



# Tools of the Trade

Basic Principles of GS1 Automatic Identification

30 April 08





# 10 Things You Should Know About GS1 Automatic Identification

1. **GS1 Dumb vs. GS1 Smart**
2. **What's in a Number**
3. **What Keys**
4. **Key Messages**
5. **Key Rules**
6. **Attributes (extra info)**
7. **Validation Rules**
8. **Symbol Types**
9. **How it fits together**
10. **Where to find more information**





# GS1 Dumb Versus GS1 Smart



**GS1 Identification Numbers (Keys) are Dumb**

**Nice Guys, but Dumb**



**PURCHASE ORDER**  
 Purchase Order Number: \_\_\_\_\_ Date: November 14, 2007

The following number must appear on all related correspondence, shipping papers, and business Purchase Order Number:

To: \_\_\_\_\_ (Name of alternate address)  
 Customer Name Here  
 Customer Address 1 Here  
 Customer Address 2 Here  
 Customer City, State, Zip Code Here

P.O. DATE	REQUISITION	SHIP BY	SHIP VIA	F.O.B. POINT	TERMS

QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00
				0.00

SHIPPING \_\_\_\_\_ TAX 0.00  
 OTHER \_\_\_\_\_ TOTAL \$ 0.00

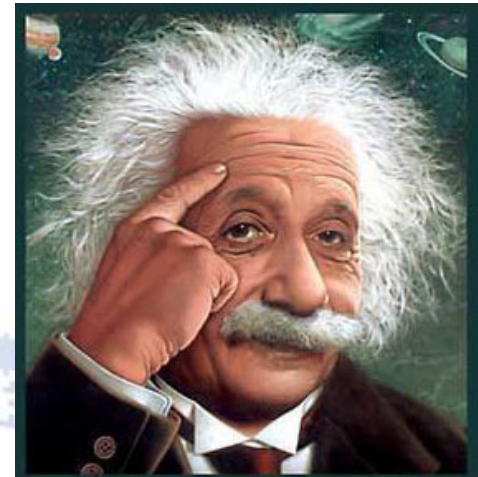
1. Please send 2 copies of your invoice.
2. Other Bill numbers should agree with the prices, terms, and delivery method, and the original bill of lading.
3. Invoice or other B/Ls, if any, are unable to ship as specified.
4. Send all correspondence to: \_\_\_\_\_

Additional to Specimen Log \_\_\_\_\_ Date \_\_\_\_\_



**GDSN, GS1 eCom, EPCIS are Smart**

**Guys with the answers**



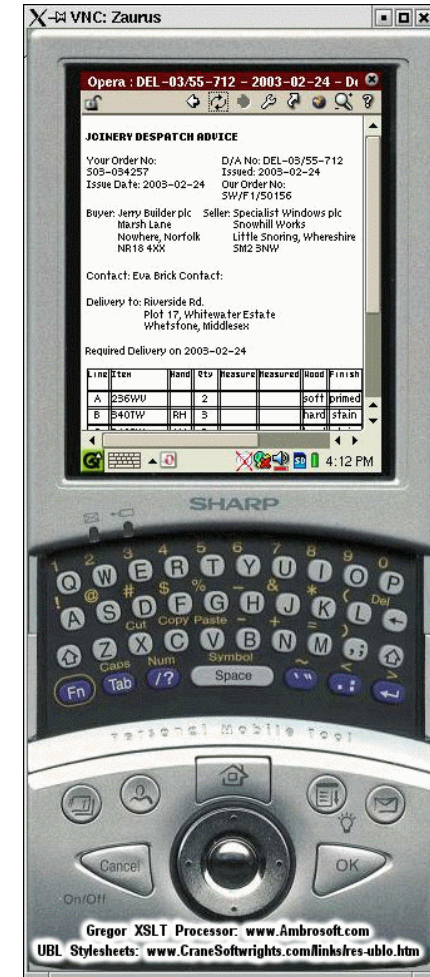


# What's In a Number?

1. Who Governs the Number's Meaning (GS1 or other "Issuing Agency" per ISO)



2. What data is about to be read (is it a trade item number, a date, a location, other?)
3. What is the number and what does it point to (item catalog file, Despatch Advice)





