



XBITS
A Working Group of IDEAlliance

Tuesday, July 23, 2002
New York, New York



- **IDEAlliance**
 - *David Steinhardt, President*
papiNet/IDEAlliance (www.idealliance.org)
- **Review of the papiNet Standard**
 - *Art Colman, papiNet Technical Director*
Drybridge Consulting (www.drybridge.com)
- **Development Methodology**
- **Development Timeline**

The International Digital Enterprise Alliance is a not-for-profit membership organization.

- Its mission is to advance user-driven, cross-industry solutions for all publishing and content-related processes by developing standards, fostering business alliances, and identifying best practices.
- IDEAlliance has been a leader in information technology since 1966 having fostered the development and adoption of standards such as GRACoL, ICE, JIFFI, Mail.dat, papiNet, PRISM, PROSE XML, SPACE XML, SGML, and XML.



IDEAlliance goals:

- Developing and converging standards that solve common business problems.
- Advancing information technology solutions within and across industries for and between users and vendors through educational programs and tools.
- Encouraging efficiencies in the creation, management, delivery and presentation of digital publishing assets.
- Fostering the deployment of standards and development of best practices to address business requirements.
- Establishing an interactive online community of peers to address common business challenges.



- **IDEAlliance, founded as The Graphic Communications Association in 1966, was formed to help member companies apply the latest computer-related technologies to all forms of print and electronic publishing.**
 - From 14 founding firms, IDEAlliance has grown to a worldwide organization with over 300 member companies and a following of thousands of individuals who participate in our training programs, conferences, standards development committees, and technical groups.
 - No other organization brings such a diverse pool of competitors, customers, and suppliers together to better the information technologies and print communications industry.



- **Addressing/Distribution Committee**
- **B2B Standards Committee**
- **Canada Panel**
- **Industry Architecture Project**
- **Industry Policy & Direction Committee**
- **Insert Advertising Council**
- **Paper Control Transactions Committee**
- **Paper Inventory Database Advisory Committee**
- **Print Technologies Committee**
- **Printers Operational Issues Study Effort (POISE)**
- **Roll Identification and Label Working Group**
- **Ship.Dat Committee**
- **SPECTRUM Planning Committee**
- **Standard Mail Preparation Subcommittee**
- **The High Performance Press Management Committee**

- **2002**

- **Open Publish Asia Pacific 2002: Sydney**
 - July 29-August 1, Sydney, Australia
- **Extreme Markup Languages 2002**
 - August 4-9, Montreal, Quebec, Canada
- **SPECTRUM 2002**
 - September 22-25, Scottsdale, AZ
- **XML 2002**
 - December 8-13, Baltimore, MD

- **2003**

- **PRIMEX 2003, Print Media Executive Conference**
 - February 12-15, Naples, Florida
- **Addressing/Distribution Conference 2003**
 - March 25-27, Clearwater Beach, FL
- **SPECTRUM 2003**
 - September 14-18, Tucson, AZ

- **Innovator in Printing & Publishing**
 - From 1980s have led initiatives for Bar Coding & Electronic Data Interchange
- **Innovator in Information Technologies**
 - From 1970s developed GENCODE and SGML leading into XML

- Information and Content Exchange (ICE)
- Mail.dat
- papiNet
- Publishing Requirements for Industry Standard Metadata (PRISM)
- SPACE XML



