



Upstream Integration

GS1 and the GCI Global Upstream Supply Initiative (GUSI)



What's GS1 Upstream Integration?



GS1 Upstream Integration is the GS1 solution to address the challenges in the integration of the supply chain between manufacturers and their suppliers. Upstream Integration is about improving the processes by sharing information and improving visibility of demand, demand changes and inventory. This will increase responsiveness to the manufacturing requirements and ultimately to the final consumers.

Evolution of the market

The market has changed: there are more and more products available for the consumers but also often in smaller quantities. The time between design and delivery to final consumer is expected to be shorter and shorter. This puts pressure on the upstream part of the chain and explains the need for integration, more reliability of the information flow and visibility of the physical flow (Figure 1).

This is specifically true in the Consumer Packaged Goods Industry. The Global Upstream Supply Initiative (GUSI) was formed to address these challenges.

How GUSI has been created

In 2003, a group of manufacturers of Consumer Packaged Goods and their suppliers decided to define a common way to provide tighter integration of their supply chains. Their objective was to avoid costly and time-consuming IT integration projects with every manufacturer or supplier. At the end of 2004, the Global Commerce Initiative (GCI) initiated a new working group which incorporated the already-active GUSI members. The GUSI Working Group was born. It has developed and maintains the Upstream Integration Model (UIM) – the standardised processes and data interchanges underpinning upstream integration.

GS1 contribution

GS1 has supported the initiative on implementation of the UIM notably for:

- tailoring the GS1 standards for item identification and electronic communication,
- supporting the development of the message implementation guides,
- providing assistance for implementations.

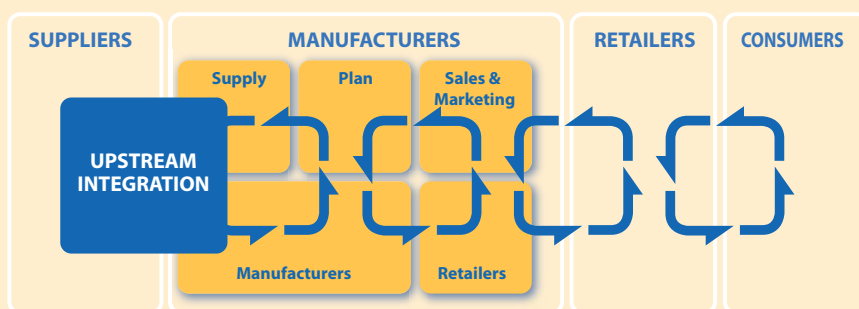


Figure 1: The Upstream Integration (Source : GCI)

The benefits of implementing GS1 Standards in combination with GUSI



Some of the world's largest consumer packaged goods manufacturers and their suppliers have identified significant benefits in using standard solutions.

The companies reported:

- **Faster integration:**
up to 75% reduction in the time taken to connect to new partners
- **Reduced IT costs:**
 - Set-up: reduced development and training costs (both IT and business staff)
 - Maintenance: due to phasing out of multiple non-standard interfaces
- **Larger scope:**
increased ROI by being able to implement across a larger scope of factories and suppliers. GUSI is for large and small companies.

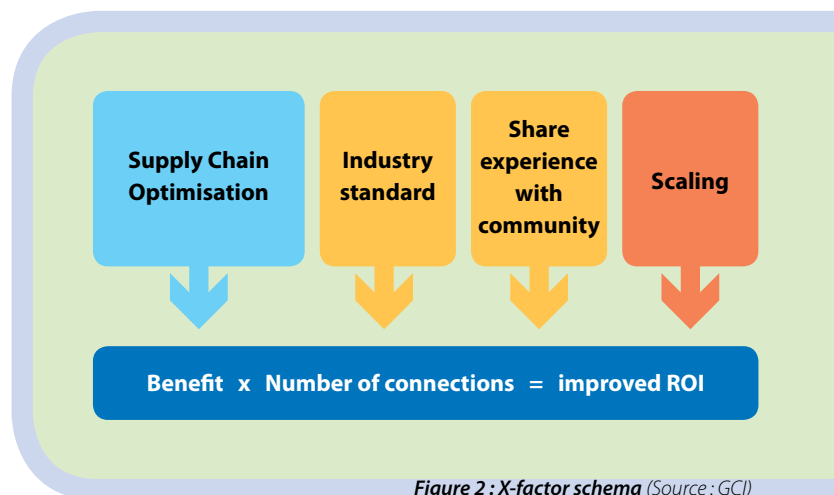


Figure 2 : X-factor schema (Source : GCI)

