Team Leidos

Supplier Guide to Team Leidos' Electronic Data Interchange (EDI) Solution

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Date:	18 August 2019

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1 Overview

1.1 Objective

This document provides prospective Team Leidos (TL) suppliers with the information required for establishing an automated Electronic Data Interchange (EDI) relationship, for the purposes of high transactional volume procurement of commodities and services. It may have been referenced from, and therefore should be read in conjunction with, specific tender requirements. This document does not cover the semi-automated TL Msys Supplier Interface Portal (SIP) capability. The document covers the following topics:

- Details of the TL EDI capabilities e.g. supported message formats and transport protocols.
- On-boarding requirements in order to proceed further e.g. questionnaire.

1.2 Audience

This document is aimed at new and existing suppliers that wish to exchange purchasing and payment information with Team Leidos electronically (i.e. establish an EDI relationship for procurement).

1.3 EDI

1.3.1 Definition

Electronic Data Interchange (EDI) is the method of exchanging business documents from one computer system to another in a standard electronic format.

1.3.2 Capabilities

The EDI capabilities that Team Leidos could potentially transact with are listed below. These have been separated into two categories; those that are ‘Currently Supported’ by Team Leidos, and those that could be supported through extra development work. Note that any development work will incur potential costs and increased timescales for delivery. Further details regarding all of these capabilities are described in later chapters.

Currently supported:

- Edifact or OAGIS via AS2

Development required to support:

- Edifact or OAGIS via FTP / SFTP / FTPS (FTP and FTPS probably not acceptable to TL)
- Edifact or OAGIS via VAN
- PEPPOL via Service Access Provider

1.3.3 Benefits

Adopting EDI provides many benefits for both Team Leidos and its suppliers. These include:

- Faster processing times
- Replaces manual processes with automated transactions
- Improved accuracy and reliability of data
- Improved business efficiency
- Environmentally friendly

1.3.4 Messages

Team Leidos require the following messages to be exchanged via EDI:

- Purchase Order (PO) including PO reissue for Amendment
- PO Acknowledgement/Offer of alternative lead time/Rejection
- Advanced Shipping Notice (ASN)
- Proof of Delivery (required for non-warehouse Direct Supply deliveries)
- Invoice

Further information on the messages and the specification for each message can be found in Appendix A: (The Team Leidos EDI capability is currently under development, therefore some technical detail is not yet available.)

1.3.5 EDI Message Exchanges

Figure 1 depicts the EDI message flows that support the purchasing process between Team Leidos and suppliers. The steps where an EDI message is generated and sent are represented by yellow boxes. The steps in this process can be summarised as follows:

- Team Leidos generate a PO and transmit to the trading partner as an EDI PO.
- The supplier receives the EDI PO message. If the supplier is able to meet the requirements of the PO, the supplier sends an electronic acknowledgement (POACK) back to Team Leidos, as confirmation of receipt of PO.
    - If the supplier cannot meet the PO requirements, the supplier can electronically offer an alternative lead time, or reject the order and contact Team Leidos through the agreed business procedure to agree whether to amend the PO and resend or cancel the order.
- The supplier subsequently sends Team Leidos an EDI Advanced Shipping Notification (ASN) to report what goods are about to be shipped and then also when they have been shipped.
- The supplier, for non-warehouse Direct Supply deliveries, sends Team Leidos a Proof of Delivery (POD) to report the goods delivered, date of receipt and a reference to a signature of receipt.
- Finally, once the invoice is produced, the supplier will then send an EDI invoice (INV) to Team Leidos.