SPACE/XML

papiNet



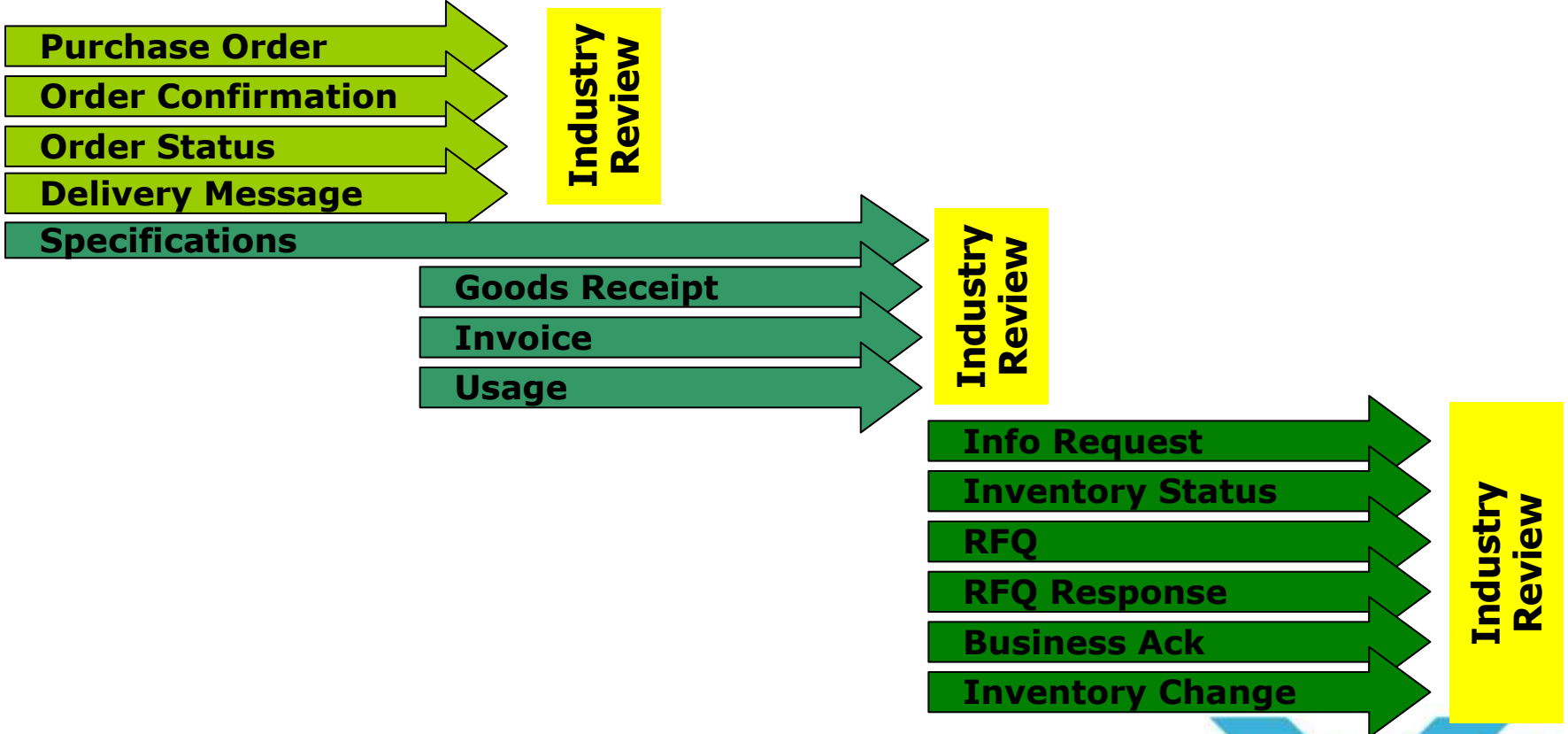
A Working Group of IDEAlliance

- **AF&PA and IDEAlliance**
 - North American partners in papiNet Global Initiative
- **papiNet North America**
 - 25-member alliance focused on publication papers, creating synergy in market segments by extending papiNet

- **Backbone of papiNet based on IDEAlliance B2B Paper Committee**
 - 25-member North American alliance committed \$1 million and volunteers
 - Initiative undertaken in late 2001 with original scope completed in late 2002

1-Year Commitment to Success

Aug Sept Oct Nov Dec Jan Feb Mar Apr May Jun Jul





A Working Group of IDEAlliance

Electronic Transaction Standards for the Global Book Manufacturing Supply Chain



- **Common electronic document formats for the paper, printing, publishing, and forest products industry**
 - Designed to facilitate the flow of electronic information between buyers and sellers
 - With the goal to enable simpler and less expensive business communication
- **An international initiative**
 - Implementations in 4 continents.
 - Reaching out to additional market segments





papiNet

papiNet's goals are...

- **To increase efficiencies in transaction and marketplace activities**
 - Through documented business processes
 - Through consistent data definitions
- **To ensure that the standards are interoperable**
 - Between trading partners in the paper and forest products industry.
 - Between trading partners in other industries
- **To provide standards that are open and freely available**

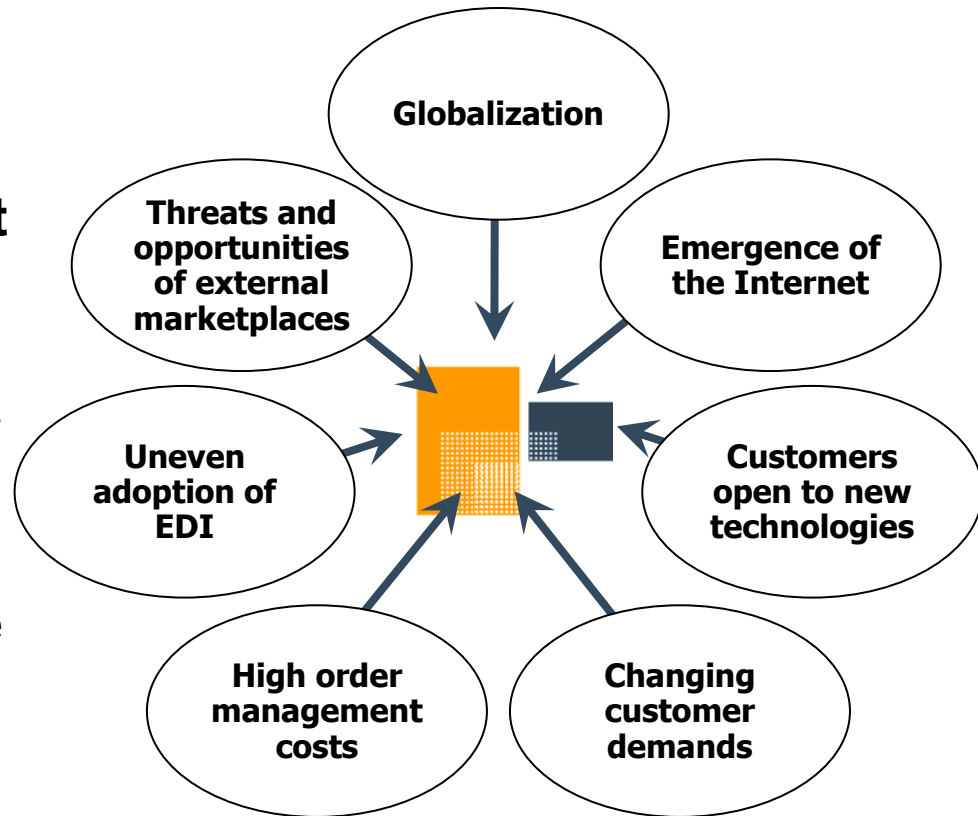




A Response to Market Needs

papiNet has been developed in order to respond to both market needs and emerging opportunities

- The paper supply chains for paper products are complex.
- The pace of business is increasing, placing demand on the information made available to the supply chain.
- Manual processes and older automation systems are not keeping up with demands.





