides a set of XML Schemas that describe the structure and content of business documents
• GS1 XML contain business information for a specific scenario that do not always reflect the paper business documents
<order:order creationDateTime="2003-11-03T11:00:00.000" documentStatus="ORIGINAL">
<contentVersion>
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What does GS1 standardise in eCom?

• The GS1 standards provide the common language used in eCom
  • **Structured data** – e.g. ordered quantity, price, delivery address
  • **Business terms definitions** and their mapping to message components
  • **Message standards** – GS1 EANCOM® and GS1 XML
  • GS1 eCom messages are developed using the **commonly accepted syntax** (UN/EDIFACT and XML)
• Guidelines on other, related standard, e.g. Internet protocols
• All GS1 standards & guidelines are developed together with the user communities
Electronic Exchange Scenario

Order Processing

Manufacturer → Order

Retailer

Order → Despatch Advice

Delivery → Invoice

Out of Stock

Replacement Item

Order Change Processing

Order Change

Despatch Advice → Delivery

Invoice
Electronic Exchange Domains

Company X

- Customers
- Suppliers
- Logistics Providers
- Employees
- Social Authorities
- Tax Authorities
- Customs
- Banks

The Global Language of Business
General trends in the eCom world

- Shift from message standards to process standards
  - Logistics Interoperability Model (LIM)
  - Upstream standards (UIM, GUSI)
  - Food services
  - Collaborative Product Design
  - Trading Partner Performance Management
- Supply Chain Management is changing
  - RFID technology (EPC)
  - Food safety
  - Waste management
- Increased involvement from authorities – directly or indirectly
  - eInvoicing
  - Trade facilitation – example WTO in China
  - Risk management
Main Strategies

1. Decoupling technology and business content
   • Interoperability

2. Increased implementation support
   • SME
   • Developing countries

3. Increase value add for installed base
   • Cost effective improvements
GS1 Standards Knowledge Centre
XML Business Message Standards, version 3.1

eCom Trade Messages
- Align
  - Item Data Notification
- Order
  - Order
  - Order Response
  - Configure to Order
- Deliver
  - Despatch Advice
  - Receiving Advice
  - Consumption Report
  - Inventory Report
  - Despatch Advice - Meat Product Extension
- Pay
  - Invoice
  - Settlement
  - Debit Credit Advice
  - Advanced Remittance Notification
  - Request for Payment
  - Buyer Reconciliation of Request for Payment
  - Claims Notification
- Plan
  - Goods Requirements
  - Goods Requirements Response
  - Replenishment Request
  - Replenishment Proposal
  - Purchase Conditions
  - Performance Measurement

eCom Logistics Messages
- Transport Planning
  - Transport Capacity Requirements
  - Transport Capacity Plan
  - Transport Capacity Booking & Response
- Transport Execution
  - Transport Instruction & Response
  - Transport Status Request & Notification
  - Transport Pick-up Drop-off Request & Confirmation
- Warehousing
  - Warehousing Inbound Instruction & Notification
  - Warehousing Outbound Instruction & Notification
  - Warehousing Operations Instruction & Notification
  - Logistics Inventory Report Request & Report

eCom Other
- Product Recall
  - Product Recall
- Application Level Messages
  - Application Receipt Acknowledgement
- Artwork Content and Response
  - Artwork Content and Response
- Common
  - Shared Common Library
  - eCom Common Library
Available EANCOM messages

