SAP Business Network Integration Solution Blueprint

Penn State

SAP Business Network

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1 Version History

This log is updated each time an update is made to this guide. The log identifies the version number, the date the version was completed, the author of the changes, and a brief description of the changes.

Version	Date	Description
V1	August 2024	Initial Version of Document

2 Document Purpose and Uses

This document defines the scope of the project and documents various business and technical aspects that relate to trading integration.

The aim is to identify all possible integration requirements from both parties to facilitate a smooth and swift implementation.

Any exceptions and areas of concern are analyzed and documented prior to the beginning of the design phase.

Assumptions:

There will be a single primary point of contact with each Trading Partner for Project Management activities.

It is assumed that assigned resources have the required skillset, appropriate system accesses, and availability to fulfil all responsibilities:
- Knowledge of business operations with customer
- Experienced Developers

The success rate of the project highly depends on proper and timely identification of all business/transaction scenarios to be covered during testing. It is imperative for trading partners to work with their Buyer and SAP Business Network integration resources to proactively identify any such cases and make sure they are documented and validated through testing.

3 Business overview

The purpose of undertaking this initiative is to increase efficiency and effectiveness of the organization with targeted business benefits such as:
- Simpler and more efficient E2E process experience
- Reduced data maintenance & improved data quality
- Enhanced user catalog experience
- Catalog and supplier enablement services
- Improved insight from shared real time data
- Functional gaps closure, process automation
- Improved enforcement of legal compliance
- Step-change in vendor self-service
- Step change in "touchless" payment

- Tail end management in user self-service
- Integrated contingent and industrial workforce management

4   Technical Landscape

Description Environment Infrastructure	Buyer Specific Details
ERP	SAP S/4 HANA
Middleware	CIG Direct connectivity
Solutions Purchased	SAP Business Network for Procurement • SAP Ariba Buying and Invoicing (B&I) • SAP Ariba Buying • SAP Ariba Invoice Management
UoM Classification	UN UOM ISO
Commodity Codes	UNSPSC

5 Project Scope

The following tables outline the requirements unique to this buyer procurement environment, as detailed in the Excel Transactions Samples Requirements. Not all required elements outlined in the DTD are represented below, as this is meant to only highlight information that is important to your Buyer.

Description Documents in Scope Summary	Mandatory	Optional	Out of Scope
Purchase Order	X		
Change Order	X		
Order Confirmation		X	
Advance Ship Notification		X	
Receipt Notification			X
Service Entry Sheet			X
Service Entry Sheet Response			X
Invoice	X		
Remittance Advice		X	

Description Business IDs	Company Name	ANID	DUNS	DUNS_4
Buyer	Penn State	AN11199412868		
Supplier				

Description Business Units	Location (City/State)	Business/Vendor ID	In Scope (Y/N)	Unique Requirements

5.1 Orders

Description	Buyer Supported (Y/N)	Supplier Supported/Format (No or online, email, cXML, D96A, X12, CSV, PIDX, etc.)
Type		
Catalog	Y	
Non-Catalog/Free Text	Y	
P-Card	N	
Blanket Order – with release	Y	
Blanket Order – without release	N	
Service PO (Service structure/without parent - child lines)	Y	
Service PO (Service structure/with parent - child lines)	N	
Service PO (Material structure)	N	
Change Order - catalog	Y	
Change Order – non-catalog	Y	
Change Order – P-Card	N	
Cancel Order	Y	

Description Attributes		Buyer Supported	Supplier Supported/Format
General	Split Orders	• One Ship To address sent per order	
	Order Numbering	• PSU (Penn State U) orders begin with "47". • ARL (Advanced Research Lab) orders begin with "46". • BPO orders begin with BPO	
	Attachments	• Attachments may be sent on orders	
Header	Bill To	• PO Bill To ID will need to be on the Invoice	
	Ship To	• PO Ship To ID will need to be on the Invoice	
	Private End User	• Not Used	
	Purchasing Agent	• Not Used	

Payment Terms	• Payment Terms may not be sent on orders and is not required on invoices.	
Need By Date	• Need By Date (requestedDeliveryDate) needs to be confirmed on Order Confirmations and Ship Notices.	
Comments	• Penn State may send instructions in the comments	
Extrinsic	• Extrinsics sent on PO do not require action from the supplier.	
Control Keys	• Not Used	
Service Date (start & end)	• Sent at the Line Level Only.	