- **Convergence of three related efforts:**
 - European Paper Consortium for e-business
 - A consortium of European suppliers cooperating with customers within the industry
 - IDEAlliance
 - Formerly the Graphics Communications Association with its publication emphasis
 - AF&PA
 - US trade association for manufacturers of forest, paper and wood products.





papiNet

papiNet - Global Organization

- **Joint committees for standards development, implementation, marketing/education, and globalization with regional implementation on a coordinated basis.**
 - papiNet Global Initiative
 - Chairman - Eric Olofsson, Stora Enso
 - papiNet NA
 - Chairman: John Balboni, International Paper
 - Vice Chairman: Dan Haight, Bowater
 - papiNet Europe
 - Chairman – Eric Olofsson, Stora Enso





- **Review of the papiNet Standard**

- What is our scope?
- What are our deliverables?
- What is the content?

- **Business Process**

- Workflow

- **Message Schema**

- Documentation content

- **Managed Vocabularies**

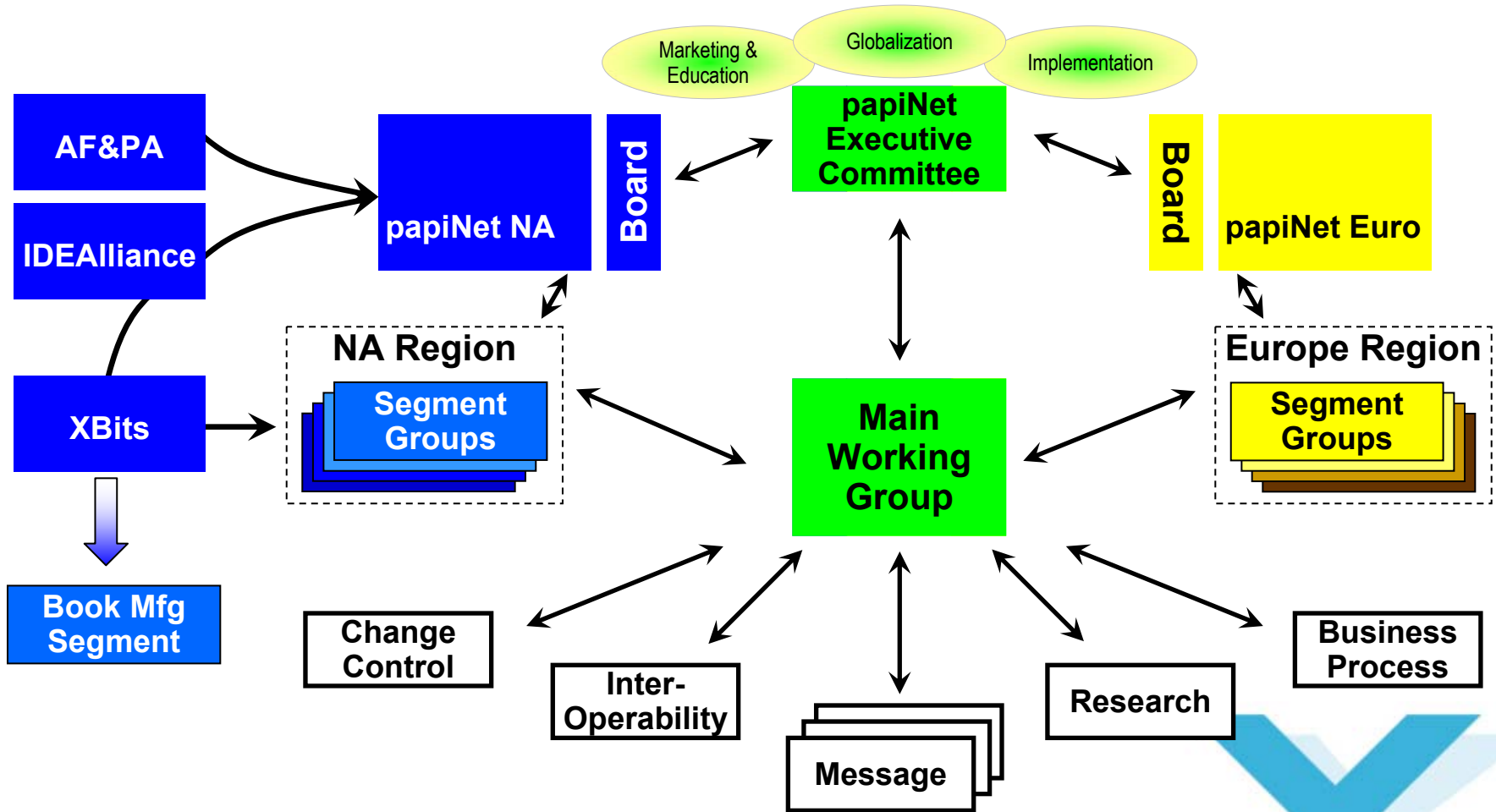
- Glossary
- URI managed enumerated lists





North American papiNet Alliances

papiNet





What is the papiNet Standard?