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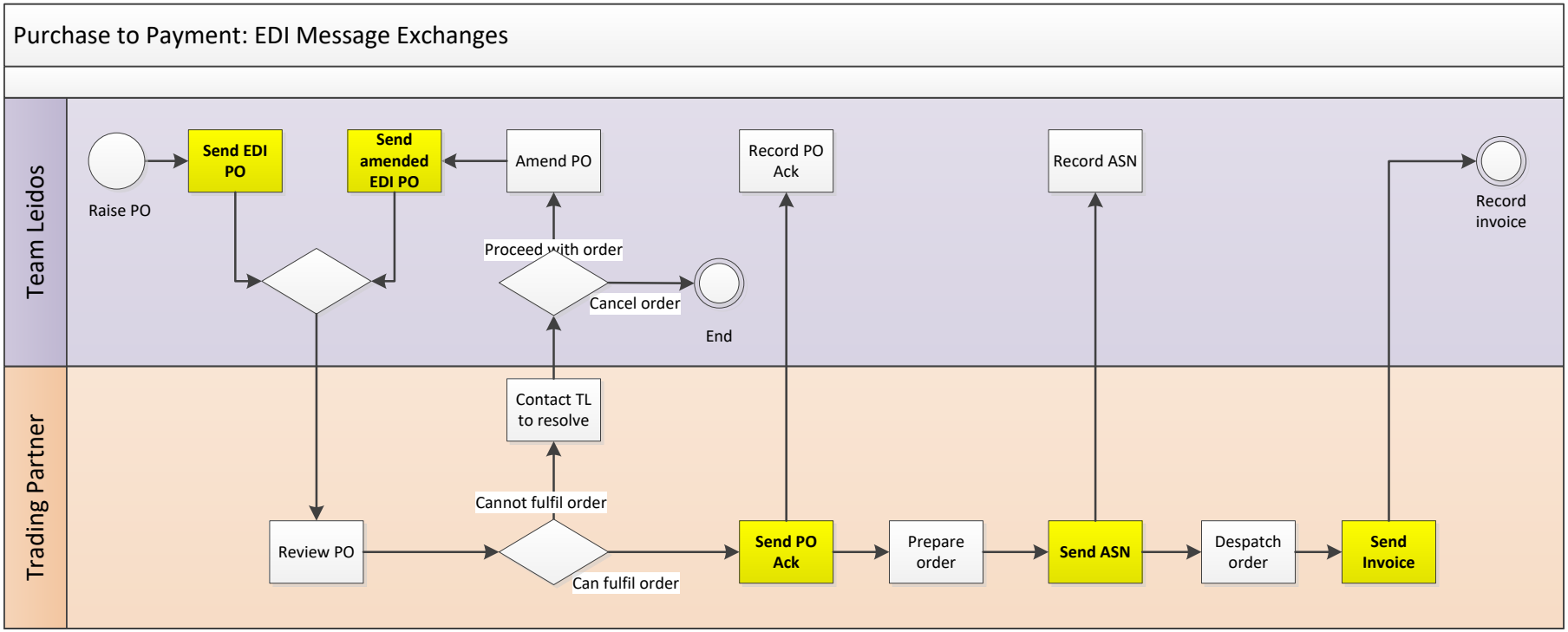

Figure 1 - Purchase to Payment: EDI Message Exchanges - 4 Messages not showing Proof of Delivery / Receipt

2 Connectivity and Message Formats

In order to allow the secure transfer of business documents between computer systems, the following minimum requirements must be met:

- Message format: An agreed standard format for presenting the business data within the message. Examples include traditional Electronic Data Interchange (EDI) standards such as EDIFACT and eXtensible Mark-up Language (XML) OAGIS.
- Protocol: A secure and reliable communication mechanism for transporting the message between parties. For example, AS2.
- The necessary systems and procedures need to be in place at each end of the transport channel to receive/translate/process and reply to messages.

2.1 Message Formats

Team Leidos can potentially support a number of message formats for exchanging messages with suppliers, with the following being those that are currently supported:

- United Nations EDIFACT (Electronic Data Interchange For Automotive Commercial & Transport).
- XML OAGIS (Open Application Group Integration Specification) v9.

Note: All OAGIS v9 XML messages must contain the Application Area header, which directly precedes the message content, known as the Data Area.

Other message formats could be supported, but will require further development work from Team Leidos and may therefore incur additional costs and increased delivery timescales that may impact supplier selection. These may include formats such as:

- ANSI ASC X12
- Tradacoms
- Flat file formats

2.2 Connectivity Options

As outlined in chapter 1, there could be three main connectivity options with Team Leidos:

1. Direct connection via AS2 (currently supported).
2. A commercial EDI Value-Added Network (VAN) service provider.
3. FTP – including SFTP and FTPS (FTP and FTPS probably not acceptable).