# GS1 “Keys”

**Global Trade Item Number (GTIN)**

*Products or Services*



**Serial Shipping Container Codes (SSCC)**

*Individual Logistics Units*



**Global Location Numbers (GLNs) for**

*Legal or Functional Entities and Locations*



**Global Returnable Asset Identifier (GRAI)**

*Returnable Assets*



**Global Individual Asset Identifier (GIAI)**

*Fixed Assets*

**Global Service Relation Number (GSRN)**

*Recipient of services*



**Global Shipment Identification Number (GSIN)**

*Multiple Logistic Units for Trade (Shipper Assigned)*



**Global Identification Number for Consignment (GINC)**

*Multiple Logistic Units for Transport (Transport Company Assigned)*

**Global Document Type Identifier (GSRN)**

*Document Type*





# Keys to Messages



Item  
Catalog  
Synch



Despatch  
Advice



Party  
Synch



Order,  
Invoice,  
Payment





# Key “Allocation” Rules



The global language of business

Worldwide Sites | Login to GS1 Online

HOME | ABOUT GS1 | PRODUCTS & SOLUTIONS | SERVICES | SECTORS | CONTACT GS1

GTIN Allocation Rules Home > Target market (Language) > New Language

## GTIN Allocation Rules Home

- Overview
- Best Practices
- Search GTIN Rules
- Disclaimer
- Related Links

## 1.1 New Language on a package sold in one Market/Country



New Language on a package sold in one Market/Country (single language label)

### Rules

- New GTIN - Retail Consumer Trade Item
- New GTIN - Standard Trade Item Grouping

### Rationale

Efficient shipping (at Retailer's Distribution Centre) requires distinction between substitutable trade items at the grouping level (Note: Differing languages on otherwise identical trade items are non-substitutable).



Healthcare GTIN Allocation Rules  
GS1 Global Healthcare User Group

<http://www.gs1.org/gtinrules/>



# Keys & Key Attributes

GTIN to  
Identify the  
Brand

Lot # for  
Production  
Batch

Serial # for  
Production  
Unit (Instance)

