Electronic Information Environment (EIE) Project

Business Use Case (BUC)
BUC 4.27 Navy - Exchange Maintenance Work Order Data – ISS Contractor

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 corrective and/or preventive maintenance activities on the Platform. In order for Canada and an 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 between Canada and the ISS Contractor, is collectively known as the Electronic Information Environment (EIE).

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

1.2 Purpose

Canada maintenance activities are tracked in the Canada Maintenance Management System (CMMS). Exchange of maintenance-related data involves new exchange business processes between CMMS and ISS Contractor data consumers which complement already documented maintenance business processes.

This Business Use Case (BUC) describes the exchange of Maintenance Work Order (WO) records between Canada and the ISS Contractor for a platform managed according to PBC.

1.3 Intended Audience

The intended audience for this business use case includes:

- The ISS Contractor(s) who require detail of their business service-level interactions, benefits and obligations under PBC.
- Canada Program Management Offices implementing PBC.
- Solution Architects who will define a Business Service Model for the business service(s) described here.

[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/.

- Functional Testers who will use the business use case 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 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 L	Annex L – Navy Maintenance Process Model

2. BUC 4.27 Navy - Exchange Maintenance Work Order Data – ISS Contractor

This Business Use Case will identify processes and activities and define scenarios which apply to maintenance work orders coming from the ISS Contractor.

2.1 Overview

Identifier	BUC 4.27
Name	Navy - Exchange Maintenance Work Order Data – ISS Contractor
Business goal	Send maintenance work order dataset to Canada as necessary to allow the ISS Contractor to fulfill its obligations under PBC.
Stakeholders	Canada and the ISS Contractor(s)
Workflow/interaction	Exchange of maintenance work order dataset from the ISS Contractor to Canada as defined at multiple points in corrective and preventive maintenance business processes. Reference [Ref. 1].
Processes	Information exchange is automated (system to system). The frequency of exchange is determined by Canada and each ISS Contractor. Some error scenarios may require manual intervention.
Context	Business Domain: Maintain Platform Functional Area: Preventive and Corrective Maintenance • Execute Corrective or Preventive Maintenance – Execute Maintenance - ISS Contractor
Period of Time	The full lifecycle of the subject platform.
Description	This use case describes the exchange of maintenance work order information between CMMS and the ISS Contractor in the context of PBC. Upon acceptance of the maintenance notification for conducting the corrective or preventive maintenance execution, the ISS Contractor creates a maintenance notification and work order in their Maintenance Management System and sends the work order record once it is scheduled to the CMMS. Upon completion of the maintenance execution, the ISS Contractor will close the work order and send the work order complete record to Canada.

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. The CMMS and EDE systems shall ensure that the work order dataset for a platform is received from the ISS Contractor system which is properly authenticated and authorized to send the maintenance and/or materiel data for that fleet.

2.4 Actors

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

Role Name	Role Description / Responsibilities
ISS Contractor	• Provides a system that will have the ability to: – Process and transmit the Work Order data to Canada, and – Acceptance of the Acknowledgement of data from Canada
EDE	• Transports and transforms the Work Order data.
CMMS	• Receives and processes Work Order data.