- **A set of standard electronic documents that facilitates the flow of information.**
 - The documents facilitate computer to computer communications by all participants in the supply chain.
 - The standards ensure that business processes for commerce among partners are identified and described through common terminology and common business documents.
- **Guidelines for interoperability at the data and transport level**
 - The guidelines facilitate set-up and on-going collaboration
- **A proven process for message development, collaboration set-up, and on-going enhancement.**



papiNet Message Breadth

papiNet

Product Attributes

Synchronization of product identifiers by communicating product attributes

Availability

Identifies material or capacity that is available for sale

RFQ & RFQ Response

The invitation to bid and response

Planning

Future manufacturing events

Contract or Agreement

Terms that govern the trading agreement

Purchase Order & Confirmation

The commitment to buy and response

Info Request & Order Status

Order status request and response

Call-off

Authority to deliver staged material

Delivery Message

What 's been shipped

Goods Receipt

What's been received

Product Quality

Information on the product's test results

Invoice

Request for payment

Complaint: Claim & Comment

Communication of an issue and response

Credit/Debit Note

An adjustment for an Invoice

Usage

Consumption associated with manufacturing

Performance

Information on how the product performed

Inventory Change

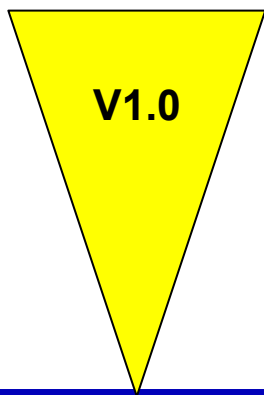
Non-manufacturing associated inventory change

Info Request & Inventory Status

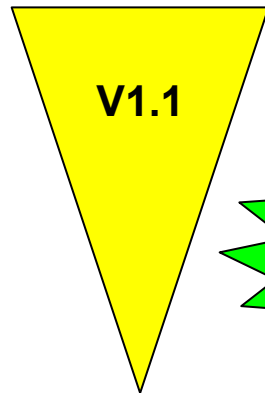
Inventory status request and response



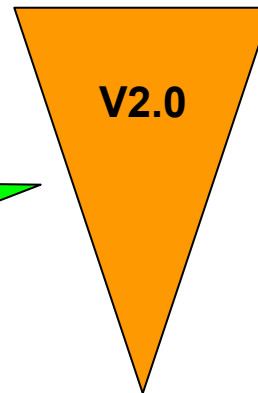
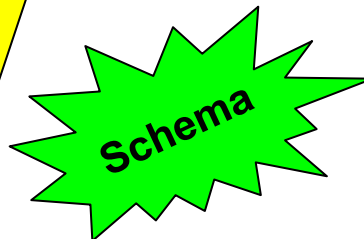
Purchase Order	RFQ	Usage	Planning
Order Confirmation	RFQ Response	Availability	Performance
Call Off	Goods Receipt	Order Status	Product Quality
Delivery Message	Credit Debit Note	Inventory Status	Complaint: Claim
Invoice	Business Ack	Inventory Change	Complaint: Comment
		Information Request	
		Product Attributes	



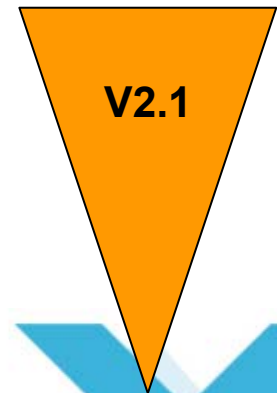
June 2001
Release



Feb 2002
Release



July 2002
Industry Review



January 2003
Industry Review





Common Building Blocks

- **Our aim is to simplify the paper, publishing, and printing supply chain by providing the building blocks of electronic business.**
 - Common terminology and formats that simplify the process of dealing with multiple suppliers and customers
 - Cost reductions through less manual work
 - Focus by business partners on the actual information being exchanged, not how it is exchanged
 - More “real-time” exchange of information through the internet than is available through phone, fax, or EDI systems.





Glossary of Elements

papiNet

- **Every element in the papiNet standard is defined and data-typed.**
 - These data types provide the foundation upon which our schema version is based.
- **Hyperlinks between the standard's text and the glossary facilitate use.**