<table>
<thead>
<tr>
<th>Common Libraries</th>
<th>Common Libraries</th>
<th>Pre-Order Messages</th>
<th>Order Messages</th>
<th>Transport and Delivery Messages</th>
<th>Payment and Financial Messages</th>
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<tbody>
<tr>
<td>Common Libraries</td>
<td>Common Data elements &amp; code sets directory</td>
<td>CNTCND (The Contractual Conditions Message)</td>
<td>ORDCHG (Purchase Order Change Request)</td>
<td>DESADV (Despatch Advice)</td>
<td>COACSU (Commercial Account Summary)</td>
</tr>
<tr>
<td>Common Libraries</td>
<td>Common Data elements &amp; code sets directory</td>
<td>QUOTES (Quotation)</td>
<td>ORDERS (Purchase Order)</td>
<td>HANMOV (Cargo/Goods Handling and Movement Message)</td>
<td>COMDIS (Commercial Dispute Message)</td>
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<tr>
<td>Common Libraries</td>
<td>Common Data elements &amp; code sets directory</td>
<td>REQOTE (Request for Quotation)</td>
<td>OSTRPT (Order Status Report)</td>
<td>JFTMBC (Booking Confirmation Message)</td>
<td>INVOIC (Invoice)</td>
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<tr>
<td>Common Libraries</td>
<td>Common Data elements &amp; code sets directory</td>
<td></td>
<td></td>
<td>JFTMIN (Transport Instruction)</td>
<td>PAYMUL (Multiple Payment Order)</td>
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<td></td>
<td>JFTSTA (Transport Status Message)</td>
<td>REMADV (Remittance Advice)</td>
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<td>INSDES (Instruction to Despatch)</td>
<td>TAXCON (Tax Control)</td>
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<td>RECADV (Receiving Advice)</td>
<td>Report and Planning Messages</td>
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<td>Common Data elements &amp; code sets directory</td>
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<td>RETANN (Announcement of Return)</td>
<td>APERAK (Application Error and Acknowledgement Message)</td>
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<td>RETINS (Instruction for Return)</td>
<td>BANSTA (Bank Status Message)</td>
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<td>CREMUL (Multiple credit advice)</td>
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<td>DEBMUL (Multiple Debit Advice Message)</td>
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<td>FIRCAN (Financial Cancellation Message)</td>
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<td>INVRPT (Inventory Report)</td>
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<td>SLSRPT (Sales Data Report)</td>
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<td>Common Data elements &amp; code sets directory</td>
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<td>CONDRA (Drawing Administration Message)</td>
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<td>Common Data elements &amp; code sets directory</td>
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<td>GENRAL (General Message)</td>
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<td>Common Data elements &amp; code sets directory</td>
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<td>Syntax and Service Report Message</td>
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<td>Common Data elements &amp; code sets directory</td>
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<td>CONTRL (Syntax and Service Report)</td>
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</table>
GS1 Identification Keys and Logistic Labels
What is the SSCC?

The Global Language of Business

GS1 identification keys

Global Trade Item Number

GTIN

5 412346 002122

Serial Shipping Container Code

SSCC

Global Location Number

GLN

Global Returnable Asset Identifier

GRAI
What is the SSCC?

The SSCC is an 18 digit number used to uniquely identify a logistic unit.

<table>
<thead>
<tr>
<th>Extension digit</th>
<th>GS1company prefix</th>
<th>Serial reference</th>
<th>Check digit</th>
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<td>54MMMMMM</td>
<td>XXXXXXXXXX</td>
<td>C</td>
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<td>X</td>
<td>54MMMMMMM</td>
<td>XXXXXXXX</td>
<td>C</td>
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<tr>
<td>X</td>
<td>54MMMMMMMMM</td>
<td>XXXXXXX</td>
<td>C</td>
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</table>
Uniquely identifying logistic units

- **Definition**: A logistic unit is an item of any composition established for transport and/or storage which needs to be managed throughout the supply chain.

- **Identification key**: **SSCC** (Serial Shipping Container Code)
The creator of the logistic unit allocates the SSCC (e.g. the party who palletizes). This can be the:

- Manufacturer
- Wholesaler
- Logistic provider
- Retailer
SSCC on the GS1 logistic label

Why a GS1 logistic label?

- Unique identification and traceability of the logistic unit
- Data transmission:
  - on the logistic label
  - preferably in combination with the EDI despatch advice
- Standardised logistic label, everyone knows exactly where to find all information.
✓ **Application Identifier (AI)**, is a 2, 3, or 4 digit numeric prefix in front of the data to tell what the data means. For example, the AI for CONTENT is (02), COUNT is (37), BEST BEFORE is (15) and LOT is (10).

✓ **Data** - AI’s contain either fixed or variable length data. Their structure is either predefined or free.

**Example**: Batch/Lot = variable length data with a maximum of 20 alphanumerical characters. Its structure is free.
Structure of the GS1 logistic label

Middle section: human readable interpretation of the barcoded data

Below: GS1-128 barcode; SSCC always in the lowest barcode (mandatory)
eCom benefits
Why use eCom instead of paper?

The traditional paper-based document exchange:

- Is time consuming
- Is error-prone
- Involves a lot of resources
Why use eCom instead of paper?

The electronic document exchange, in which two or more computers communicate directly:

- Takes much less time
- Business data are instantly available (no re-keying)
- Reduces errors as no human intervention is needed
- Requires little resources when in operational stage
- Eliminates paper processing and cost of:
  - Printing
  - Posting
  - Manual data keying
  - Archiving of paper
  - Waste of trees and therefore save environment
- Enables new business processes
Benefits examples – GS1 standards

From Global Scorecard Consumer Goods Forum & IBM

- 4,400 Key Performance Indicator Scorecards submitted by consumer product companies
- showed the following relationships between the usage of the GS1 standards and business results:
  - 5.2% points savings of distribution costs
  - 1.5% points increased invoice accuracy
  - 5.9% points increased fill rates (percent of orders shipped within order due date - when requested)
  - 61 hours reduced lead time (from the moment the customer places an order to the moment it is received by the customer)
  - 5.8% points reduced out-of-stocks rate
## Effects of eCom and SCCC implementation