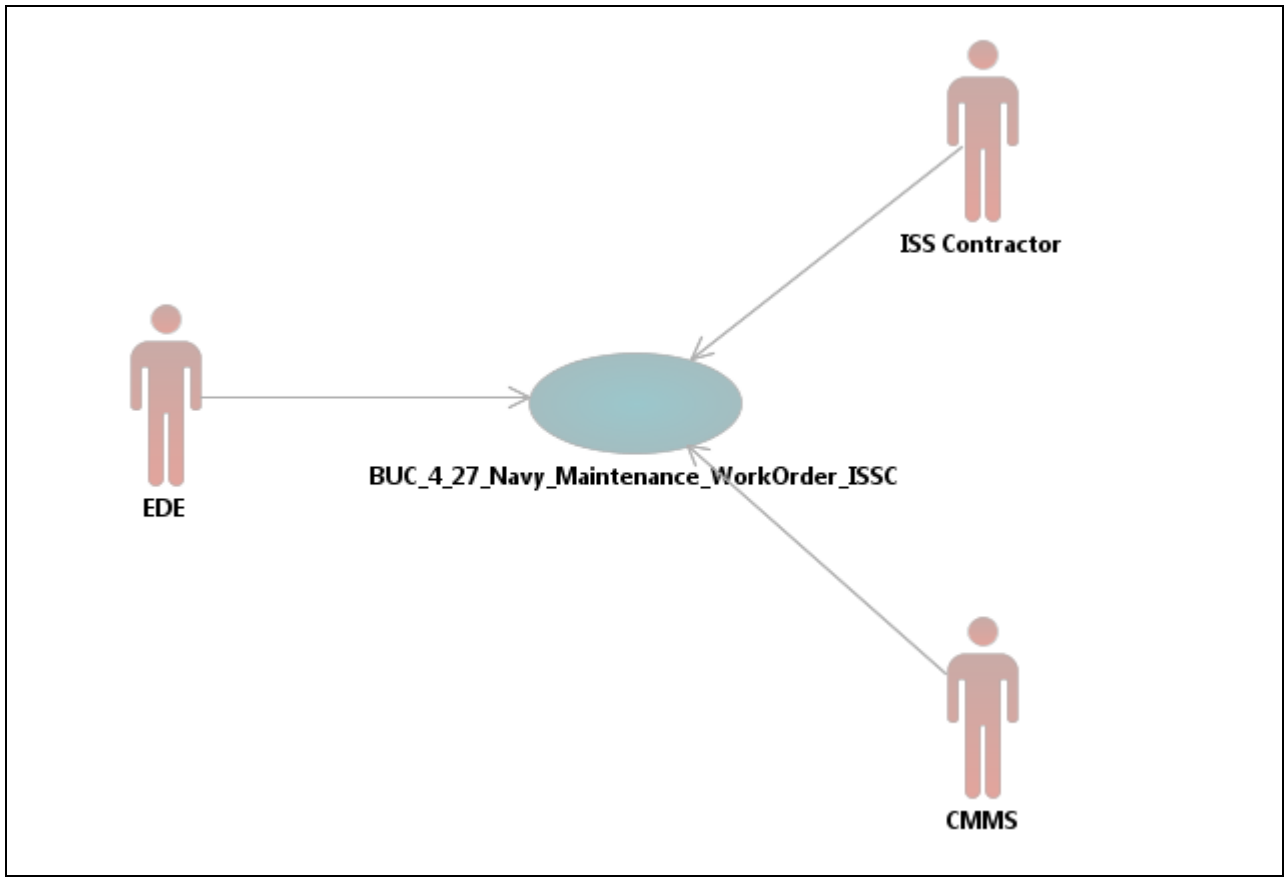

Figure 2-1 Navy - Exchange Maintenance Work Order data - ISSC

2.5 Common Pre-Conditions

These apply to every scenario unless explicitly stated otherwise.

1. As per PBC, Canada requires the ISS Contractor to send the maintenance work order datasets to Canada.
2. Canada and the ISS Contractor have agreed upon maintenance work order dataset content and format (see Functional Data Definition).
3. Canada and the ISS Contractor have agreed upon maintenance work order data exchange mechanism.

2.6 Common Post-Condition(s)

The following applies to every scenario unless explicitly stated otherwise.

1. Maintenance work order dataset has been received by Canada and an acknowledgement has been received by the ISS Contractor.

2.7 Common BUC Steps

Each scenario defined below includes the following common steps:

Common Steps	Step Description	Actor
Receive work order	EDE receives the work order.	EDE
Convert work order data to CMMS format	EDE converts data to a format acceptable by CMMS.	EDE
Send work order data to CMMS	EDE sends work order datasets to CMMS, in accordance with transmission definition agreed to with CMMS.	EDE
Capture work order record in CMMS	CMMS receives and processes the work order.	CMMS

2.8 Scenarios[2]

In the following scenarios the pre-condition and trigger serve to uniquely identify the maintenance work order exchange in the context of a maintenance business process. This supports direct traceability between maintenance business processes and exchange use case scenarios.

