An Integrated View of the Global Data Synchronisation Network and the Electronic Product Code Network

IBM

GCI GLOBAL COMMERCE INITIATIVE

Published in association with IBM

Introduction

This paper explains the relationship between the Global Data Synchronisation (GDS) Network and the EPCglobal Network™. It does not compare the relative merits of one network versus the other. We view both networks as key components in the transformation towards collaborative supply chains.

The GDS initiative seeks to align product and party information across all trading partners in the supply chain, providing a single version of the truth. GDS enables each participant in the supply chain to have accurate and up-to-date information about the products flowing through its supply chain.

Radio Frequency Identification (RFID) technology provides the capability to track an object (pallet, case, item, etc) realtime throughout the entire supply chain. The network to be used to support the management and secure exchange of the information, much of it captured using RFID technology, is called the EPCglobal Network. In order to identify each individual instance of a product within the supply chain, the EPCglobal Network will use the Electronic Product Code (EPC), a numbering scheme that incorporates existing numbering schemes.

Recent announcements by consumer products manufacturers and retailers about plans for EPCglobal and GDS Network adoption have led to a number of questions being posed:

1 What is the relationship between the GDS Network and the EPCglobal Network?
   - 1.1 What is the relationship between the GTIN and the EPC?
   - 1.2 What information do these two networks hold that is the same and what is different?
   - 1.3 What is the relationship between the GS1 Global Registry and the EPC Object Naming Service (ONS)?
   - 1.4 What is the relationship between a Data Pool and the EPC Information Services (EPC IS)?
   - 1.5 What is the synergy between the infrastructures of the two networks?
2 What areas should be explored to ensure the cost-effective development of the two networks?
3 Is Data Synchronisation a pre-requisite to EPC adoption?
4 What does an integrated roadmap for adopting GDS and EPC look like?

The Global Commerce Initiative (GCI) commissioned this paper to answer these questions and provide some clarity for companies being asked to consider adoption of both concepts. The report does not duplicate the content of previous reports that have been published by GCI on 'Creating the Business Case for Global Data Synchronisation' and the GCI EPC Roadmap. Further work on the Total Industry Business Case for EPC Adoption will be published by GCI in the fourth quarter of 2004.

The report is structured in the following way:

I. A Brief Explanation of the GDS Network and the EPCglobal Network

II. An Integrated View of the GDS Network & EPCglobal Network – answers to questions listed above

III. Conclusions

A list of references to industry publications and standards is provided at the end of this report.

The GCI and IBM Business Consulting Services, which conducted the research and writing of this report, wish to thank the following people for providing support, guidance and invaluable input to this report:

Nigel Bagley, Unilever
Henri Barthel, EPCglobal
John Clarke, Tesco
Dirk Heyman, The Gillette Company
Peter Jordan, Kraft Foods
Katrin Recke, European Brands Association (AIM)
Steve Rehling, The Proctor & Gamble Company
Sabine Ritter, GCI
Pam Stegeman, Grocery Manufacturers Association of America (GMA)
Milan Turk Jr., The Procter & Gamble Company

Special thanks are also due to the IBM Business Consulting Services team of Sachin Shah, Kathryn Gramling and Christian Clauss.

The GDS and EPCglobal Networks

The GDS Network: a brief explanation

Imagine that all the information that you hold in your business systems about the products that you make or sell is exactly the same as that held by your trading partners. Invoice errors and mismatched purchase orders would be a thing of the past. No longer would category analysts spend 50 percent of their time 'cleaning' up information that you need to act on now. Buyers and sellers would be able to focus on building sales rather than on correcting misaligned information. Imagine now that when a new product is launched the data will be exchanged in a seamless and streamlined way through the supply chain, allowing the right amount of goods to become available at the right place and at the right time – and faster!

This is the vision that GDS enables through providing the fundamental infrastructure for the seamless flow of product information through the supply chain (within and across borders).

