Electronic Information Environment (EIE)

Business Use Case (BUC)

BUC 3.41 Navy - Exchange Part Demand Data

EIE Project

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The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture and the solution architecture that exist for the PBC program. The content is not intended to reflect the end state specifications for all of the PBC EIE related services.

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1. EIE Business Use Case[1] Overview

1.1 Introduction

Performance Based Contracting (PBC) is a set of guidelines to Canada Major Capital Projects (MCPs) on how to model a Platform acquisition and in-service support (ISS) processes. Under these guidelines Canada is responsible to perform some corrective and/or preventive maintenance activities on the Platform. The ISS Contractor will own, manage and deliver to the specified Hand-Over Point (HoP) all materiel required to support the Platform, with the exception of excluded systems. In order for Canada and the ISS Contractor to fulfill their obligations under PBC, specific datasets must be exchanged between Canada and ISS Contractor.

The collection of information systems provided by Canada and ISS Contractor, used to maintain the Platform and the various information exchange mechanism, is collectively known as the Electronic Information Environment (EIE).

The web services and supporting infrastructure which enable the exchange of data between ISS Contractor and Canada's operational systems in support of PBC between Canada and the ISS Contractor(s) is collectively known as Electronic Data Exchange (EDE). The EDE components span application nodes, network zones and the Internet.

Given the significance of materiel demand and supply in the overall success of contracted performance objectives of PBC and platform operational availability, all data exchange between Canada Supply System (CSS) and the ISS Contractor systems will have to occur in near real-time via EDE.

1.2 Purpose

When a work order is released in the Canada Maintenance Management System (CMMS) or when a maintenance task or operation is added to a work order that requires ISS Contractor-owned parts, the system checks for availability of the parts at the Canada storage locations dedicated to holding ISS Contractor-owned stock. If the required parts are available, a reservation will be created, parts will be committed and then will be issued to the work order in the Canada Supply System (CSS). If the ISS Contractor-supplied parts are not available at Canada storage locations, a Part Demand for the required parts is generated in the CSS and sent to the ISS Contractor via the EDE.

The ISS Contractor will respond to the Part Demand by providing a near-real time Part Demand Response via the EDE. If the demanded parts are immediately available, the Part Demand Response will state the current date. If not immediately available, the Part Demand Response will provide scheduled availability

[1] "Business Use Case: A business process, representing a specific workflow in the business; an interaction that a stakeholder has with the business that achieves a business goal. It may involve both manual and automated processes and may take place over an extended period of time." - http://www.ibm.com/developerworks/rational/library/apr07/english/. Also defined as such in EIE Solution Architecture.

with an estimated delivery date (EDD) and quantity. The ISS Contractor is required to provide the requested materiel within the contractually agreed time in order to meet PBC parameters.

In preparation for deployment, Canada may request a Pack-up Kit (PUK) through the Part Demand service. A demand for a PUK is expressed as a single line item within the Part Demand message. The ISS Contractor will respond with an EDD for the PUK items.

Any subsequent updates will be sent from ISS Contractor to CSS via the EDE.

This Business Use Case (BUC) describes the exchange of Part Demand data between Canada and the ISS Contractor for a platform managed according to PBC.

1.3 Intended Audience

The intended audience for this BUC includes:

- ISS Contractor who requires detail of their business service-level interactions, benefits and obligations under PBC.
- All Canada personnel implementing the PBC.
- Solution Architects who will define a Business Service Model for the business service(s) that are described.
- Functional Testers who will use the BUC to define test scenarios for Integration testing.
- Designers who will perform detailed design and unit test.

1.4 References and Traceability

Business Process documents

[Ref. 1] PBC Business Process Catalogue Annex M: Navy Supply Process Model - In the Context of Performance Based Contracting (PBC)

[Ref. 2] PBC Business Process Catalogue Annex L: Navy Maintenance Process Model - In the Context of Performance Based Contracting (PBC)

With respect to the referenced documents this BUC addresses the following sections:

Reference	Section
[Ref. 1] PBC Business Process Catalogue Annex M	Annex M – Navy Supply Process Model
[Ref. 2] PBC Business Process Catalogue Annex L	Annex L – Navy Maintenance Process Model

2. BUC 3.41 Navy - Exchange Part Demand Data

This BUC will identify processes and activities and define scenarios which apply to Part Demand data exchange.