Note: The numeric identifier that appears in square brackets besides each scenario name is an identifier that can be used to locate the event in the business process flow as per [Ref. 1].

[2] A scenario corresponds to a specific activity in a maintenance business process when a triggering event occurs which causes a maintenance Work Order dataset exchange. Picture the maintenance business process as proceeding horizontally through recognition of a corrective or preventive maintenance situation, through fault isolation, initiation through completion of maintenance activities, certification of completion of maintenance activity, possibly a trial, and reconciliation of the Work Order. Each exchange use case scenario corresponds to a vertical slice from a maintenance business process which results in a maintenance work order being transferred from the ISS Contractor.

2.8.1 4.27.1 Maintenance Work Order – ISS Contractor – Full [N1.4.3.2.8]

<table>
<tr><td>Scenario Name</td><td>4.27.1 Maintenance Work Order – ISS Contractor – Full [N1.4.3.2.8]</td></tr>
<tr><td>Business Process</td><td>This scenario occurs in the following business processes:
Execute Corrective or Preventive Maintenance
Execute Maintenance - ISS Contractor</td></tr>
<tr><td>Business Context</td><td>The creation and closure of a work order as described in the following maintenance business processes will trigger sending the Full record of data to Canada by the ISS Contractor.

Execute Maintenance - ISS Contractor
Upon acceptance of the maintenance notification for conducting the corrective and/or preventive maintenance execution, the ISS Contractor creates a maintenance notification and work order in their Maintenance Management System and sends the work order record once it is scheduled to the CMMS via the EIE EDE.
Upon completion of the maintenance execution, the ISS Contractor will close its work orders and send the work order complete records to CMMS via the EIE EDE.</td></tr>
<tr><td>Precondition(s)</td><td>See Common Pre-Conditions.</td></tr>
<tr><td>Trigger event</td><td>Creation of a new work order by the ISS Contractor
Closure of work order by the ISS Contractor</td></tr>
<tr><td>Steps</td><td>
<table>
<tr><th>Step Name</th><th>Step Description</th><th>Actor</th></tr>
<tr><td>Create/close work order</td><td>The Actor chooses to create/ close a work order.</td><td>ISS Contractor</td></tr>
<tr><td>Send work order data</td><td>The Actor sends work order records as per definition published by Canada.</td><td>ISS Contractor</td></tr>
<tr><td colspan="3">Continue with Common BUC Steps</td></tr>
</table>
</td></tr>
<tr><td>Postcondition(s)</td><td>See Common Post-Conditions.</td></tr>
<tr><td>Notes</td><td></td></tr>
</table>

2.9 Information Requirements

The following maintenance work order types are created in CMMS for preventive and corrective maintenance which were performed by the ISS Contractor:

1. Maintenance Order – Other Plant (N001), used by the FMF and ISS Contractor.
2. NP Configuration Change Order (N005), used by the FMF and ISS Contractor for Engineering Change implementation.
3. Capital Work Order (N006), used by the FMF and ISS Contractor for Engineering Change implementation

Details on the data elements of a Maintenance Work Order are provided in Section 3.

2.10 Special Requirements

The work order sent by the ISS Contractor must reference the original notification ID sent by CMMS to initiate the work.

Parts consumed while performing the work must be included in the operation components.

Work order must include its state, expressed through agreed status codes.

3. Functional Data Definition

The data elements which make up a Maintenance Work Order are enumerated here. A detailed schema for exchange of datasets will be made available prior to design phase with the ISS Contractor(s).

Note: All elements listed below will not be required to be provided by the ISS Contractor. The definition below is a comprehensive definition of all of the work order elements that are typically shared with ISS Contractor when a work order originates from Canada.