This GDS vision is delivered by the GDS Network. The network consists of:

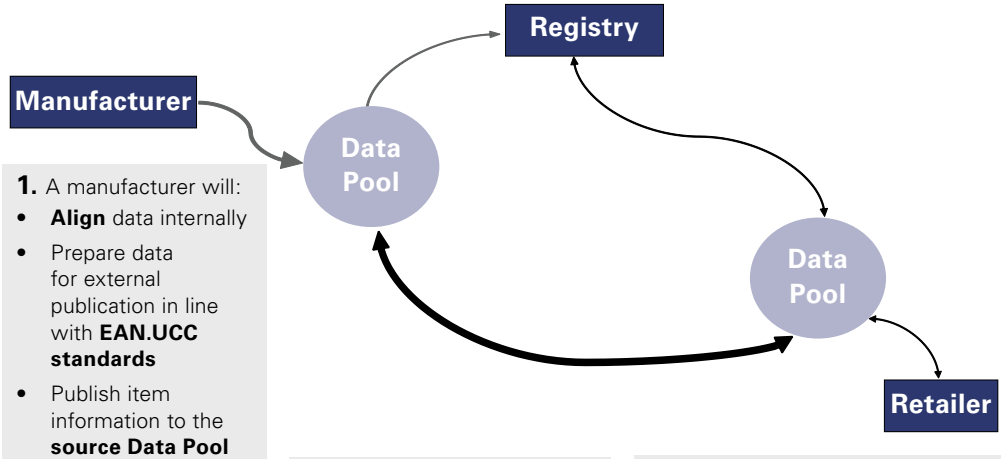
- Interoperable, certified Data Pools
- A Global Registry; provided by GS1
- A set of EAN.UCC Standards, ensuring that all supply chain partners use common product descriptions and classification and the same message structures to exchange the data.

These elements of the GDS Network collectively support the synchronisation of product data between trading partners.

The GCI Vision for GDS

2. The Data Pool registers a product in the **GS1 Global Registry** and sends very basic information about the item.

3. The **GS1 Global Registry** holds this basic information about all items and the location of each items' **source Data Pool.**



1. A manufacturer will:

- **Align** data internally
- Prepare data for external publication in line with **EAN.UCC standards**
- Publish item information to the **source Data Pool**
- **Synchronise** changes to this date
- Approve retailer requests to **subscribe** to date.

4. A retailer will:

- Search the **GS1 Global Registry,** via a selected Data Pool, for an item (by GTIN or by description) – the Registry returns the details of the items to the Data Pool
- Request **subscription** to manufacturer data
- Receive data and any subsequent changes
- **Align** data with internal data.

5. The trading partners **synchronise the item** information between their respective Data Pools.

6. The same process applies for synchronising **Party information,** published by manufacturer or retailer, based on the GLN.

The GS1 Global Registry and the interoperable Data Pools are at the heart of the GDS process. Their roles and functions are distinct but complementary. The key role of the GS1 Global Registry is to ensure that original data is registered once, at one place. Data Pools provide for the publication of certified standard data and subscription to this data.

The Network works with the following principles:

- The GS1 Global Registry and the Data Pools will be EAN.UCC certified
- There is interoperability among all Data Pools and the GS1 Global Registry
- One single point of entry into the Network by all participants
- Only the Data Pools will communicate with the GS1 Global Registry
- Only GDS EAN.UCC Business Messages will be used within the Network.

Data

The initial implementation of the GDS vision is focused around Master Data for 'Item' with 'Location' intended to follow soon after. Master Data is the set of data describing the specifications and structure of each Product (or Item) and Location (or Party) involved in Supply Chain Processes, based on the key identifiers, the Global Trade Item Number (GTIN) and the Global Location Number (GLN).

Master Data can be divided into **Neutral** and **Relationship Dependent Data.**

Neutral Data is that which is generally shared between multiple parties and which is Relationship Independent. This can be split into three categories:

- **Core Product Data** – Core Data Attributes that apply to all instances of any product (e.g. description, brand name, packaging, dimensions, etc)
- **Category Specific Data** – Data Attributes that only apply to specific product categories (e.g. the colour, grape and strength of a bottle of wine)
- **Target Market Data** – Data Attributes that are specific to product in a particular market (e.g. packaging indicators in a specific country).

Relationship Dependent Data – Data Attributes that concern all terms bilaterally agreed and communicated between trading partners such as marketing conditions, price information and discounts, logistics agreements and more.