Options 2 and 3 will require further development work from Team Leidos and may therefore incur additional costs and increased delivery timescales that may impact supplier selection.

The following pages give an overview of the more common connectivity. This includes listing the features, advantages and factors to consider for each option. Any options that are not discussed below will require consultations between Team Leidos and the supplier to understand the requirements and feasibility.

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2.3 Summary of Direct Connection (AS2)

Connection via AS2
Description: AS2 (Applicability Statement 2) is a point-to-point connectivity method that transfers data securely and reliably over the Internet via HTTP or HTTPS. **Requirements:** • Agreed common data formats between partners • AS2 software for receiving and sending messages • Exchange of certificates between partners • Firewall access enabled to allow communication between parties • 24/7 available network with TCP/IP protocol **Features and advantages:** • Non-repudiation and data integrity • Message disposition notice (MDN) can be requested for message transfers, allowing the sender to know if it was successful • Envelopes data using public and private keys and certificates for encrypting and signing messages • Good route for high volumes • Popular and trusted method • Secure • No transaction charges **Factors to consider:** • Is currently supported by Team Leidos • Partners need to ensure that AS2 IDs are unique • Certificate management – CAs or self-generated?

2.4 Summary of EDI VAN Connection

Connection via EDI VAN
Description: An EDI VAN (Value Added Network) is simply a secure, private network where EDI documents can be sent and received between parties. **Requirements:** • VAN subscription • Communication software/hardware as required by VAN **Features and advantages:** • Suitable for large volumes of transactions • Suitable for existing EDI VAN subscribers • Proven, widely-used technology • Assured delivery • Integration to Supplier's own systems • Good route for high volume use • Secure **Factors to consider:** • VAN subscription costs • Increased delivery timescales due to extra development work • APIs may be required to allow Team Leidos to integrate • Does your existing VAN provider support AS2? AS2 via EDI VAN may be a more valuable method

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2.5 Summary of FTP Connection

Connection via FTP - FTPS/SFTP
Description: SFTP (SSH FTP) and FTPS (FTP SSL) are secure Internet protocols used to transfer files from one host to another. The major difference between the two is in how each provides security and performs encryption. **Requirements:** • FTP Server and Client • Network with TCP/IP protocol **Features and advantages:** • Suitable for low/medium volume of transactions • Ubiquitous • Low cost **Factors to consider:** • FTP does not address security; SFTP and FTPS encrypt data sent between the client and server • Does not address non-repudiation • Can create interoperability challenges • Cheap to implement, although cost implications increase if adding security and message management features • Exchange of keys/certificates depending on method used

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3 Phases and Next Steps

This chapter provides details surrounding the phases of the EDI on-boarding process and the next steps required to progress.

3.1 EDI On-boarding Phases

Figure 2 illustrates the phases of the EDI on-boarding process.

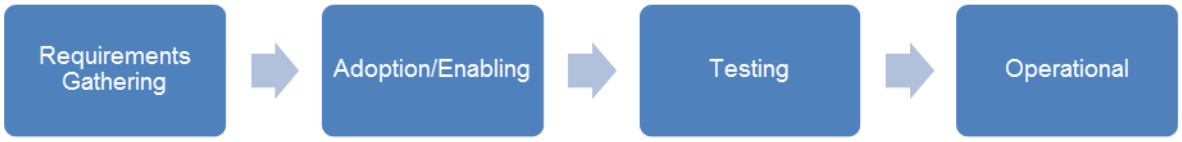

Figure 2 - EDI On-boarding Process

3.1.1 Requirements Gathering

This phase is where Team Leidos and prospective/active suppliers determine their EDI requirements and identify which messages, transport protocols and message formats would be used to exchange business documents between the parties. This document is contained within this phase and includes the mandatory completion of Appendix B, the Supplier EDI On-boarding Questionnaire.

Suppliers are expected to provide the relevant resources during this phase to successfully capture the requirements in a timely manner in order to move on to the next phases, which could be completed in 6 weeks if both parties are deploying existing capabilities.