	Order Item Numbering	• Sequential 1, 2, 3, 4, ect	
	Supplier Part ID	• Not Available will be sent for supplier part number on non-catalog orders.	
	Supplier Part Auxiliary ID	• Not Used	
	Unit Price	• [Precision Rounding on Invoices](#) • 2 decimals	
Line Item	Advanced Pricing/Price Basis Quantity	• Not Used	
	Unit of Measure	• UNUOM	
	Ship To	• Sent at the Header Level Only	
	Extrinsic Values	• Extrinsics sent on PO do not require action from the supplier.	
	Control Keys	• Not Used	
	Service Date (start & end)	• Start & End date will be sent on Service orders at the line level.	

Description Order Processing Specifics	Buyer Supported	Supplier Supported/Format
How are change/cancel orders handled? Change order types: OC based; customer initiated etc.		
Describe any process requiring manual validation/further contact with customer/supplier to complete processing.		
Will there be specific orders/special items requiring exception in processing? Are there any other exceptions/specific processing instructions for this buyer?		
Does the supplier have any comments on the reviewed buyer order management process?		
Is buyer order management process in conflict with supplier order processing practices/automation capabilities?		
Discuss process discrepancies between what the supplier supports and what the buyer is requesting.		

5.2 Order Confirmation

Description	Buyer Supported (Required/Optional/Out of Scope)	Supplier Supported/Format (No or online, email, cXML, D96A, X12, CSV, PIDX, etc.)
Type		
Header Level	Out of Scope	
Line Level	Optional	

Description		Buyer Supported (Required/ Optional/ Out of Scope)	Buyer Comments	Supplier Comments
Attributes				
General	Attachments	Out of Scope		
	Change Orders	Optional	• OC's not required against Change Orders	
	Invoicing	Optional	• OC not required prior to invoicing	
	Tolerance	Out of Scope		
Header	OC updates	Optional		
	Rejection Reason	Optional		
	Acceptance	Optional		
Line Item	Changes	Optional	• Part number can be changed from PO	
	Line Comments	Required	• Required if there are changes	
	Rejection Reason	Optional		
	Backorder	Optional		
	Delivery Date	Required		
	Shipment Date	Required		

Unit Price	Optional	• Increase unit price is not allowed	
Unit Price Currency	Optional	• Change in currency is not allowed	
Quantity	Optional	• Increase quantity is not allowed	
Part Number	Optional	• Can be changed from PO	
Item Description	Optional	• Change in item description is not allowed	

5.3 Advanced Shipping Notification (ASN)

Description Type	Buyer Supported (Required/Optional/Out of Scope)	Supplier Supported/Format (No or online, email, cXML, D96A, X12, CSV, PIDX, etc.)
All	Optional	

Description		Buyer Supported (Required/ Optional/ Out of Scope) Attributes	Buyer Comments	Supplier Comments
General	Attachments	Out of Scope		
	Order Confirmation	Optional	• OC not required before Ship Notice	
	Tolerance	Out of Scope		
Header	Notice Date	Optional		
	Shipping Date	Required		
	Delivery Date	Required	• Multiple delivery dates are allowed on ASN	
	Delivery & Transport	Optional		
Line Item	Quantity	Optional		
	Asset Serial Number	Optional		
	Shipment Serial Numbers	Optional		
	Packing Slip	Optional		

5.4 Service Entry Sheets

Description Type	Buyer Supported (Required/Optional/Out of Scope)	Supplier Supported/Format (No or online, email, cXML, D96A, X12, CSV, PIDX, etc.)
All	Out of Scope	

5.5 Receipt Notification (Goods Receipt Notice)

Description Type	Buyer Supported (Y/N)	Supplier Supported/Format (No or online, email, cXML, D96A, X12, CSV, PIDX, etc.)
Receipt (Goods Receipt Notification)	N	
Receipt Based Invoicing	N	