The EPCglobal Network: A Brief Explanation

RFID is a technology which allows an electronic 'tag' (a silicon chip attached to an antenna) to transmit its unique identification number to nearby electronic 'readers'. RFID tags are used in a variety of applications from automated bridge toll payments to dog tracking. In 1999 an industry funded university project (Auto-ID Center) was created to look at how industry could use this technology to improve the supply chain. The Auto-ID Center created the concept of a unique code EPC that can be stored on the 'tag' and, once read by an RFID reader, the code can be used to 'look up' information about the tagged item. Because a code uses very little chip memory the chips themselves can be very small and, therefore, very low cost. This makes the tags suitable for ubiquitous deployment on pallets, cases, innerpacks, and even on individual consumer items.

By using the RFID technology to increase the visibility of product movement and the EPC code to facilitate off-product information storage, supply chains of the future will be able to track objects in realtime through the total supply chain and the product's lifecycle. The increased visibility of pallets, cases, and items that the use of EPC technology can deliver will offer numerous new opportunities for improving supply chain measurement, performance tuning, and product collaboration. In order to take advantage of this product visibility across multiple trading partners in a supply chain, there will need to be a secure network for reliably sharing product information.

The EPCglobal Network is an open, standards-based system that will facilitate the sharing of unique product identification and tracking information among partners in the value chain.

The EPCglobal Network enables the secure storage and/or retrieval from other sources and networks of the following information about each tagged object:

- **Core Product Information:** Things true for all products with the same GTIN. This is identical to the Core Product Information in the GDS Network
- **Manufacturing Time Information:** Things known about this pallet, case, or item at the time of manufacture. Data elements such as 'lot number' and 'expiration date' are not stored by the GDS Network and today are often only stored in the internal IT systems of the manufacturer
- **Lifecycle History Information:** The distributed track and trace details of the lifecycle of a product. Data elements such as 'date/time received in back of store' are not stored by the GDS Network and today are often only stored in the internal IT systems of the various supply chain partners.

The EPCglobal Network vision is based on the following principles:

- A unique number (the **EPC**) to identify each individual instance of a product within the supply chain
- This unique number is held in a RFID tag that is attached to that object
- As this object moves through the supply chain, it is detected by RFID readers at different locations and the information is passed to **Filtering and Collection EPC middleware**
- This middleware aggregates information, removes duplicates, applies appropriate filters and in turn passes filtered information to enterprise systems
- When IT systems require more information about an object, they use the EPC code from the object's tag or other EPC Manager Numbers to query the **Object Naming Service (ONS)**
- The ONS will return the Internet address of an **EPC Discovery Services (EPC DS)** server which can provide to the requester pointers to **EPC Information Services (EPC IS)** servers which hold information about the object in question, or the direct address of an EPC IS server for certain queries.

Please note that the definition of EPC IS is progressing rapidly, while EPC DS remains a future consideration and is described below in a possible approach. A more detailed description of the EPCglobal Network can be found in the GCI EPC Roadmap.

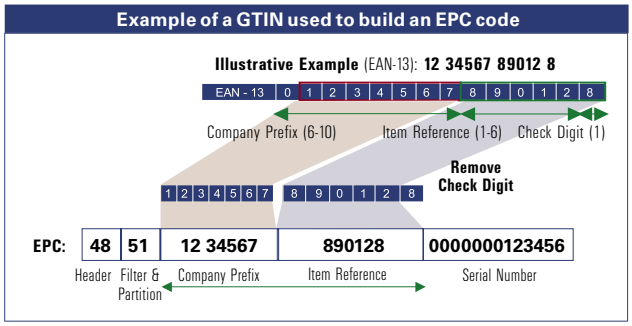
An Integrated View of the GDS Network and the EPCglobal Network

1 What is the relationship between the GDS Network and the EPCglobal Network?

1.1 What is the relationship between the GTIN and the EPC?

The GTIN (e.g. EAN13, UPC12, etc) and the EPC are standards based numbering schemes for identifying items.

Example of a GTIN used to build an EPC Code



Source: IBM Business Consulting Services

The diagram shows a high level schematic of how a GTIN can be used to build a unique EPC code.

Reference should be made to the EPCglobal Tag Data Specifications (see page 14).

The GTIN is an umbrella term used to describe an entire family of EAN.UCC data structures for trade items identification. The family of data structures include the UPC (UCC-12), EAN.UCC-13, EAN.UCC-8 and EAN.UCC-14. Items at every level of the trade item configuration (consumer selling unit, case level, inner pack level, pallet) require a unique GTIN.