## Other Attributes

- Trade Item Measures
- Logistic Unit Measures
- Dates

**GS1 General Specifications**  
Has complete list of 100+  
**GS1 Application Identifiers**





# Automatic Identification Validation Rules



**Some know how to pull it together**

**GTIN +  
Serial Number**

**SSCC +  
Logistics Measure**

**Some find it  
more of a  
challenge**



**GTIN **A** + GTIN **B**  
On Product A**

**GTIN A On  
Product **A** and  
Product **B****

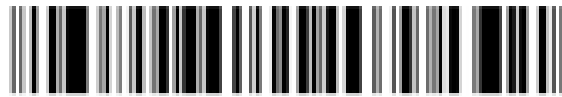


# GS1 BarCodes: Approved Options

**GS1-128**



**EAN/UPC**



**GS1 DataBar**



**Composite Component**



**GS1 DataMatrix**



(01) 00012345678905



**ITF-14**



# GS1 BarCodes Approved for Retail Point-of-Sale Trade Items





# GS1 BarCodes That Carry Keys + Additional Data



**Composite  
Component  
(not Key)**





# GS1 BarCodes Direct Marking

**GS1-128**



**Composite  
Component**



**GS1  
DataMatrix  
(Parts)**





# GS1 BarCodes Used in Healthcare



**Composite  
Component**



**GS1  
DataMatrix**

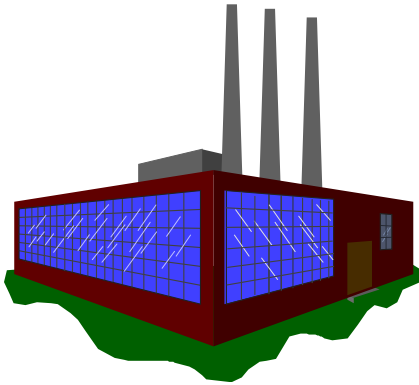
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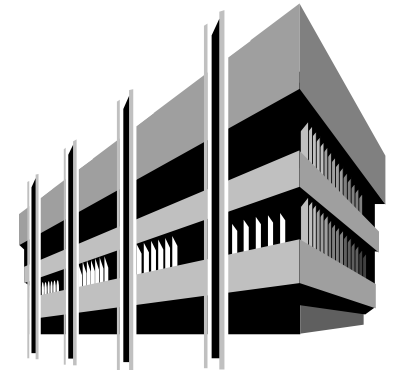
# Basic Information Flow Model

Trading  
Partner A



As trading begins, trading partners exchange information on four basic **information flow transaction areas**: purchasing, delivery, invoicing, and payment.

Trading  
Partner B



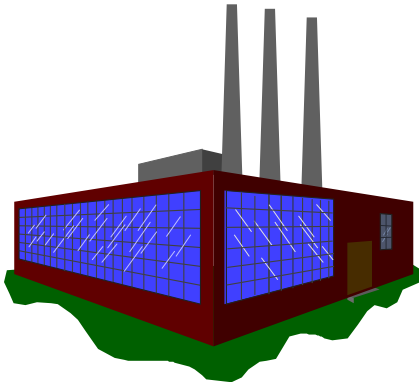
**Purchase**      **Deliver**      **Invoice**      **Pay**





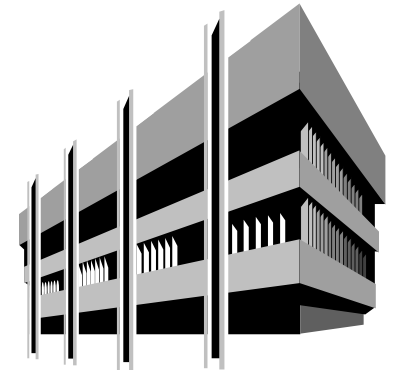
# Basic Physical Flow Model

Trading Partner A



When movement of goods begins, trading partners repeat four basic **physical flow transaction areas**: receiving, replenishment, processing, and shipping.

Trading Partner B



●                      ●                      ●                      ●

**Receive    Replenish    Process    Ship**

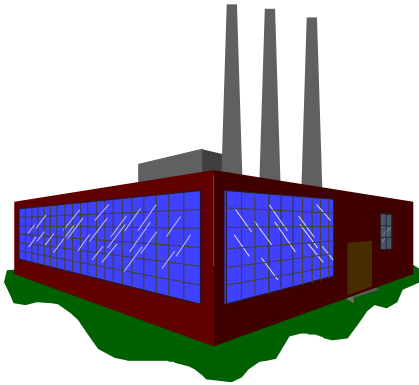




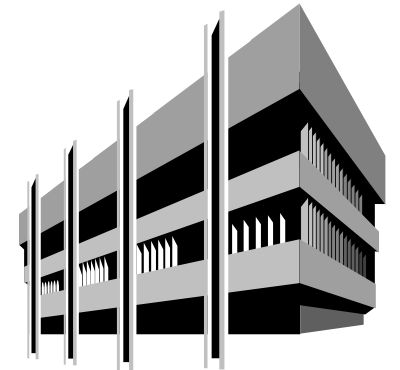


# Event: Purchasing

Trading Partner A



Trading Partner B



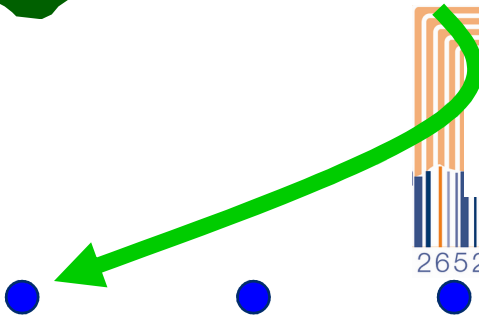
Information and physical flows combine as **orders** are exchanged using GS1 standard identifiers like the **Global Trade Item Number (GTIN)** or **Global Location Number (GLN)**.