Therefore, GUSI works as a multiplier to help achieve collaboration benefits in the following areas:

- Service (product availability, lead time)
- Administration (forecasting, order processing, financial settlement, data management)
- Operation (physical receipt, manufacturing, change-over, truck fill-rate,...)
- Financial (working capital, inventory)

The adoption of the Upstream Integration Model allows companies to translate their internal processes and approaches into a common language that all other parties can use. As more companies adopt GUSI GS1 standards, the more rapidly the overall benefits rise (Figure 2).



What is available?



A business process model: the Upstream Integration Model

For the Consumer Packaged Goods industry, the GUSI working group supported by GS1 has successfully designed a business model known as the Upstream Integration Model (UIM), and decided to adopt the GS1 XML message standards to exchange information between the trading partners in support of these supply chain processes. The UIM creates a common approach and language for the business processes and data interchanges between manufacturers and their suppliers. It has been designed to cover the following business areas: Procurement, Material forecasting, Inventory management, Dispatch, Receipt, Consumption of Materials and Financial Settlement.

The UIM is a modular solution which covers the “plan to cash” process for the two most used procurement scenarios:

- “Traditional Order Management (TOM)” is the “manufacturer-driven” scenario. The demand line is initiated by the manufacturer and sent to the supplier.
- “Supplier Managed Inventory (SMI)” is the “supplier-driven” scenario. The supplier recommends or establishes the deliveries to the manufacturer based on the manufacturer inventory data and or consumption forecast.

The concept of the model is based on six building blocks. Together, the six building blocks create a modular solution to assist defining and driving the implementation of upstream integration.

As shown in Figure 3, the UIM establishes clear links between each group of business processes and the interchange of the relevant data for these processes.

GS1 Standards

GS1 standards for identification (GTIN, GLN, SSCC, GS1 Logistic Label) support the model. From the eCom Standards only the XML syntax is supported in the exchange of information between the trading partners in support of these supply chain processes.

To cover all upstream transactions, 15 messages have been selected from the GS1 XML standards (Figure 4).

To help implementation of the standards, supporting guidelines are available:

- GTIN allocation rules including specific rules for ingredients, raw materials and packaging,
- UIM implementation guidelines per building block including Message Implementation Guides (MIG's).





Building Blocks	Manufacturer Process	Transactions	Supplier Process
Integration Agreement	Agree on Business Rules	Integration Agreement	Agree on Business Rules
Data Alignment	Maintain Master Data	Item Master Data	Maintain Master Data
Purchasing Conditions	Agree Purchasing Conditions	Purchase Conditions	Agree Purchasing Conditions
Demand & Supply Signals	Report Inventory	Inventory	Report Inventory
	Gather Material Requirements	Purchase Order Net Requirements Consumption Forecast Replenishment Forecast	Plan Production & Supply
	Integrate Information	PO/Net Requirements Confirmation Delivery Plan	Confirm Delivery
Despatch Receipt & Consumption	Await Shipment	Despatch Notification	Pick & Pack goods
	Receipt of Goods	Physical shipment of goods	Shipment
	Check Goods	Receipt Notification	Goods Receipt Notification
	Consume Goods	Consumption Report	Consumption Notification
Financial Settlement	Invoice Receipt	Invoice	Create Invoice
	Create Self-Billing Invoice	Self-Billing Invoice	Invoice Receipt
	Invoice Confirmation	Invoice Confirmation	Invoice Confirmation
	Create Remittance Advice	Remittance Notification	Payment Notification
	Initiate Payment	Physical Payment	Payment Receipt

Figure 3: The UIM (Source: The "UIM" version 3.0)

Building Blocks	GS1 XML messages
Master Data Alignment	Item Data Notification
Purchase Conditions	Purchase conditions
Demand & Supply Signals	Inventory Activity or Inventory Status Multishipment Order Order Response Goods Requirements Goods Requirements Response Replenishment Request Replenishment Proposal
Despatch, Receipt & Consumption	Despatch Advice Receipt Advice Consumption Report
Financial Settlement	Invoice Invoice Response Settlement

Figure 4: Building blocks and GS1 XML messages association



The GS1 documentation and Services

Many manufacturers with their main suppliers have already implemented the UIM and its associated GS1 standards, but now they need the support of GS1 to speed-up the roll-out. In this context GS1 is committed to support companies in their implementation.