The EPC is an identification scheme to uniquely identify an individual item. The difference between the two is that a GTIN identifies a particular class of object, such as a particular kind of product or SKU, but does not uniquely identify a single physical object.

To ensure the continuity, but still being able to create a unique identifier for individual objects using the GTIN, the GTIN is augmented with a serial number. The combination of a GTIN and a unique serial number is called **Serialised GTIN (SGTIN).**

Other EAN.UCC standards based numbering schemes can also be used to build unique EPC codes.

The publicly available EPCglobal Tag Data Specifications (see page 14) give details on how to create 96-bit EPC codes, which encapsulate existing industry numbering schemes such as:

- EAN.UCC Serial Shipping Container Code (SSCC®)
- EAN.UCC Global Location Number (GLN®)
- EAN.UCC Global Returnable Asset Identifier (GRAI®)
- EAN.UCC Global Individual Asset Identifier (GIAI®).

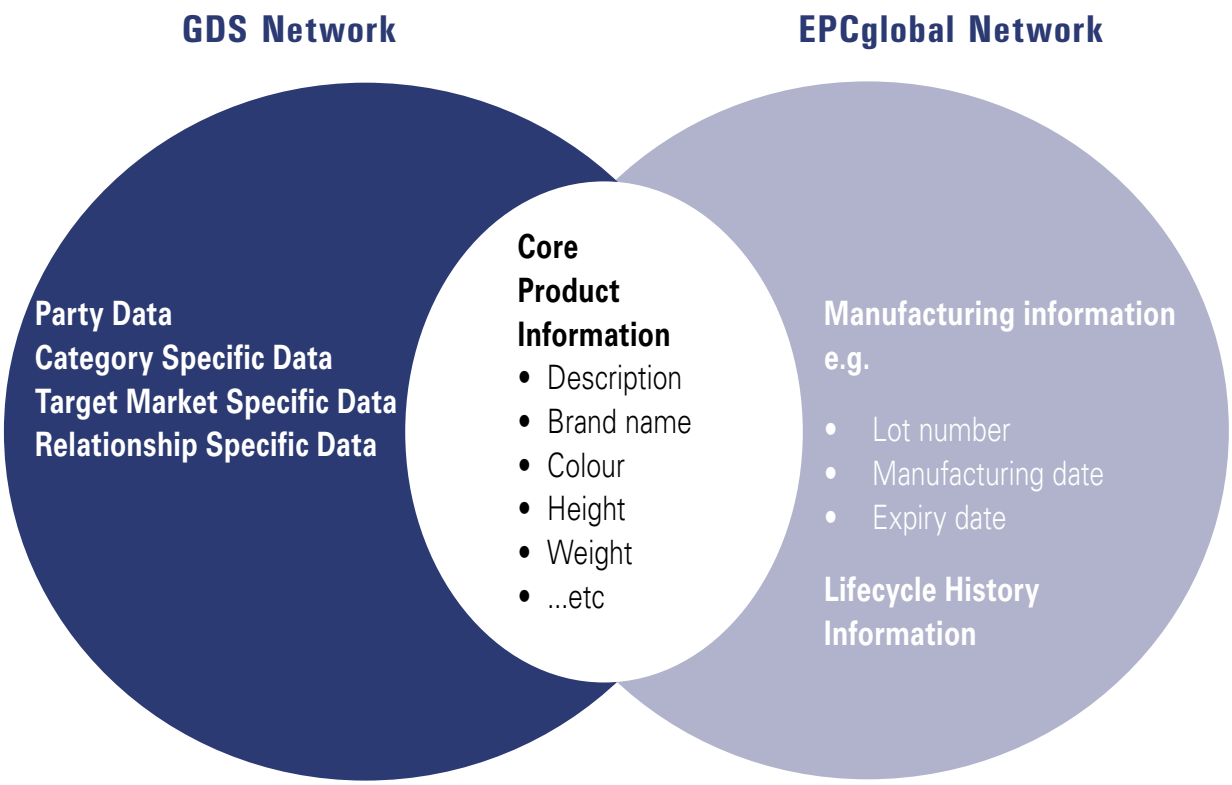
For other industries, it is intended that different numbering schemes will be used to build the EPC to ensure minimal disruption and investment protection, while at the same time ensuring that all EPC codes are globally unique. Today, in addition to consumer products and retail, many industries are considering EPC adoption – including defence, aerospace, pharmaceuticals, healthcare, logistics, airlines, chemicals, medical equipment, consumer electronics and paper.