2.1 Overview

Identifier	BUC 3.41
Name	Navy - Exchange Part Demand Data
Business goal	Send Part Demand dataset to the ISS Contractor as necessary to allow timely provisioning of parts required by Canada Authorized Person to complete maintenance activities.
Stakeholders	Canada and ISS Contractor(s)
Workflow/interaction	Exchange of Part Demand datasets from Canada to ISS Contractor as defined at multiple points in corrective and preventive maintenance business processes: • Work Order (WO) is released in the CMMS during execution of the corrective and/or preventive maintenance activities and materiel not available in Canada inventory. • If issuing the part reduces Canada inventory below the established minimum inventory threshold, a Part Demand for the quantity required to reach the established maximum inventory threshold for that part is generated in the CSS and sent to the ISS Contractor. • A demand for a PUK is created in CMMS as a result of impending deployment. • Canada Authorized Person may create a Part Demand transaction for sub-custody Special Tools and Test Equipment (STTE) as relevant. Refer to the corrective and preventive maintenance business process flows that identify supply materiel touch points. Reference [Ref. 2].
Processes	Information exchange is automated (system-to-system). The exchange is immediate upon the occurrence of a triggering event in the source system – CMMS/ CSS. Some error scenarios may require manual intervention.
Context	Business Domain: Supply materiel Functional Area: Demanding ISS Contractor-owned parts • Part Demand and Fulfillment • Part Demand and Fulfillment - De-central Scenario • PUK Demand and Fulfillment.

Period of Time	The full lifecycle of the subject platform.
Description	Canada uses CMMS when performing maintenance planning and execution. A work order is created in CMMS to track Canada-performed maintenance. All required parts will be listed in the work order and once the work order is released, the CMMS/CSS will generate demands to be sent to the ISS Contractor for ISS Contractor-owned parts if the parts are not available in Canada inventory. If the ISS Contractor supplied parts are available at Canada storage locations, and issuing the part reduces Canada inventory below the established minimum inventory threshold, a Part Demand for the quantity required to reach the established maximum inventory threshold for that part is generated in the CSS. On a near real-time basis, Canada will use EDE to transfer to the specific ISS Contractor the Part Demand dataset, which is created and permitted by Canada to be shared with the ISS Contractor.

2.2 Sub-Processes and Activities Supported

Refer to EIE Business Process document, [Ref. 1] for diagrams that capture business process flow supported by this BUC.

2.3 Business Rules and Assumptions

1. A Part Demand is created for a specific ISS Contractor-owned part that is listed as a component on a CMMS work order and materiel is not available in Canada inventory, or Canada inventory falls below the established minimum inventory threshold.
2. The CMMS/CSS and EDE systems shall ensure a Part Demand dataset for a part is sent only to the ISS Contractor system which is properly authenticated and authorized to see maintenance and materiel data for that ship class.
3. CMMS, as the system of record for actual configuration data, will determine when data can be released to the ISS Contractor and will initiate transfer to the ISS Contractor.

2.4 Actors

The following actors have been identified as performing the documented business activities:

Role Name	Role Description / Responsibilities
Canada Authorized Person	• Creates and releases a work order • Updates a work order by adding a maintenance task list that lists a set of component or addition of component(s) to the work order • Creates a demand for a PUK • Creates a manual demand • Forwards demand message to the ISS Contractor via the EDE
ISS Contractor (ISS Contractor's Supply Chain Management System (SCMS))	• Provides a system that will have the ability to: – Accept and process a Part Demand data sent from Canada, and – Acceptance of the acknowledge of the data from Canada
CMMS / CSS	• Generates and sends a Part Demand dataset from the CMMS/CSS central server
EDE	• Transports and transforms the Part Demand dataset