This will be provided as a package of implementation material (e.g. brochure, implementation guide with case study for each message, slides,...) and services (e.g. training sessions, online support, GUSI GS1_XML message testing and logistic label testing,...). This package has been created in close collaboration between GCI and GS1, and will be available for users at their local GS1 MO.

GUSI users' statements

CROWN Europe, Roland DACHS

(Vice president Logistics & Planning, GUSI Co-Chair):

"GUSI is an Industry Integration Solution built on common processes and standards that will enable scaled benefits for trading partners."

NESTLE, Garry HAWORTH

(Head of eBusiness, GUSI Co-Chair):

"It is important to note that the benefits of the robust GUSI set of standards do not only occur in the upstream, they also flow to the downstream where customers and consumers are also beneficiaries."

UNILEVER, Peter ERNSTING

(Senior Vice President Supply Chain Europe):

"GUSI is about simplifying the connections of Supply Chain between manufacturers and suppliers. This improves service and reduces cost by eliminating the non-added value- the ultimate basis for sustainable profitable growth."





Training Sessions

- Two different inter-company training sessions (½ day per seminar).
- **First seminar:** Introduction to the UIM and to the GS1 XML standard.
- **Second seminar:** How to understand the GS1 XML message testing. Study of the GS1 XML message structure and case studies.
- **Target audience:** Manufacturers and suppliers with a business process orientation (first seminar) or a technical orientation (second seminar) and IT services providers.

Manual for implementing the UIM and GS1 standards

- A manual to understand the UIM standard.
- A manual to support the implementation of messages exchanged in each "building block".
- A manual with implementation guidelines for each message.



Online Support

- For phone support, please contact your local GS1 member organization : <http://www.gs1.org/contact/worldwide.php>
- E-mail address dedicated to the project for each GS1 local member organisation
- To provide communications means to users for technical support (technical questions on processes, messages implementation) or for messages and labels testing and approval.

Testing of Logistic labels and XML messages

- **Testing of logistic label:** The "code testing" department of GS1 will be in charge of testing logistic labels and will deliver conformity diagnosis.
- **Testing of GS1 XML messages:** Three different levels of GS1 XML message testing testing will be offered by the GS1 eCom department (syntax testing, functional message testing, scenario testing based on early adopter's implementation scenarios).



Companies and organisations involved

The following companies are GUSI members or supporters
(Source: GCI, 2007)

Ajinomoto, Alcan Food, Alcan Packaging, Avebe, Augustin, BASF, Coca-Cola Company, Constantia Flexibles Holding GmbH, Crown Europe, Danisco, Darégal, Dow Corning, DSM, Elpack S.A, Euroma, Firmenich, Georgia Pacific Corporation, Givaudan, Groupe Danone, GundLach Verpackung, GundLach Verpackung, H.J. Heinz, Heineken, Henkel, Huhtamaki, International Flavours&Fragrances (IFF), IOI Group, J.M. Smucker Company, Jokey plastic GmbH, Kellogg's, Kimberly-Clark Europe, Kraft Foods, L'Oréal, Mayr-Melnhof Karton GmbH & Co Kg, National Starch, Nestlé, Novozymes, Philips Lighting BV, Procter & Gamble, Quest International, Royal Sens, RPC Bebo Plastic, SaaleMühle Alsleben GmbH, Sara Lee/De, SCA Packaging, Smurfit Kappa Group, Symrise, Tetra Pak International SA, The Dow Chemical Company, Unilever, Van Genechten Packaging, Wart, Zentis.

GCI, the Global Commerce Initiative, is a global organisation that brings manufacturers and retailers together to identify opportunities for improvement, to develop best practices, to endorse global standards and to drive adoption throughout the industry.

GS1 is a leading global organisation dedicated to the design and implementation of global standards and solutions to improve the efficiency and visibility of the supply and demand chains globally and across sectors. The GS1 system of standards is the most widely used supply chain standards system in the world. GS1 is currently operating in about 148 countries in the world, and more than 1.2 million companies are GS1 members.



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