1.2 What information do these two networks hold that is the same and what is different?

The GDS Network holds Neutral Data as Core Product Data, Category Specific Data, Target Market Specific Data, as well as Relationship Dependent Data and Party Data.

The EPCglobal Network holds Manufacturing Time Data, Lifecycle History Data and can provide access to Core Product Data.

GDSN and EPCN currently have a shared dependency on core product information



Core Product Information is the information that is shared by both networks and therefore needs to be compliant with EAN.UCC standards, as well as well as being clean, accurate and timely. Clean data is a pre-requisite to aligning this data internally and with trading partners.

The single most important difference between these two networks is that the EPCglobal Network is designed to store information about each individual pallet, case, inner pack and item manufactured. The potentially significant new quantity of product information and the distributed nature of the information creation will require that the EPCglobal Network has a different information architecture from the existing GDS Network architecture, though with the potential for interoperability of the two in the areas where they overlap.

As both networks evolve, the commonality of shared data has the potential to grow.

1.3 What is the relationship between the GS1 Global Registry and the EPC ONS?

The GS1 Global Registry and the ONS play a similar role of master index in their respective networks but they also exhibit key differences that are vital to the understanding of these two networks.

The GDS Network's **GS1 Global Registry** will serve as a global gateway for companies to locate source (manufacturer) or recipient (retailer) Data Pools, which contain item and party information. It is an indexing engine that enables Data Pool providers to find the information in other Data Pools. It allows searching for information by a limited set of attributes including by GTIN, manufacturer, product category or target market. Results of a search would include a link to the Data Pool on which the full product information can be accessed.

The GS1 Global Registry ensures the uniqueness of the information linked to the primary database key for each item and party. This allows multiple parties – e.g. manufacturers and distributors – to supply information relating to an individual GTIN.

The EPCglobal Network's **ONS** is, likewise, a simple, one-way indexing engine which enables authorised network users to use an EPC code or another EPC Manager Number to find information about tagged objects. The ONS accepts an EPC (or just an EPC Manager Number) as input and returns pointers to information about the product in question as output. One of these pointers may be to a Data Pool to access the Core Product Information relating to the item carrying the EPC.

The EPCglobal Network will hold significantly more information than the GDS Network because it will hold Manufacturing Time Information and Lifecycle History Information for all EPC tagged products. The size and distributed nature of the Lifecycle History will require that the EPC Network possibly employ a second layer of indexing called EPC DS.

As an example: a company ONS might have three pointers to information about any given EPC. The first pointer will point to the EPC IS interface of the company's product catalogue, Product Information Manager, or a Data Pool to get the product's Core Product Information. The second pointer will point to the EPC IS interface of the product manufacturer's manufacturing execution system to get the product's Manufacturing Time Information. The third pointer will point to an EPC DS that will contain pointers to EPC IS servers of all parties that have handled this product. Following the pointers in the EPC DS will allow users to get the product's Lifecycle History Information.

Inside a company, it might be usual to set the first ONS pointer to point to the local product catalogue, Product Information Manager, or other internal system of record to obtain information that has been made available through Data Synchronisation. Outside of trading partner relationships this pointer could point to the EPC IS interface of a Data Pool. In this way, local pre-synchronised data can quickly be consulted if it is available, but Data Pools can be consulted on-the-fly if the information has not already been pre-synchronised. This flexibility will speed information search times and allow companies to leverage their existing investments in GDS information.

1.4 What is the relationship between a Data Pool and the EPC Information Services (EPC IS)?

Both the Data Pool and the EPC IS act as information repositories for their respective networks. The EPC IS stores information locally and only moves information upon request – on demand. The Data Pool facilitates the synchronisation of information between the manufacturer systems ERP and the retailer systems (or third parties such as brokers). Data Pools provide a store-and-forward system that uses publish and subscribe mechanisms to deliver information to interested parties. One aspect is crucial about the data: getting them right at a local level!

One way to think about the difference in the way the GDS and EPCglobal Networks work is to compare them to existing information networks in use today – e-mail and Web pages.