Purchase

Deliver

Invoice

Pay



Receive

Replenish

Process

Ship

Receive

Replenish

Process

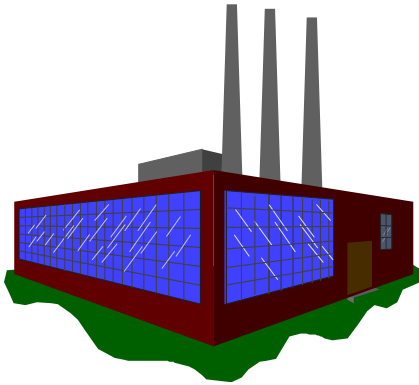
Ship



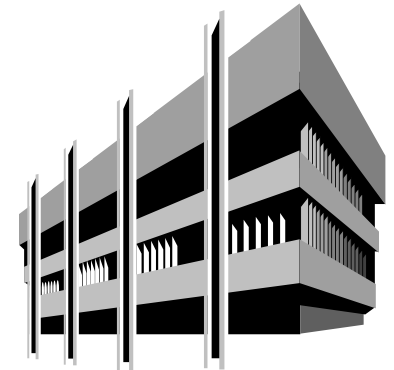


# Event: Replenishment

Trading Partner A



Trading Partner B



As they receive raw materials or finished goods, companies **replenish** their inventory levels and plan production.

Purchase

Deliver

Invoice

Pay



Receive

Replenish

Process

Ship

Receive

Replenish

Process

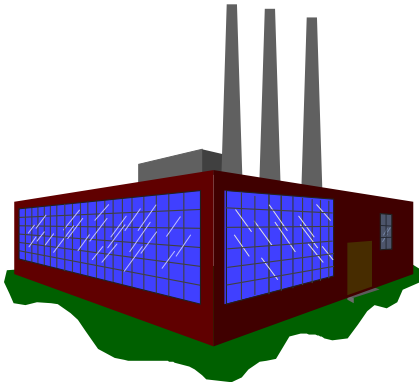
Ship



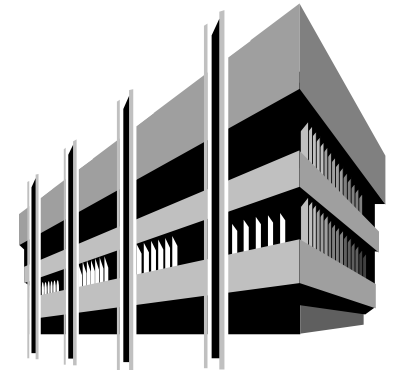


# Event: Processing

Trading Partner A



Trading Partner B



Next the company **processes** the inventory in some way. This means different things depending on the situation (manufacturing, assembly, packaging, or storage).

Purchase

Deliver

Invoice

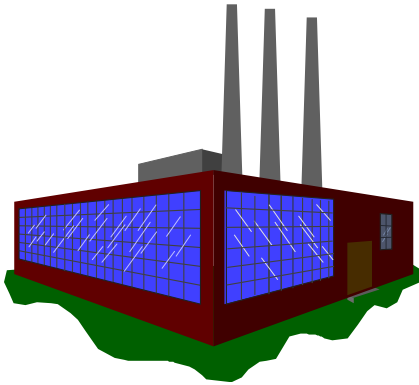
Pay



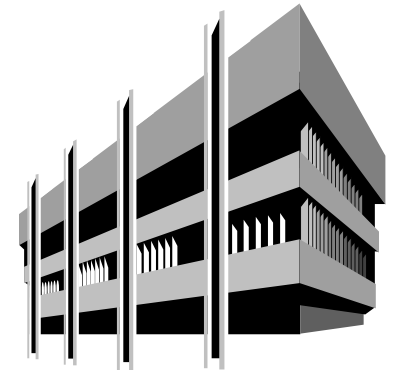


# Event: Shipping Notice

Trading Partner A



Trading Partner B



After processing is completed, the company readies the order for shipment and sends a message called a **Despatch Advice** to alert their customer the goods will soon arrive.