papiNet Standard - Version 1.10

Element	Description	Length	Type
BaleWidth	A measurement of one side of the bale, which, in conjunction with the BaleDepth and BaleHeight make up the three measurements of the bale.	Measurement	
BandCharacteristics	A group item that organises the packaging band detail information.	Content element	
BandColour	The colour of the packaging bands to be applied to the package.	3	AN
BasisWeight	The weight of the paper expressed as a mass for a given surface area. In countries using the metric system, the basic weight is expressed as the weight in grams of one sheet of paper that is one square meter in area—not dependent on basic sheet size. In countries using the imperial system, the weight is expressed in pounds for a given basic sheet size.	Measurement	
BillToParty	The organisation or business entity to be invoiced.	Party	
Box	A four-sided container for reams or sheet items. A pallet can contain zero or more boxes. The term Carton is a synonym for Box.	Content element	
Brand	A special trade name required by the customer on the reel wrapper.	48	AN
Brightness	A measurement of the degree of light reflectivity of the product.	Measurement	
BusinessAcknowledgement	A BusinessAcknowledgement reports on the success or failure of a previously sent message.	Content element	
BusinessAcknowledgementDate	The date time when the BusinessAcknowledgement message was sent.	Date	
BusinessAcknowledgementNumber	The unique identifier for the BusinessAcknowledgement message, not for the original Document.	22	AN
BuyerParty	The organisation or legal entity authorised to issue the purchase order.	Party	
Caliper	The thickness of a sheet of paper under standard test conditions.	Measurement	





Glossary of Attributes

papiNet

- Every attribute in the papiNet standard is defined.
- Every constraint of an enumerated list is defined.
- Hypertext links exist between the standard and the glossary.
 - Hypertext links in the glossary link the attributes to their parent elements.

papiNet Standard - Version 1.10

Attribute Name • Belongs to Elements	Attribute Definition
Constraints and Constraint Definitions	
GoodsReceivedRejectedType <ul style="list-style-type: none"> • GoodsReceipt • GoodsReceiptLineItem • GoodsReceiptLineItemDetail 	Defines the reason the goods were rejected
<p>ExcessiveTransitDamage - The item(s) is/are damaged beyond acceptable use during transit.</p> <p>TooEarly - The delivery has occurred prior to the agreed delivery date/time. For example, there is insufficient storage at the delivered time.</p> <p>TooLate - The delivery has occurred after the agreed delivery date/time. For example, delivered after press date.</p> <p>UnableToUnload - The delivered items cannot be unloaded. For example, damaged vehicle doors, load has shifted during transportation, or ShipTo requires reels to be palletised but they are delivered on the vehicle floor.</p> <p>WrongDiameter - The diameter delivered is unusable. For example, a physical limitation on a reel stand is exceeded.</p> <p>WrongLabel - The delivered item has incorrect or missing information, or incorrect label stock that would prevent its use. For example, insufficient peel-off barcode labels.</p> <p>WrongVehicleType - The items have been delivered in a vehicle that cannot be unloaded at the ShipTo facility. For example, the ShipTo requires side unloading vehicles, but the delivery vehicle can only be unloaded from the rear.</p> <p>WrongWrap - The delivered item is wrapped in material that will prevent its use. For example, a hole is not present in the end cap for vacuum lifting.</p>	
GrainDirection <ul style="list-style-type: none"> • CallOffSheet • SheetConversionCharacteristics 	Defines the primary orientation/alignment (Long or Short) of the cellulose fibres in a sheet or web of paper, which results from the flow of fibres in a water suspension during the papermaking process.
<p>Long - The fibres are aligned in the machine direction and this is parallel to the length of the sheet.</p> <p>Short - The fibres are aligned in the machine direction and this is parallel to the width of the sheet.</p>	
HashAlgorithm TransmissionSecurityCharacteristics	Messaging Service Envelope. The hash algorithm used.
<p>The hash algorithm is a way to verify data integrity, and is much more reliable than checksum and many other commonly used methods. It takes as input a message of arbitrary length and produces as output a "fingerprint".</p> <p>md5 - on "md5" see RFC1321</p> <p>sha - see NIST FIPS 180-1, Secure Hash Standard</p>	
ISOCountryCode <ul style="list-style-type: none"> • Country 	The valid list of ISO Country Codes. Refer to http://www.din.de/gremien/nas/nabd/iso3166ma/ for the list of valid codes.
Refer to the ISO website listed above for the valid list.	



Common Business Elements

papiNet

Equivalent to ebXML
Core Components

Common Business Elements

What Are Common Business Elements?

Common business elements are elements that are included in more than one message. Their definitions, which are included in the glossary, are thus independent of the message in which they are used. If a common business element is used in an unusual context within a message, this context is provided in the "Structure and Processing Logic" section of the message itself.

Structure and Processing Logic

The graphical display of the DTD contains occurrence indicators that are XML standards. These indicators appear to the left of element boxes in DTD graphics, and they have the following meanings:

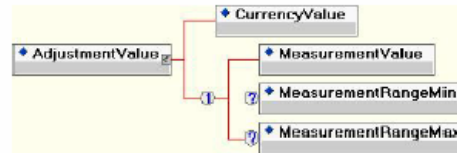
- (Blank) Required, single instance
- (+) Required, multiple instances
- (?) Optional, single instance
- (*) Optional, multiple instances

Alphabetic Listing

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

A

[Return to top](#)



AdjustmentValue

[AdjustmentValue](#) holds the entry of a per-unit amount of the adjustment. AdjustmentValue uses the following constructs:

- [CurrencyValue](#)
- [Measurement](#)
 - ✦ MeasurementValue
 - ✦ MeasurementRangeMin
 - ✦ MeasurementRangeMax



Process Overview with Responsibilities

papiNet

papiNet Executive Committee

- Define Industry Processes and Vision

Research Groups (MWG)