The GDS Network is a store-and-forward information delivery network like e-mail systems in wide use today. When one sends an e-mail, the content is sent to an e-mail server (or a series of e-mail servers) where it is stored until the intended recipient logs on. Once the recipient logs in, the e-mail message is forwarded to their in-box. In the GDS Network, a manufacturer publishes their product information to their Home Data Pool where it is stored until it is synchronised with interested retailers.

The EPCglobal Network is an on demand information delivery network like publishing information to Web pages. When one creates Web pages, the content is stored in a web server and is delivered to the user only when they visit the appropriate Web site. In the EPCglobal Network, product information is stored in a local EPC IS server and is delivered to interested parties only when they query the network for information.

Several of the largest Data Pool providers including Transora, WWRE, UCCnet, and GXS have already publicly demonstrated that their Data Pools can respond to EPCglobal Network information requests for Core Product Information. One could speculate that Data Pool providers will take the opportunity of becoming full EPCglobal Network providers by adding Manufacturing Time Information and Lifecycle History Information to their existing data stores for companies who want them to provide that service. As noted earlier, both the data volumes and the information architectures of the GDS and EPCglobal Networks are quite different so pursuing this new opportunity will require significant work on the part of Data Pool providers. The Data Pools could allow EPC IS interfaces so that they serve the role of an EPC IS, at least for Core Information.

1.5 What is the synergy between the infrastructures of the two networks?

As explained above, much work has gone into making sure that the GDS Network and the EPCglobal Network can leverage each other's capabilities. For the consumer products industry, both networks use the GTIN as an important index so that efforts made on GTIN discipline have their full impact. As the EPC IS interfaces become more widely adopted, many Data Pool providers will add these interfaces to their products to ensure that Data Pools can respond directly to EPCglobal Network information queries.

The GDS and EPCglobal Networks were designed to hold both overlapping and different information and were based on different assumptions about network availability, data volume, security, etc.

2. What areas should be explored to ensure the cost-effective development of the two networks?

In order to promote the adoption of both networks, the industry needs to work together to address the following issues:

Opportunity for synergy and charging model

A working group led by GS1 should be commissioned to identify the opportunities for synergy in a more coherent infrastructure. These opportunities could be realised in the areas of resource utilisation, hardware and software application, in the development of new services and the alignment of existing ones.

One of the major issues that companies who wish to use both the GDS and EPCglobal networks face is the current charging structure. GS1 charges separate fees for each network. The current charging structures have been put in place to help build the infrastructure. Looking into the opportunities for synergy and with a broader level of usage, GS1 and EPCglobal should be encouraged to review the fees. This review should have the objective of a more unified charging structure that reflects the possible growing overlap of the services offered.

Re-apply Learning

Both networks are at a different stage of evolution. Lessons learned in one should be applied to accelerate adoption of the other.

Promote adoption of the full EPCglobal Network

EPCglobal needs to make a clearer case that ONS, EPC DS, and EPC IS are necessary to complete the EPCglobal network. Networks will only be used to store sensitive information if they can be trusted, so EPCglobal needs to deliver a strong security framework for the EPCglobal Network. If no progress is achieved, then standardisation higher up the technology solution stack cannot happen. This will lead to a repetition of today's situation in which many business-to-business (B2B) solutions exist without interoperability – Data Pools being a good example. Many companies are experimenting with EPC technology without considering the value that network-based collaboration can bring. Many retailers that are considering EPC adoption are not yet convinced about the need for a standards based EPCglobal network. If every retailer that announces EPC adoption plans provides for a different mechanism for product visibility, then EPC adoption will be slow and costs as a result higher.

3. Is Data Synchronisation a pre-requisite to EPC adoption?

Although full implementation of GDS is not strictly necessary to implement the EPCglobal Network, it should be recognised that benefit will not be achieved unless consistent, accurate and timely information is fully shared between the trading partners.

Each organisation should focus on building a foundation by getting into a strong habit of standards-based data sharing with its trading partners, in order to be ready to take maximum advantage of the fruits of collaboration.

4. What does an integrated roadmap for adopting GDS and EPC look like?

Each company will have a different entry point into working with both networks. To illustrate the different levels of development of the different network features, the table on page 12 shows examples of features across three levels of development:

1. Established industry practices;
2. Leading industry developments – at the forefront of implementation of leading edge practice;
3. Pioneering & strategic imperatives – the end goal when the enablers are in place to get real payback from collaborative business processes.