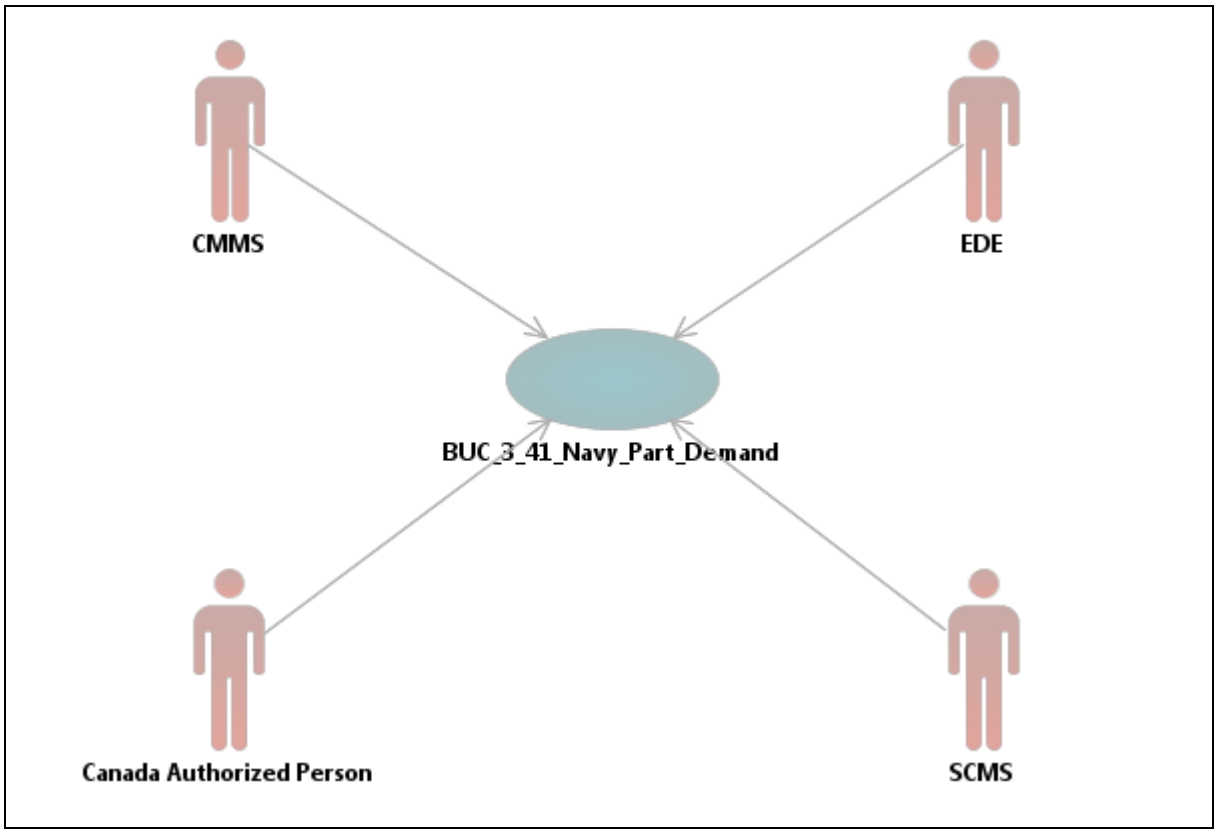

Figure 2-1 Navy - Exchange Part Demand Data

2.5 Common Pre-Conditions

These apply to every scenario unless explicitly stated otherwise:

1. Canada and ISS Contractor have agreed upon Part Demand dataset format (see Functional Data Definition)
2. Canada and ISS Contractor have agreed upon near real-time data exchange mechanism for Part Demand dataset.