- Additional Business Process Considerations

Business Process (MWG)

- Integrate Additional Business Processes into Vision

papiNet Executive Committee

- Validate Research Activities
- Launch Messages for MWG Development Process

Main Work Group

- Identify Message Champion
- Select Message Task Group Members

Message Task Group

- Develop Message

Main Work Group

- Review Message and Return to Task Group if Required

Main Work Group

- Prepare for Industry Review

Paper Industry

- Review and Feedback

Main Work Group

- Adjust and Prepare for Final Publication





Message Development Process

papiNet

- **Document Purpose**
- **Determine Business Scenarios**
 - Use Case Template
 - Determine the participants
 - Identify the information that needs to be communicated.
- **Determine Scope**
 - What are the limitations?
 - What can we do?
 - Where is it not applicable?
- **Identify Business Rules**
 - What information is required?
 - What information is situation dependent?
 - What activities are associated with the message but not documented in the message?
- **Identify the Message Types**
 - Define message variants as message types.
- **Identify the Message Statuses**
 - Message statuses are the steps through which the message must pass throughout its lifecycle.
- **Schema Development**
 - DTD or Schema, as applicable
- **Terms Definition**
 - Document definitions and data typing for all new elements, attributes, and constraints.
- **Documentation**
 - Finalize the documentation





papiNet

Creating the Overview Section of the Message

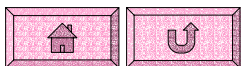
- The message purpose becomes the overview section for the documentation.
 - This is a one or two paragraph statement.
- The opening sentence of the overview becomes the glossary definition of the message.

Deliverables

- Word document containing the Overview Section content.
- PowerPoint presentation of the same.

Purpose of this information

- Besides providing the actual content for the documentation this information is used in presentation and public relations information. When we speak about the papiNet messages in overview briefings this is the level of detail that we go into.



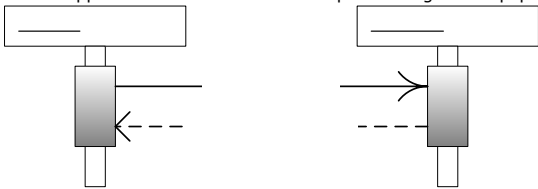
Process Previous





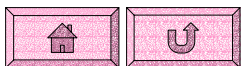
Identify and Document Business Scenarios

papiNet

Message	ProductPerformance (no message type)
Business Scenario	In order to improve the efficiencies of running a particular grade of paper on press, a trading partner agreement has been worked out between a printer and supplier that manufacturer's the particular grade of paper. 
Scenario Outcome	A Product Performance message is generated by the Printer's system and received into the Supplier's system. Each particular reel is identified and categorized as either running successfully, without a web break or unsuccessfully with a web break.
Sender	Printer
Receiver	Supplier
Trigger	Usage of reel on printing press.
Step 1	Printer generates run ability data from their system for each reel and then sends it to the Supplier. The Printer also recorded a break on one of the rolls. Key Information: <ul style="list-style-type: none"> Machine ID: PressA/2/1 Product: Newsprint 30lb Job Name: Daily Rolls IDs <ul style="list-style-type: none"> ZZ126383490, ZZ126383491, ZZ126383493, ZZ126383494, ZZ126383495, ZZ126383496, ZZ126383496 (Web Break) CAUSE CODE: 201 BREAK DESC: MILL SPLICE PRESS BREAK LOCN: INFEED REEL BREAK DIAM: 45 IN PRESS SPEED ON BREAK: 1700 fpm WASTE IMPRESSIONS: 1000
Results	A ProductPerformance Message is generated with a detail line for each reel that indicates with that reel was run on press successfully or with a concern. On the one reel with a concern addition information on why it was unsuccessful run is also included, including a cause code, break description, press break location, reel break diameter , web break date, press speed and waste impressions. This information will be sent from the Printer back to the Supplier to determine if a pattern can be identified with other similar reels.

The form to the left provides an example of the documentation associated with a Business Scenario.

- Message and type are identified
- The Business Scenario is described and an UML sequence diagram is presented.
- The Scenario Outcome is identified.
- The Sender and Receiver of the message are identified.
- The Business Scenario Steps are enumerated.
 - A description of the event
 - Key information
- Additional Business Scenario Steps are indicated, if required.
- The Results of the process are defined.
 - This would provide the reason for the message as well as fulfilling the scenario's purpose.



Process Previous





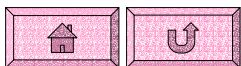
Trading Partner Roles

papiNet

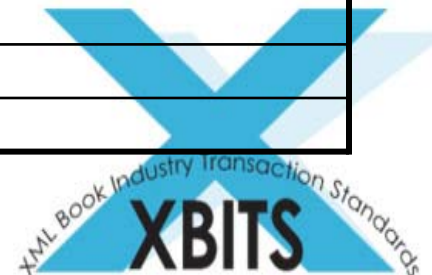
Listed below is the content of the partyType data type:

- These are the allowable values for the Sender and Receiver elements as well as the Role element in the Envelope.
- These roles are the headings for the sequence diagram that appears in the Business Scenarios.
- The need for additional roles should be brought to the attention of papiNet as early in the development process as possible.