For many companies, keeping pace with established industry practices will be challenging enough and sufficient to improve their business. For these companies, data cleansing and internal data alignment will be necessary pre-requisites to getting value from GDS. EPC infrastructure testing will be necessary to get the right learning on how to get value from EPCglobal Network adoption.

Companies that are at the forefront of industry development will be doing joint process analysis with trading partners to determine pain points and will conduct trials to solve these pain points. These companies are expected to be the first to get to and scale true collaborative process execution.

Two GCI Reports – The GDS Business Case and the EPC Roadmap – provide details on the path to adoption for both concepts.

	Established Industry Practice	Leading Industry Development	Pioneering & Strategic Industry Imperatives

The Key Identifiers	• GTIN
	• GLN
	• SSCC
	• GRAI
		• EPC
		  • Serialised GTIN
		  • SSCC
		• GRAI
			• All EAN.UCC identifiers embedded into the EPC code

Data Standards	• Global Data Directory
	  • Core Item Data
	  • Party Data
		• Global Data Directory
		  • Category Specific
		  • Target Market Specific
		  • Relationship Specific
		• Global Product Classification
			• All data that needs to be synchronised is included in Global Data Directory

Trading Data Synchronisation	• Internal Data Alignment
	• External synchronisation
	  • Paper based
	  • Data entry based
	• Data Pools
		• System to System external synchronisation
		• GS1 Global Registry
		• Interoperable Certified Data Pools
			• Business process synchronisation

Carrier	• Barcode	• EPC Tag
		  • Class 0, 1
		  • Gen 2
			• EPC Tag
			  • Class 2 & Beyond

Communication	• Paper, Fax, E-mail • EDI-EANCOM	• EDI-XML • Trading Partner Portals	• Trading Partner Gateways • Event based systems
Information Access	• Core product information (brand, height, weight etc) being provided by fax, e-mail, EDI, data entry • Some Manufacturers & Lifecycle History Data is held internally	• Core product information synchronised • Some Manufacture & Lifecycle History Data is being shared between trading partners • ONS available to point to where information is held	• Core product information synchronised • Manufacturer & Lifecycle History Information accessed on demand (pull) • ONS, EPC DS & EPC IS based information access
Collaborative Process	• Internal Supply Chain Optimisation • VMI/CMI • Category Management	• CPFR • Supply Chain Optimisation with Trading Partners	• Joint Product Development • Consumer driven supply chains • Synchronised business processes

Conclusions

The key messages that we would like to emphasise in this paper are:

- We recommend that companies start adopting foundational disciplines now. Companies should institutionalise the habit of sharing product information with their trading partners. We recommend that companies focus on data quality and the importance of building trust through collaboration.

- We recommend that companies think of both networks in an integrated manner. Each provides its own value and both will help you to improve your supply chain collaboration with trading partners.

- This report is not about the relative merits of one network versus the other. We view both networks as key components in building the foundation for supply chain collaboration.

Key points on the questions:

- The single most important difference between these two networks is that the EPCglobal Network is designed to store or retrieve information about each individual pallet, case, inner pack, and item manufactured. This enormous quantity of new product information and the distributed nature of the information creation will require that the EPCglobal Network has a different information architecture from the existing GDS Network architecture.

- Over time the two networks will become synergistic but it would be a mistake to believe that an organisation could solve all of its product information collaboration needs with only one of these networks.

- Standards based and accurate Core Product Information is a shared dependency between these two networks, so the realisation of the full potential of each network will require the discipline of data accuracy in this shared information.

Our advice to retailers and manufacturers is that it is vital to keep the ultimate goals in sight – improved supply chain execution between trading partners comes through effective collaboration.

It does not matter what your entry point is – keeping pace with established industry practice or leading industry development. The foundational disciplines of data accuracy and the adoption of a standards based approach are necessary before you can realise the value that each network provides.

Over time the GDS and EPCglobal Networks will probably become one integrated network. Don't be confused by the different institutions, terminologies and opinions. Start the process of adoption – go as far as your business need demands.

There are some low hanging benefits that can be realised: realtime inventory location, track & trace, product recall, and reduced order errors. Trading partners should collaborate using standards based approaches, adopt industry best practices, and measure success by mutual business benefit.