3.1.2 Adoption / Enabling

This phase includes performing the necessary tasks to allow the two parties to communicate over the chosen method. This may involve the supplier deploying new EDI systems, or configuring existing systems within their architecture in order to exchange messages with Team Leidos.

Suppliers are expected to provide the relevant technical resources during this phase in order to liaise with Team Leidos' IS team and perform the necessary actions to enable/configure EDI capabilities within the supplier's architecture.

3.1.3 Testing

Each supplier will be required to participate in a phase of testing prior to any trades being performed in the production environment. Team Leidos will work with suppliers to identify the required test cases and formulate a test plan to validate that all connectivity and message exchange is successful.

Suppliers are expected to make available the suitable resources and systems required to prevent any potential delays during the testing phase.

3.1.4 Operational

Once the testing phase has completed and both parties are satisfied with the results, a date will be agreed to switch on the EDI capabilities in the production environments. It is at this phase that the first live transaction will be made using EDI and trading will move into an operational state.

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Appendix A: Message Specifications

This appendix contains the EDIFACT and OAGIS XML message specifications that include further information regarding the messages that are to be exchanged.

A.1 EDIFACT

The EDIFACT specifications have been written to Version D, Release 99B of the UN/EDIFACT standard.

For further information, please refer to the United Nations Directories for Electronic Data Interchange for Administration, Commerce And Transport at:

http://www.unece.org/trade/untdid/d99b/trmd/trmdi1.htm.

Table 1 contains the EDIFACT specifications for the messages to be exchanged between parties.

Message	Specification
Purchase Order (PO)	ORDERS
Purchase Order Acknowledgement / Amendment	ORDRSP
Advanced Shipping Notice (ASN)	DESADV
Proof of Delivery (POD)	RECADV
Invoice	INVOIC

Table 1 - EDIFACT Specifications

A.2 OAGIS XML

A.2.1 Envelope

Interchange envelopes, or message headers, enclose all XML data segments being sent to the same destination. The envelope contains the identity of the sender and the receiver, along with other message specific details.

A.2.2 Standards

- The OAGIS XML specifications have been written to Version 9 of the OAGIS standard. For further information, refer to the Open Applications Group resources at:

  https://oagi.org/DownloadsResources/OAGISArchives/OAGIS9x/tabid/175/Default.aspx
- The Open Applications Group Integration Specification (OAGIS) is an integration framework for defining a common data model based on an XML Schema.
- OAGIS is the most mature, XML language in the world. OAGIS is fully XML Schema compliant and at the same time it is fully technology framework independent, supporting multiple, evolving technical frameworks, including Service Oriented Architecture (SOA), Web Services and ebXML.
- OAGIS is a business language broad enough and rich enough to create a Canonical Model for application integration for organizations. This Canonical Model provides the common business language that organisations can use to solve the “N Squared” integration problem.
- A Business Object Document (BOD) is an open standard for a common horizontal message architecture developed by the Open Applications Group. Business Object Documents(BODs) are business messages exchanged between software components or applications.

- The BOD informs the receiving system what kind of message is in the data area, as well as status and error conditions. A Business Object Document is structured in two parts consisting of a Noun and a Verb.
- The Noun is a common business object. Actions performed on the Noun are the Verbs. BODs are designed to be extensible, while providing a common underlying architecture for integration.

A.2.3 Branching

The OAGIS messages are divided into two distinct sections, the Application Area and the Data Area.

The Application Area is for application specific data such as the details needed for message routing, the date the message was created and the BOD ID which uniquely identifies the message.

The Data Area is for the actual business data. This contains a verb followed by a noun, i.e. a verb of Process, and a noun of PurchaseOrder. The section for the noun may be further broken down into repeating sub-sets, i.e. there may be a Header followed by a number of Lines

A breakdown of each message to be exchanged between Team Leidos and suppliers can be found in Table 2.