5.6 Invoice

Description	Buyer Supported (Required/Optional/Out of Scope)	Supplier Supported/Format (No or online, email, cXML, D96A, X12, CSV, PIDX, etc.)
Type		
Catalog	Required	
Non-Catalog	Required	
Contract	Out of Scope	
Blanket	Required (only against the BPO release)	
Non-PO	Out of Scope	
Service	Required	
Service as Material	Out of Scope	
Credit – Header Level	Out of Scope	
Credit – Line Level	Required • Reference to original invoice credited is Required.	
Debit – Header Level	Out of Scope	
Debit – Line Level	Out of Scope	
Invoice Rejection	Optional	
Invoice Status Update	Optional	

Description	Buyer Supported (Required/ Optional/ Out of Scope)	Buyer Comments	Supplier Comments
Attributes			
General — Attachments	Optional		
General — Precision Rounding	Optional		
General — Advanced Pricing Detail	Out of Scope		
General — Amounts	• **Subtotal amount** = Unit Price x Quantity (No tax) • **Taxable amount** = Subtotal amount • **Gross amount** = Subtotal + Tax		

		• **Net amount** = Gross amount – adjustments and discount/rebate (if any) • **Due amount** = Gross amount - adjustments (if any) • *No discount/rebate => Net amount = Gross amount	
	Address IDs	• List of Bill To and Ship To ID and Addresses will be provided	
Supplier Invoice Processing	Real Time		
	Batched		
	Scheduled Run Nightly		
	Monthly		
	Next Day		
	Validation prior to sending to BN		
Header	Invoice Number	Required	• Max length is 16 characters	
	Invoice Date	Required	• Backdating is allowed up to 3 days	
	Bill To	Required	• Address & ID Required	
	Remit To	Optional		
	Sold To	Optional		
	From	Optional		
	Ship From	Required		
	Ship To	Required	• Address & ID Required	
	From	Optional		
	Strict Validation — Name	Optional		
	Street	Optional		
	City	Optional		
	State	Optional		
	Postal Code	Optional		
	Country	Optional		
	Bank Account Details	Out of Scope		
	Payment Net Terms	Optional		
	Buyer VAT ID	Out of Scope		

	Supplier VAT ID	Out of Scope		
	Registration ID	Out of Scope		
	Invoice Line	Required		
	Quantity	Required		
	Unit Price	Required	• Precision Rounding on Invoices • 2 decimals	
	Unit Of Measure	Required	• UNUOM	
	Order Line Number reference	Required		
	Advanced Pricing/Price Basis Quantity	Out of Scope	• Advanced Pricing/Price Basis Quantity (PBQ)	
	Supplier Part Id	Required		
	Supplier Auxiliary Part ID	Optional		
	Buyer Part Id	Optional		
	Item Description	Optional		
Line Item	Tax	Alternate Currency	Optional	
		Category	Optional	
		Percentage Rate	Optional	
		Supply Date (tax point date)	Optional	
		Tax Amount	Optional	
		Taxable Amount	Optional	
		Tax Description	Optional	
		Tax Location	Optional	
	Allowance & Charges	Optional		
	Shipping & Handling	Optional		
	Net Amount	Optional		
	Amount without tax	Optional		
	Subtotal Amount	Required		
Summary	Tax	Alternate Currency	Optional	
		Category	Required	

Percentage Rate	Required		
Supply Date (tax point date)	Optional		
Tax Amount	Required	• Summary tax is required on all invoices even if the amount is zero (0.00)	
Taxable Amount	Optional		
Tax Description	Optional		
Tax Location	Optional		
Special Handling Amount	Optional		
Shipping Amount	Optional		
Net Amount	Required		
Gross Amount	Required		
Invoice Detail Discount	Optional		
Due Amount	Required		

5.7 Remittance Advice

Description Type	Buyer Supported (Y/N)	Supplier Supported/Format (No or online, email, cXML, D96A, X12, CSV, PIDX, etc.)
Remittance Advice Notification	N	