Bank	EndUser	RemitTo
BillTo	Forwarder	Requestor
Broker	Insurer	SalesAgent
Buyer	Merchant	SalesOffice
Carrier	Mill	Seller
Consuming	OrderParty	ShipTo
CreditDepartment	Port	Supplier
CrossDock	PrinterFacility	Terminal
CustomerFacility	ProFormalInvoice	Warehouse



Process Previous

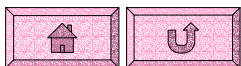




Determine the Message Scope

papiNet

- **Determining the message scope is a balancing act.**
 - Is it possible to achieve the full purpose of the message, in the time allotted for the development process?
 - Is it necessary to deliver all the functionality in the first release of the message or is it appropriate to time phase the delivery process to allow for initial use?
 - What is a reasonable breakdown in deliverable functionality?
- **When determining the message scope we also take the opportunity to review the message overview in light of the entirety of the identified business scenarios.**
- **The process for determining is to review the business scenarios and determine which scenarios are in scope and which are outside the scope.**
- **The message scope section will explain the rationale behind leaving some of the business scenarios for later, what will have to transpire in order for those scenarios to be included, and a review of the key elements that are included in the message scope and the functionality that they provide.**



Process Previous



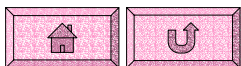


Identify Business Rules

papiNet

Review the message overview and business scenarios identifying the important information that is to be communicated. You will end up with three categories of business rules.

- There will be a series of business rules that relate to the required and optional elements in the message. These business rules are implemented in message through the schema itself. Not every element needs to be identified but you will want to pay special attention to the object of the message, parties, product definition, package definition, pricing, and costs.
- There will be a series of business rules that relate to the processing of the message by the receiving system. These business rules are implemented in the message by including processing instructions. While seldom used in the papiNet environment you should feel comfortable in including them.
 - These business rules may come about based on processing considerations for different message types.
- There will be a series of business rules that relate to processing of the message in the context of other messages. These business rules relate to the position of the message in a workflow and the explanation of these rules is solely in the documentation.



Process Previous

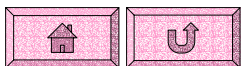




Identify the Message Types

papiNet

- **The existence of various message types may be known at the beginning of the development process or it may come about through the analysis that takes place during development. Additionally, message types may arise during the introduction of a new market segment to handle a document that is given a special name in one segment but corresponds to the general papiNet business process model.**
- **Documents with different message types but based on the same message structure would go through the same message content validation process but be handled differently.**
 - Processing instructions may be communicated for a particular message type but if they become too unique the need for a separate message should be considered.
- **The documentType data type contains the complete list of all identified message types that are currently used in papiNet.**
 - A subset of these document types is usually applied to a given message. New types that you identify will be added to this list.



Process Previous



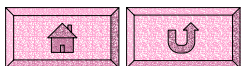


Document Types

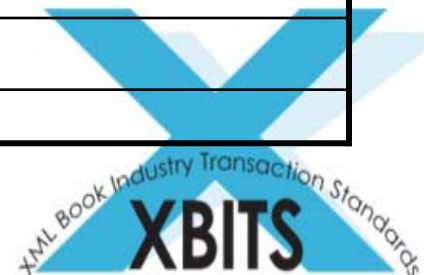
papiNet

To get a clear indication of the scope of the papiNet project you should look at the documentName data type and the documentType data type. Together these fully enumerate all the types of information that papiNet can communicate.

BlanketOrder	InitialShipmentAdvice	Proforma (Invoice)
CallOff	InventoryStatus	ReleaseOrder
CallOffConfirmation	Invoice	ReservationOrder
ConfirmaingOrder	OrderStatus	StandardOrder
ConsumptionOrder	PrePayment (Invoice)	StandardRFQ
CreditNote	PriceList	TrialOrder
DebitNote	ProducCrossReference	
DeliveryMessage	ProductProperties	



Process Previous





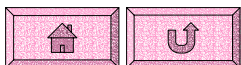
Identify Message Statuses

papiNet

Messages represent business documents and since business documents can have a certain lifecycle it may be appropriate to identify the lifecycle steps as message statuses.

- The current list of message statuses (statusType data type) is presented below.

Accepted	NoAction
Amended	Original
Cancelled	Pending
Counterproposal	Rejected
New	Replaced



Process Previous





Schema Development

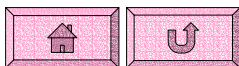
papiNet

While schema development can start at any point during the preceding process it is most efficient to begin it after all the analysis has been completed. This way you can be assured that you are designing the message to meet the business requirements instead of the other way around.

- Schema development conventions are currently being updated from DTD and are expected to be available in early August. However, you can refer to the Version 1.10 documentation for the comparable conventions for DTDs.

However, in a nutshell. Start out with a .XSD file for your message and include the papiNetCommonDefs from the most current version.

- Construct your message using the Header, Detail, Summary construct (unless your requirements are special).
- Use core components to build your message.
- Create new elements when required. Place these new elements in your message .XSD file. (We'll move them to the CommonDefs prior to release.