A.2.4 Specifications

Table 2 contains the OAGIS XML specifications for the messages to be exchanged with suppliers. These cover the branching for each message to help show the structure of the OAGIS messages as well as detailing the fields that are required, or optional fields that can be used, for each of the messages to be exchanged. The table also includes the OAGIS defined XSD for each message so suppliers can see the format and ordering of the elements and attributes.

Message	Specification	Schema
Purchase Order (PO)	ProcessPurchaseOrder	ProcessPurchaseOrder.xsd
Purchase Order Acknowledgement / Amendment	AcknowledgePurchaseOrder	AcknowledgePurchaseOrder.xsd
Advanced Shipping Notice (ASN)	ProcessIssueInventory	ProcessIssueInventory.xsd
Proof of Delivery (POD)	ProcessReceiveDelivery	**Error! Objects cannot be created from editing field codes.**
Invoice	ProcessInvoice	ProcessInvoice.xsd

Table 2 - OAGIS Specifications

Appendix B: Onboarding Questionnaire

Supplier
EDI On-boarding Questionnaire

Please fill out the following questionnaire for any proposed supplier relationship with Leidos Supply Ltd.

E-mail completed questionnaire to: [To be completed by Leidos or See Tender Requirements]

Section 1 – Company Contact Details

Please state your company contact details in the table below, the contact name being responsible for EDI implementation.

Company Name	
Contact Name	
Contact Number	
Contact Email Address	

Section 2 – Technical Capabilities

1. **Does your company currently have EDI capabilities or latent EDI capabilities in your business systems you have not yet activated (any responses relating to latent capabilities should be clearly marked as such)?**

   [ ] Yes [ ] No

   If no, please skip to Section 3.

2. **What transport protocols do you currently support?**

Transport protocol	Mark with "X"
AS2 (preferred option)	
EDI VAN	
FTP / SFTP / FTPS	
HTTPS	
Other (please specify)	

3. If you currently use a VAN, please provide the details below:

If you do not currently use a VAN, please skip to question 4.

VAN Vendor	
EDI ID	
Qualifier	
Other details	

4. If you currently support AS2, please provide your details below:

If you do not currently support AS2, please skip to question 5.

Details	Test	Production
AS2 ID		
AS2 URL		
External IP		
GLN		
Sync/Async		
Encryption Algorithm		
Signing Algorithm		
Compression (Y/N)		
Content type (default is application/EDI)		
Subject (default is Blank)		
Certificate		

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5. What message formats and messages do you currently support?

Please add additional columns if you support more than two 'Other' formats.

	OAGIS XML	EDIFACT	Other (please specify)	Other (please specify)
Format Version Number				
Purchase Order (PO)				
PO Acknowledgement				
Advanced Shipping Notice (ASN)				
Proof of Delivery				
Invoice/credit note				
Invoice Remittance				
Other (please specify)				

Section 3 – Further Information

Please provide any relevant further information or questions you may have in the box below.

Appendix C: Abbreviations and Terminology

Term	Description
API	Application Programming Interface
AS2	Applicability Statement 2 (HTTP/HTTPS)
ASN	Advanced Shipping Notice
CA	Certificate Authority
EDI	Electronic Data Interchange
EDIFACT	Electronic Data Interchange For Administration, Commerce and Transport
FTP	File Transfer Protocol
FTPS	File Transfer Protocol SSL (Secure Sockets Layer)
GLN	Global Location Number
LCS(T)	Logistics Commodities and Services (Transformation)
MDN	Message Disposition Notification
OAGIS	Open Applications Group Integration Specification
PEPPOL	Pan-European Public Procurement On Line - PEPPOL is a set of artifacts and specifications enabling cross-border eProcurement. The use of PEPPOL is governed by a multi-lateral agreement structure which is owned and maintained by OpenPEPPOL.
PO	Purchase Order
POD	Proof of Delivery
Qualifier	Code that describes the EDI identifier e.g. phone number, DUNS etc.
S/MIME	Secure Multi-Purpose Internet Mail Extensions
SFTP	SSH (Secure Shell) File Transfer Protocol
SMTP	Simple Mail Transfer Protocol
VAN	Value Added Network
XML	eXtensible Markup Language

Table 3 – Abbreviations and Terminology

END OF DOCUMENT