References

Industry Publications:

1. GCI EPC Roadmap, October 2003

EPC documentation may be found at www.gci-net.org under 'Working Groups', 'GCI EPC', 'Team Deliverables'

2. Internal Data Alignment: Learning from Best Practices, May 2004
3. GDS Implementation Roadmap, May 2004
4. GDS Marketing Package for Business Managers including:
   - A Management Guide, October 2003
   - The GCI Business Case for Global Standards and GDS, Report, Executive Summary and Presentation, November 2002
   - GDS Video, May 2003
   - GDS Implementation Roadmap, May 2003
5. GDS Marketing Package for Technical Managers including:
   - A Technical Guide, October 2003
   - Helpful links to the EAN.UCC GDS Standards

GDS documentation may be found at www.gci-net.org under 'Working Groups', 'GCI GDS Implementation Team', 'Deliverables'

6. 'Connect the Dots' published by FMI, GMA and NACDS, January 2004

This report may be found at www.fmi.org or www.gmabrands.com

Standards:

1. A list of the electronic catalogues available through Data Pools in the EAN community can be found at www.ean-int.org in the online publication 'Electronic Business in the EAN Community 2002'.
2. GDS Standards released up to now that are available at www.ean-int.org include:
   - Trade Item (attributes describing the trade item such as description, brand name, colour, packaging, measurement, etc)
   - Party (attributes describing the party/location such as address, contacts, payments terms, banking and tax information, etc)
   - Price (attributes describing the price such as gross or net price, period of validity for the price, etc)
   - Price Bracket (attributes describing the price for a certain quantity of items such as price per Kg for 100 to 200 Kg of the item)
   - Catalogue Item Synchronisation (all the messages required to synchronise the Trade Item between the different Data Pools and between the Data Pools and the Global Registry)
   - Party Synchronisation (all the messages required to synchronise the party/location information between the different Data Pools and the Data Pools and the Global Registry)
3. Standards for the Global Product Classification (GPC) are also available for licensed users and can be found at www.acnielsen.com/EANUCC-Schema/
4. The Global Data Dictionary (GDD) is available at: www.eanucc.org/global_smp/global_data_dictionary.htm
5. The publicly available EPCglobal Tag Data Specifications give details on how to create EPCglobal codes that encapsulate existing industry numbering schemes and can be found at www.epcglobalinc.com/standards_technology/specifications.html

About the Global Commerce Initiative (GCI)

The Global Commerce Initiative is a voluntary body created in October 1999 to improve the performance of the international supply chain for consumer goods through the collaborative development and endorsement of recommended standards and key business processes. GCI operates through an executive board composed of senior representatives of more than 45 companies drawn equally from manufacturing and retailing that do business across continents or via global supply chains. It operates under the sponsorship of eight existing organisations representing the interests of one million businesses, large and small.

For more information about the Global Commerce Initiative and the questions raised by this report, please visit www.gci-net.org or contact:

Sabine Ritter
Global Commerce Initiative
+49 221 94714 423
sabine.ritter@gci-net.org

About IBM

IBM, the world's largest information technology company with 80 years of helping businesses innovate, provides the retail and consumer products industries with a full range of e-business solutions, including hardware and software technology; consulting focused on business transformation, IT strategy and planning, operations improvement, and supply chain optimisation. It also provides services, such as outsourcing, managed operations, systems integration, and application development and design.

With consultants and professional staff in more than 160 countries, IBM Business Consulting Services is the world's largest consulting services organisation. IBM Business Consulting Services provides retail and consumer products clients with business process and industry expertise, a deep understanding of technology solutions that address specific industry issues, and the ability to design, build and run those solutions in a way that delivers bottom-line business value.

For more information please visit
ibm.com/bcs/retail and
ibm.com/bcs/consumerproducts

For more information on the questions raised by this report, please contact:

Sachin Shah
+44 207 021 9444
sachin.shah@uk.ibm.com

Chris Clauss
+41 58 333 4057 or +1-617-497-7211
ccla@ch.ibm.com

Kathryn Gramling
+44 20 7202 3891
gramling@uk.ibm.com

Global Commerce Initiative
Maarweg 133
D-50825 Koeln
Germany

The GCI home page can be found at www.gci-net.org
The IBM home page can be found at www.ibm.com

Printed in the United Kingdom. September 2004

GLOBAL COMMERCE INITIATIVE

Published in association with IBM