2.6 Common Post-Condition(s)

The following applies to every scenario unless explicitly stated otherwise:

1. Part Demand dataset has been received by ISS Contractor and an acknowledgement has been received by Canada.

2.7 Common BUC Steps

Each scenario defined below includes the following common steps:

Common Steps	Step Description	Actor
Determine the ISS Contractor and ship class	The CMMS / CSS will determine the ISS Contractor and ship class that are applicable to the part for which the demand has been raised.	CMMS / CSS
Prepare Part Demand dataset	The CMMS/CSS creates a Part Demand dataset as per the data map and record definition provided by EDE for materiel not available in depot inventory.	CMMS / CSS
Send Part Demand dataset to the ISS Contractor	Canada Authorized Person triggers the CMMS / CSS to send the Part Demand dataset to EDE.	CMMS / CSS
Convert Part Demand dataset to common format	EDE converts data to XML-based format that has been adopted by Canada and the ISS Contractor.	EDE
Send Part Demand dataset to the ISS Contractor	EDE sends Part Demand dataset to the ISS Contractor, in accordance with transmission definition as per Canada EDE defined standard.	EDE
Acknowledge Receipt of Part Demand dataset or send an error report	ISS Contractor System sends an acknowledgement receipt to EDE for received and successfully processed Part Demand dataset. The processing of the data at this level will report errors on the data if it violates the exchange definition for the message, when there is a violation. No business evaluation errors will be reported at this time.	ISS Contractor (SCMS)
Forward the acknowledgement or transfer error report to CMMS / CSS	EDE forwards the acknowledgement receipt to CMMS / CSS or sends the error reported from the ISS Contractor.	EDE
Mark Part Demand dataset as sent	CMMS/CSS updates the Part Demand dataset as being sent.	CMMS / CSS

2.8 Scenarios[2]

In the following scenarios the pre-condition and trigger serve to uniquely identify the Part Demand exchange in the context of maintenance and supply materiel business processes. This supports direct traceability between business processes and exchange use case scenarios.

2.8.1 3.41.1 Part Demand [N1.5.3.1.1]

Scenario Name	3.41.1 Part Demand [N1.5.3.1.1]
Business Process	This scenario occurs in the following Supply Materiel business processes: • Part Demand and Fulfillment • Part Demand and Fulfillment – Decentral Scenario • PUK Demand and Fulfillment
Business Context	Part Demand and Fulfillment • If the ISS Contractor-supplied parts are available at Canada storage locations, and issuing the part reduces Canada inventory below the established minimum inventory threshold, a Part Demand for the quantity required to reach the established maximum inventory threshold for that part is generated in the CSS and sent to the ISS Contractor via the EDE. • If the ISS Contractor supplied parts are not available at Canada storage locations, a Part Demand for the required parts is generated in the CSS and sent to the ISS Contractor via the EDE. Part Demand and Fulfillment – Decentral Scenario • The ISS Contractor, enabled by EDE, will only interface with the central instance of the CMMS and CSS. As such, Part Demands sent to the ISS Contractor may be an aggregation of demands from various ships. PUK Demand and Fulfillment • Canada may demand a PUK based on an anticipated operational deployment. The PUK Demand will be generated in the CSS and sent via the EDE to the ISS Contractor.
Precondition(s)	See Common Pre-Conditions.

[2] A scenario corresponds to a specific activity in the maintenance or supply materiel business processes when a triggering event occurs which causes a Part Demand dataset exchange. Picture the maintenance or supply business process as proceeding horizontally through recognition of a corrective or preventive maintenance situation, through fault isolation, and maintenance activities. Each exchange use case scenario corresponds to a vertical slice from a maintenance or supply business process which results in a Part Demand dataset being transferred to ISS Contractor.

Trigger event	1. Canada's CSS does not have material available to fulfill a requirement for an ISS Contractor-supplied part. 2. Minimum stock levels are breached. 3. Canada Authorized Person manually creates a Purchase Order for a PUK.
Steps	

Step Name	Step Description	Actor
Initiating Decision	The actor decides to start the Canada - performed maintenance and releases an existing work order in CMMS.	Canada Authorized Person
Release work order	Work order is considered released if its active system status is 'Released'. The actor selects to release the work order and the CMMS sets the work order system status to 'Released'.	Canada Authorized Person
Save work order in CMMS	The actor saves the maintenance work order.	Canada Authorized Person
Create Part Demand Record	The CMMS system will create a Part Demand record for ISS Contractor-owned parts listed in the work order as required. The Part Demand record includes a timestamp representing the date-time at which the demand is created.	CMMS
Continue with Common BUC Steps		

Postcondition(s)	See Common Post-Conditions.
Notes	

2.9 Information Requirements

Each record has a primary key consisting of:

- CMMS Customer Identifier
- Unique Canada Part Demand Identifier, i.e. Purchase Order Number
- Demanded Part Identification Data (Line number).