Purchase

Deliver

Invoice

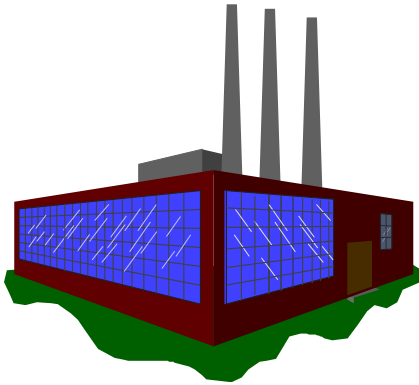
Pay



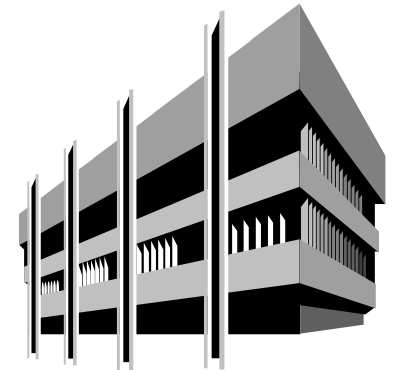


# Event: Shipping

Trading Partner A



Trading Partner B



During **shipping**, the company marks the logistics unit with a label that has the **Serialized Shipping Container Code (SSCC)** identifier in a bar code.

Purchase

Deliver

Invoice

Pay

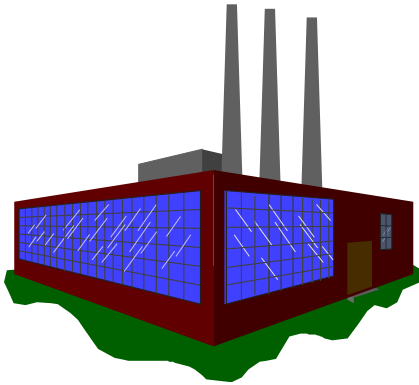
Receive Replenish Process Ship Receive Replenish Process Ship