6 Cutover

Description Specifics	Buyer Cutover Process	Supplier Comments
Legacy Orders	• Will open orders be handled outside of AN post go-live? • Will there be expectation to close any open orders prior to go-live? • Would open orders be expected to be closed by a certain date (both on and outside of AN)? • Will the buyer be sending legacy transactions on AN? • Would only specific orders be sent as legacy? • Will legacy orders be recreated as new orders? • If yes, will they have the same order number? • Are there any specific instructions as to how legacy orders should be handled on AN? • Identify and document any Buyer specifics associated with cutover * Please note that legacy POs cannot be integrated, hence automatically routed to supplier's ERP. Please consider in case of mass uploads as part of your cutover strategy and discuss alternative options with your IA & IL.	
General	• Does the supplier need to manually make changes to open orders? • Will the buyer provide a list of cutover documents? • Identify any risks associated with cutover	

7   Error handling

Description Specifics	Buyer Comments	Supplier Comments
Failed or Rejected Document Transmissions		• Who gets notified? • Are there any expectations as to how failed/rejected transactions are to be handled?
Failed Order Validation (wrong part number, price, UOM, etc.)		• Who gets notified? • How is this corrected? • Does the supplier system automatically make substitutions? • What is the turn-around time to address failed orders?
General		• Is there any schema or data validation done on the invoice before it is sent to the AN? • What is the process if an invoice fails against a business rule in the AN? • What is the process if duplicate invoice numbers are not allowed when an invoice has failed or been rejected?

8   Testing

Description	In Scope (Y/N)	Phase (Pilot/Post)	Buyer Comments	Supplier Comments
Specifics				
Test Plan	Y	Pilot & Post	Provided as part of the integration kit.	

9   Project Tracking

9.1 Project Teams

Roles & Responsibilities	Contact Name & E-mail
Buyer	
Project Lead (Operational Lead) • Main contact for project coordination • Provide commitment to project timeline • Understand buyer's transaction validation rules • Participate in status meetings	
Buyer Technical (Developer) • Provide technical details for integration to backend systems • Perform data mapping • Assist in troubleshooting document failures • Coordinate go live with functional resource	
Testing Contact • Define & Validate catalogue content with buyer • Analyze incoming Orders • Generate Test Invoice • Assist in other testing activities, coordinate go-live • Download & validate applicable test transaction • load & process through ERP	
Supplier	
Project Lead (Supplier Enablement lead) • Main contact for project coordination	

- Enforce compliance of project timelines

Technical (Developer)

- Support of cXML/EDI Identified Supplier testing
- Provide connection parameters to ERP systems
- Assist in troubleshooting document errors from the application/ERP

Testing Contact

- Define & Validate catalogue content with Supplier
- Generate Test Orders
- Reconcile and approve invoices
- Assist in other testing activities, coordinate go-live Download & validate applicable test transactions, load & process through ERP

SAP

Integration Specialist (IS)

- Manage end-to-end supplier integration
- Troubleshoot failed/rejected documents
- Ensure timely completion of project milestones
- Escalate issues to appropriate person/team

Catalog Specialist (CS)

- Support Setup and testing of Catalogue with buyer and supplier
- Troubleshoot failed/rejected catalogues
- Ensure timely completion of project milestones
- Escalate issues to appropriate person/team

Network Deployment/Enablement Lead (NDL/NEL)

- Consolidates all supplier's enablement status for reporting to the Buyer

9.2 Project Schedule

Description Phase	Start Date	End Date	Contingency Plan (If target date is missed)
Plan			
Design			
Build			
Test			
Deploy			
Go Live			

9.3 Sign Off

Description Name	Buyer or Supplier?	Date	Signature

10   Risks

Description Specifics		Buyer Mitigation Response	Supplier mitigation Response
Competing Priorities	• Are other integration/capital projects running at the same time?		