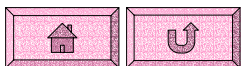
Process Previous





Terms Development

- **You're almost finished! Don't give up!**
 - As part of the schema development process you will have selected the appropriate data type for your elements and attributes.
 - There will be cases where you will need to extend an attribute list with an additional constraint.
- **Definitions need to be provided for all new elements, new attributes, and new constraints.**
- **If you need to update an existing definition for one of the above... please take this time to perform that task.**



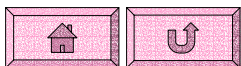


Finalize Documentation

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Review the documentation for continuity and for the ability of a new reader to understand what you are talking about.

- Don't worry too much about the fine points of the appearance as templates and formatting will probably be reapplied during the official publishing process.

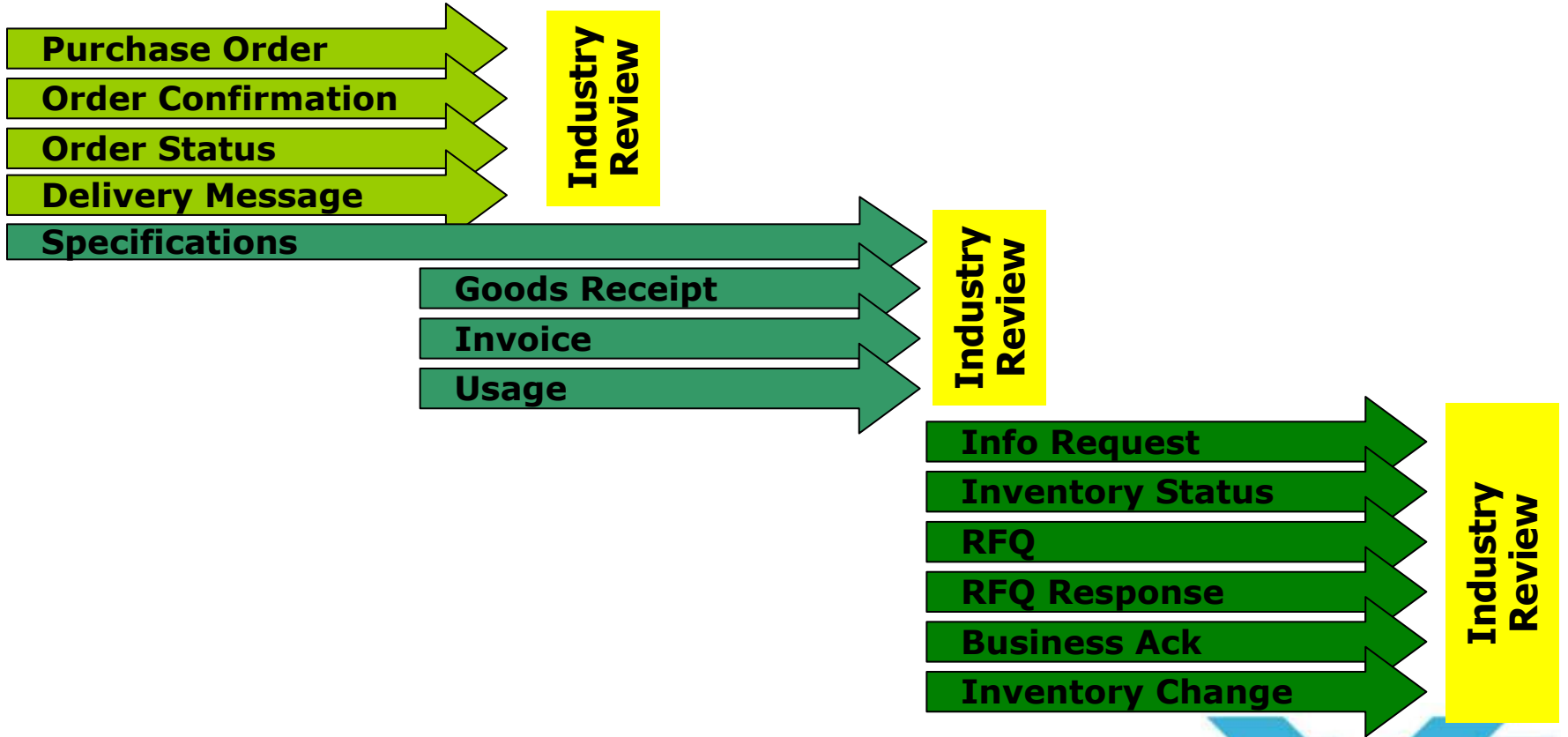


Process Previous



1-Year Commitment to Success

Aug Sept Oct Nov Dec Jan Feb Mar Apr May Jun Jul





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Industry Review

Public Relations and Outreach

- Publicizing the release of new messages is initiated one month prior to the beginning of the Industry Review period. This timing allows trade journals to use the press release information very close to the actual beginning of the review period.
- An on-going process of outreach needs to take place to find out who the early users of the message will be. While a desk review of the message is helpful it is ideal to have users who actually wants to test the messages in a production environment.

Industry Review Kick-off

- The Industry Review period lasts for 2 months. Feedback is acknowledged when received and if appropriate communicated to the broader Main Work Group.

Review Period Activities

- Facilitate testing by message champions and continue to reach out to other interested parties.
- Respond to questions as they arise.

Review by the Main Work Group

- Organize the feedback from the Industry Review process and determine the impact on the target messages.

Final Publication





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Get Plugged In...

- Visit our web site at www.papinet.org
- Evaluate your company's current state and determine supply chain partners.
- Become a member of papiNet.
- Ask questions.