- **From Global Scorecard Consumer Goods Forum & IBM**

### Competitive advantage

<table>
<thead>
<tr>
<th>Efficiency</th>
<th>Customer Satisfaction</th>
<th>Improved Quality</th>
<th>Sustainability</th>
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</thead>
<tbody>
<tr>
<td>Time saving</td>
<td>Improved client relationship</td>
<td>Improved data quality</td>
<td>Improved Image &amp; Brand</td>
</tr>
<tr>
<td>Cost reduction</td>
<td>Improved customer satisfaction</td>
<td>Fewer invoice-disputes</td>
<td>Less Waste</td>
</tr>
<tr>
<td>Improved supply chain operations</td>
<td>Better information availability</td>
<td></td>
<td>Optimized usage of resources</td>
</tr>
<tr>
<td>Improved visibility</td>
<td></td>
<td></td>
<td>Better overview of inventory</td>
</tr>
<tr>
<td>Increased understanding of retailers needs - become preferred collaboration partner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increased sales</td>
<td></td>
<td></td>
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</table>

### Improvements through implementation

- **Store Service Level ↑**
  - SSCC
  - EDI for orders
  - EDI despatch advice

- **Out of stocks ↓**
  - SSCC
  - EDI for orders
  - EDI for despatch advice

- **Invoice accuracy ↑**
  - EDI for invoices (manufacturers)
Global Scorecard – Order

- Global Scorecard Consumer Goods Forum & IBM

**Distribution costs with the use of EDI for orders**

- Implementation of EDI for orders 1-50%
  - Distribution costs: 5.4%
  - Difference: – 49%
  - Total: 10.6%

- Implementation of EDI for orders >50%
  - Distribution costs: 5.4%
  - Difference: – 49%

**On-Shelf/POS Out-of-Stocks with the use of EDI for orders**

- No Implementation of EDI for orders
  - Out-of-Stocks: 9.7%
  - Difference: – 60%

- Implementation of EDI for orders
  - Out-of-Stocks: 3.9%
Cost saving examples – Order

- **Order** message
  - 18 € savings for each transaction in France
  - 12 € savings for each transaction in Germany

- Some cost items taken into account in France
  - Generating and mailing paper order (1.5 €) vs. generating and sending electronic order (0.01 €)
  - Cost of manual entering the paper order into ERP system (1.4 €) vs. electronic order (0 €)
  - Cost of handling disputes for paper order (4 €) vs. EDI order (3 €)
  - Number of ordering errors is 25% lower with EDI
Global Scorecard – SSCC

- Global Scorecard Consumer Goods Forum & IBM

On-Shelf/POS Out-of-Stocks with the use of SSCC

No Implementation of SSCC: 7.8%
Implementation of SSCC: 3.8%
Difference: -52%
Cost saving examples – Despatch Advice + GS1 Logistic Label

- **Despatch Advice** message + **GS1 Logistics Label**
  - 12 € savings for each transaction in France
  - 15 € savings for each transaction in Germany
  - 5 $ savings in USA when Despatch Advice is used for simple confirmation purposes to as much as 50 $ when used for visibility and automated receiving

- Some cost items taken into account in France
  - Number of disputes per day without GS1 standards (4) vs. with GS1 standards (2)
  - Number of ordering errors is 50% lower with EDI
  - 30 minutes saved on reception per truck with GS1 standards
Global Scorecard – Invoice

- Global Scorecard Consumer Goods Forum & IBM

Invoice accuracy for manufacturers using EDI for invoices

- Implementation of EDI for invoices 1 - 50%
  - 95.7%

- Implementation of EDI for invoices >50%
  - 97.2%

Difference: +1.6%
Currently over 5,600 companies use e-Invoice in Spain.

Monthly 2.5 million invoices are sent electronically.

Main savings:
- Supplier: 1 €/invoice
- Retailer: 2.8 €/invoice
- Annual cost saving for entire sector: 76 million €/year
- 10 km of paper storing space
- Over 10,000 trees saved
## ROI Calculator

The Global Language of Business

### ROI Calculator

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<th>documents per day</th>
<th>5</th>
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<tr>
<td>working days per month</td>
<td>20</td>
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<tr>
<td>costs per hour in €</td>
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**Without EDI**

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<th>minutes</th>
<th>€</th>
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<tbody>
<tr>
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<td>Printing and forwarding</td>
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<td>Complaints</td>
<td>25</td>
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<tr>
<td>Other</td>
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<tr>
<td><strong>Total</strong></td>
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**With EDI**

<table>
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<th>€</th>
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<tbody>
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<td>0.00</td>
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<tr>
<td><strong>Total</strong></td>
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**ROI**

0.440362225

**Payback time (decimal)**

2.270857814

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<th>costs savings</th>
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Contact Details

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