Each record consists of:

- Demanded part identification Data (MPN, CAGE);
- Date required by;
- Quantity demanded including unit of issue.

2.10 Special Requirements

None identified.

3. Functional Data Definition[3]

The data elements which make up a Part Demand dataset are enumerated in this section. A detailed technical message schema for exchange of datasets will be provided following the awarding of the ISS contract.

3.1 Business Entity Definition – Part Demand

The Data Entities Definition Table 3-1 below contains examples of the reference data. Specific and accurate reference data should be obtained from Canada through official channels prior to using the reference data in downstream design and implementation activities.

Table 3-1 Data Entities Definition

Name	Definition	Type	Length
Purchase Order Number	CMMS internally generated Purchasing document item number identification per PO/ demand.	Char	10
Comments	Open text field from the Delivery text segment of the Purchase Order header. (Additional instructions or notes for the Item Manager).	Char	120
Line Item Number	A unique identifier for a specific demand quantity by part within a Part Demand.	Num	5
Work Order Number	CMMS internally generated unique identifier of a Work Order for which demand is created. This element will not be available if Part Demand is created manually in CSS, independent from a WO. (Not populated for Navy)	Char	12
Manufacturer Part Number (MPN)	Designated Manufacturer's Part Number (MPN) *Note:* Canada-supplied parts may have an MPN up to 34 characters in length ISS Contractor-supplied parts must have an MPN of 31 characters or less.	Char	34
CAGE Code	Commercial And Government Entity (CAGE)	Char	5

[3] This is a ***functional*** view of the data. A detailed schema including fields for parent/child structure, metadata to manage exchange with ISS Contractor, more specific types, etc. will be defined in the associated service specification that this business use case will use to fulfill the identified scenarios.

Name	Definition	Type	Length
	code number that uniquely identifies the manufacturer of the part or product, sometimes produced under government contract.		
Total Quantity	The total quantity by MPN for each Line Item Number.	Float	13,3
Unit of Issue	The Unit of Issue of the demanded quantity	Char	3
Customer Identifier	CMMS generated unique identifier of the ISS Contractor.	Char	10
Ship To Code	Location to ship the part to satisfy the demand. It is an enumerated field that shall be defined jointly by Canada and the ISS Contractor. Each ship class / ISS Contractor may have differently agreed values for this field.	Char	4
Ship To Code Description	English description of the Ship To Code value.	Char	16
Need Date	Required delivery date in date format. CMMS uses yyyymmdd formatting.	Datetime	
Service Request Number	ISS Contractor generated number for unserviceable backshop repair to be performed by Canada.	Char	26

4. Issues and Exceptions

None identified.

5. Business Process Flows

Refer to EIE Supply Materiel Business Process document, [Ref. 1] for diagrams that capture business process flow supported by this BUC.

6. Definitions, Acronyms, Abbreviations

Term	Description
BUC	Business Use Case
CAGE	Commercial And Government Entity
CMMS	Canada Maintenance Management System
CSS	Canada Supply System
DND	Department of National Defence
EDD	Estimated Delivery Date
EDE	Electronic Data Exchange
EIE	Electronic Information Exchange
HoP	Hand-Over Point
ISS	In Service Support
MCP	Major Capital Project
MPN	Manufacturer's Part Number
PBC	Performance Based Contracting
PO	Purchase Order
PUK	Pack-Up Kit
SCMS	Supply Chain Management System
STTS	Special Tools and Test Equipment
WO	Work Order

7. Document Control

7.1 Document History

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1.0	Release to the Navy RFP	08 September 2015