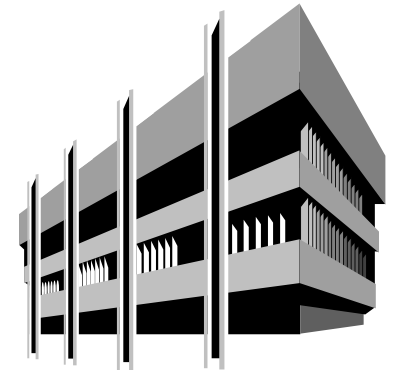


# Event: Shipment Receiving

Trading Partner A

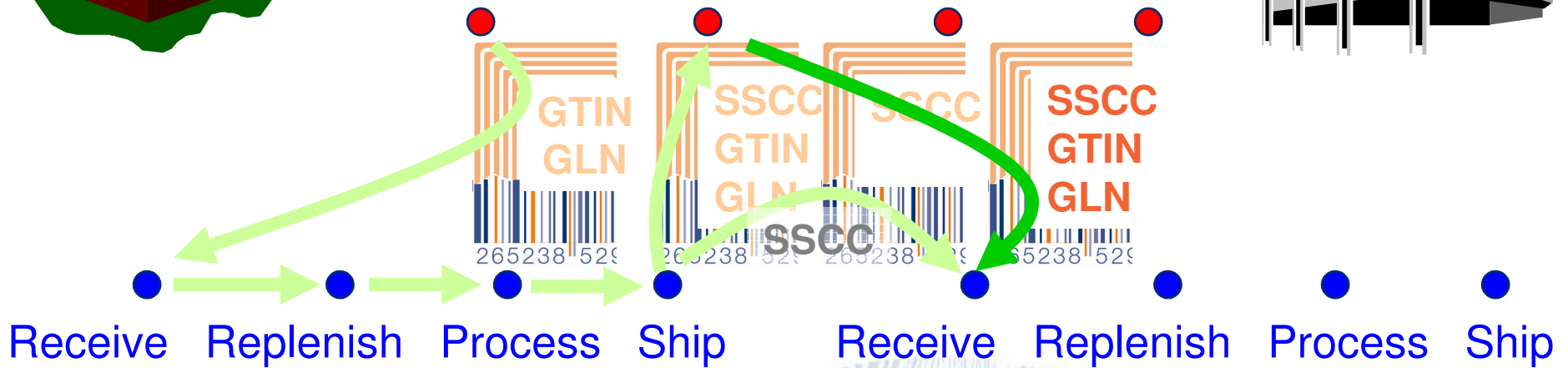


Trading Partner B



**Receiving** is automated by using the logistics unit identifier, SSCC, to unlock the shipment content information (GTINs contained) in the Despatch Advice.

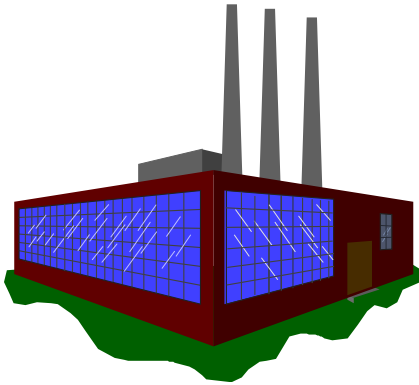
Purchase Deliver Invoice Pay



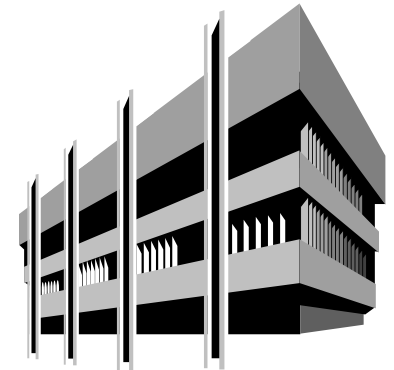


# Event: Invoicing

Trading Partner A

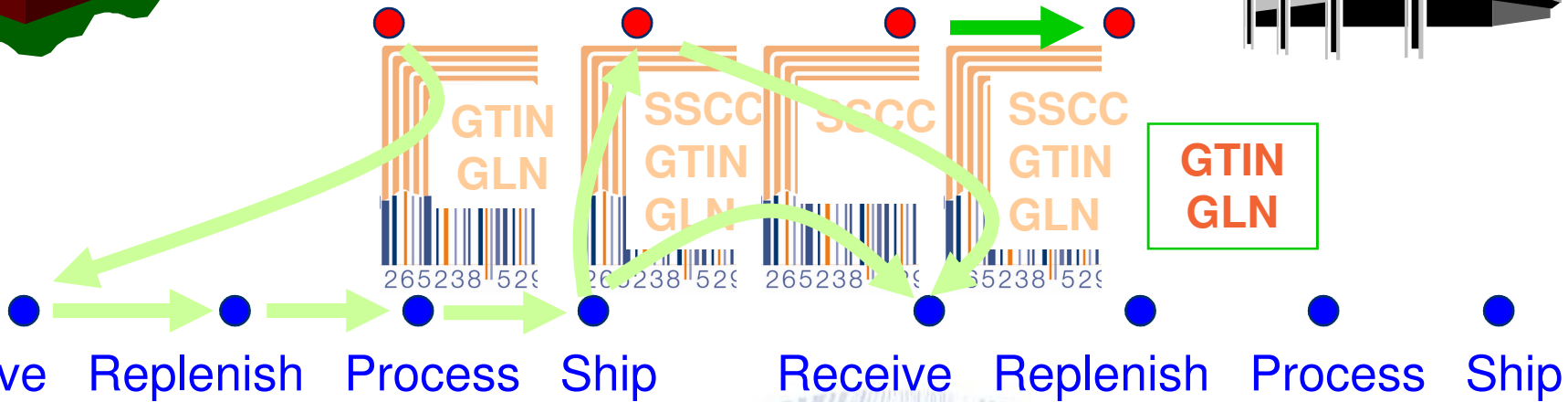


Trading Partner B



Upon receipt of the goods, a request for payment or **invoicing** occurs.