	• Can this project start now or in the future?		
	• Is the PO Flip option a possibility in the interim, if the integration project cannot be completed in time?		
System Maintenance Schedule	• Upgrades?		
	• System refresh?		
Resource Constraints	• Vacations?		
	• Holidays?		
	• Knowledge?		
Processes	• Updates/changes to code must be scheduled?		
	• Go live at certain points of the month?		
3rd Party Dependencies	• Are changes scheduled or added as needed?		
	• How are error notifications/failures communicated for inbound/outbound transactions?		
	• Is there a dedicated resource to support the project?		
	• Will they attend standing calls?		

11 Supplemental Documentation

This document contains Buyer specific information regarding transaction requirements. Information in this document does **NOT** cover the complete technical aspects of integrating with the SAP Business Network.

Below are several sections for supplemental documentation to be used with this document for cXML, EDI

D96A / X12 or PIDX transaction formats. Only refer to the section that pertains to the format your organization will be sending or receiving.

11.1 SAP Help Portal

SAP maintains a complete and rich documentation library with Administration and How-To guides.

Here at **SAP Help Porta**l, you can find the information you need to administer and provision our products.

All guides within our Help Library are downloadable and accessible by entering the document you are looking for in the search bar of SAP Help Portal.

Below are some helpful shortcuts to guidelines you might benefit from:

[cXML Solutions Guide](#)

[cXML User's Guide](#)

[SAP Business Network guide to invoicing](#)

11.2 cXML Supplemental Documentation

New cXML supplier to SAP Business Network must:
1) Support a DTD (document type definition) validation tool internally and download the document type definitions (DTD's) for all supported transactions.
2) Support **HTTPS** protocol. SAP Business Network supports **HTTPS (not HTTP)** only for cXML transactions.
3) Review the **cXML Solutions Guide** and **cXML User's Guides**.

cXML Document Type Definitions (DTD's)
- http://cxml.org Download InvoiceDetail.zip for the InvoiceDetailRequest.dtd. ; Download cXML.DTD for the OrderRequest ; Download Fulfill.dtd for ConfirmationRequest/ShipNoticeRequest

11.3 EDI Supplemental Documentation via SAP Cloud Integration Gateway

EDI D96A/X12 Supplemental Documentation

[All EDI Supplier Guides](#)

11.4 PIDX Supplemental Documentation via SAP Cloud Integration Gateway

PIDX Supplemental Documentation

[All PIDX Supplier Guides](#)

11.5 Guided Integration for Trading Partners

Trading Partners who wish to learn more about Guided Integration, should check the links below:

1. Introductory Video: https://sapvideoa35699dc5.hana.ondemand.com/?entry_id=1_o1eepg2y
2. Compatibility Dashboard: https://sapvideoa35699dc5.hana.ondemand.com/?entry_id=1_8b9jbdg4
3. Reconcile Template: https://sapvideoa35699dc5.hana.ondemand.com/?entry_id=1_hgwdkk00
4. SAP Help: Seller Account Settings and Profile Configuration - Guided Integration for Trading Partners at: https://help.sap.com/docs/business-network-for-trading-partners/seller-account-settings-and-profile-configuration/guided-integration-for-trading-partners?locale=en-US

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12 SAP Business Network customer support for Suppliers

12.1 Post Go Live Support

Supplier Integrators provide two weeks support of Post Go Live starting with the first transaction in **Production**. After the two-week period, a **Service Request** should be created for any assistance.

12.2 How to utilize Help Center and request assistance

At **SAP**, our goal is to empower Suppliers with the information and tools they need to seamlessly navigate through **SAP Business Network Solutions**. You can find the answers you need about SAP Business Network products in the **SAP Help Center**. You can also contact **SAP Support** directly through the **Help Center**, when necessary.

12.3 Access the Help Center

Sign into your account and look to the right-hand side of your screen [?] to view the **Help Center panel**. If the panel collapses and you cannot see any articles, click [⬀] icon to expand.

12.4 Using SAP Business Network Help Center

The Help Center is the first place to start if you have questions about any **SAP Business Network Solution.**

Please watch this short Tutorial on how to navigate **SAP Help Center to:**

- Find informational documents and FAQs created and curated by support or product documentation from SAP Help Portal
- Find information on new releases, upcoming webcasts, and events, as well as easy access to Supplier Release Readiness Portal.
- Contact us to submit a case for support.

www.sap.com