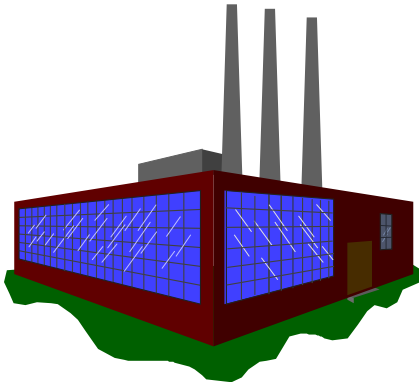
Purchase Deliver Invoice Pay



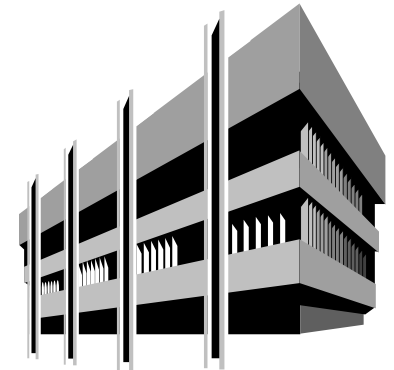


# Event: Payment

Trading Partner A

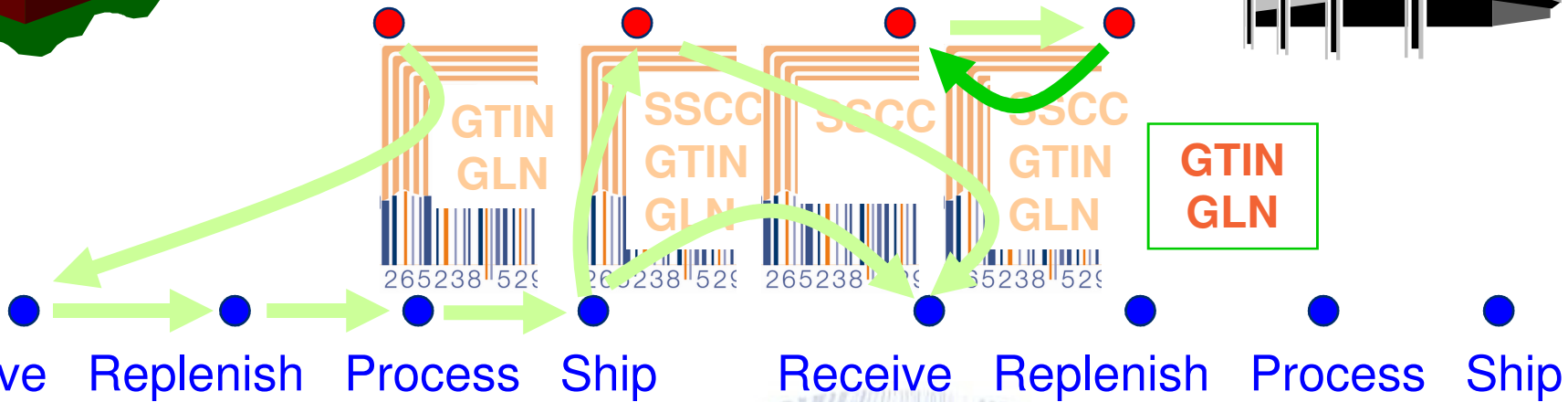


Trading Partner B



Upon receipt of the invoice, **payment** occurs according to terms. This concludes the basic order to payment cycle between two companies.

Purchase Deliver Invoice Pay







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