3.1 Data Entities Definition

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

Table 3-1 Data Entities Definition

Name	Description	Type	Length
Work Order Number	A unique identifier of a work order in CMMS.	Char	12
External work order number	The ISS Contractor work order number	Char	64
Record Timestamp	The timestamp a work order snapshot is saved in the ISS Contractor system and available to be sent to Canada	Datetime	
Work Order Short Description	Short description of the problem reported within the WO. It may come from the associated maintenance notification's short text.	Char	40
WO Long Text	Long text of the Work Order. For the PBC fleets this entity may contain the references to Maintenance Manuals used in the WO.	Char	2 GB
Notification Identifier	A reference to the CMMS notification number from which the WO is generated.	Char	12
Work Order Start Date	Expected start date of maintenance activities.	Date	
Main Work Centre	A unique identifier of a work centre that has overall responsibility for all the work performed on a work order. This resides in the work order header,	Char	8
Main Work Centre Description	The description of the Main Work Centre	Char	40

Name	Description	Type	Length
CAGE	Commercial And Government Entity of manufacturer associated to the equipment	Char	5
MPN	Manufacturer Part Number (MPN) Note: DND-supplied parts may have an MPN up to 34 characters in length. Industry-supplied parts must have an MPN of 31 characters or less.	Char	34
Serial No	Manufacturer's Serial number of the part	Char	30
External FLOC Identifier	Functional Location. Equipment may or may not be installed in the functional location.	Char	30
FLOC description	Description of the External FLOC Identifier	Char	30
Assembly CAGE	The CAGE code of the MMR (assembly) in the work order (header level) Applicable to backshop transactions	Char	5
Assembly MPN	The MPN of the MMR (assembly) in the work order (header level) Note: DND-supplied parts may have an MPN up to 34 characters in length. Industry-supplied parts must have an MPN of 31 characters or less.	Char	34
Frame ID	A reference point annotated on ship drawings used to denote major watertight sections within a ship upon a given deck. This field can be used to denote work that cannot be pinned down to a specific compartment.	Char	20
Compartment	An Identification Code used in reference drawings to identify the relative position of major and minor compartments within a ship. **Values: *Compartment*** (Example, 01DA = bridge 01DB0 = Chart room 01DC0 = Fire control equipment)	Char	5

Name	Description	Type	Length
Compartment Description	A description of the Compartment (Example, 'bridge')	Char	80
Class of Ship/platform	The class that a ship belongs to	Char	3
Class of Ship/ platform description	The description of the Class of Ship/platform	Char	40
Customer reference number	This is a free text field with multiple uses. – In CMMS, Identifies the CMIS MAF associated with the notification – DGMEPM (or any non-Ship) Customer will enter the FMAS FE number in this field	Char	26
Planned Work for the activity	The planned work targeted for a specific activity. The Planned Work and the Actual Work share the same unit of measure (UOM)	Decimal	7.1
Actual Start Date	The actual start date for the work order	Datetime	
Actual Finish Date	The actual finish date for the work order	Datetime	
Revision	A revision is used to group together multiple, discrete maintenance objects (such as notifications or work orders) under a single identifier. The Revision is associated to both a Start Date and an End Date.	Char	8
Description of Revision	A description of the revision	Char	40
User Status Code	More than one status can be selected per WO. **Values: *User Status Code*** (Example, SSWO Ship Staff Work Outstanding FILV First Level System AMAT Awaiting Material)	Char	4
User Status Description	The description of the WO User Status.	Char	30
System Status Code	An attribute of a WO set by the CMMS. It is defined by the system workflow and it will change through the lifecycle of the WO. **Values: *System Status Code*** (Example,	Char	4

Name	Description	Type	Length
	CRTD Created REL Released TECO Technically Completed CLSD Business Closed)		
System Status Description	The description of the WO system status.	Char	30
System Status Start Date	Date and time the WO system status is set and saved in the ISS Contractor system	Datetime	
External Maintenance Task List Identifier	The Industry partner's identifier for a Task List. Note: External Maintenance Task List Identifier is also known as Orig_MTL_No, terminology used by CMMS.	Char	40
External Operation Identifier	The Industry partner's identifier for a Task List Operation (or combination operation / sub-operation)	Char	65
Operation Number	A unique identifier of an operation within a Work Order in the CMMS that is displayed to the user. The combination of Operation Number || Sub-Operation Number is unique within the Work Order. Note: Operation Number is also known as OpAc, terminology used by CMMS.	Number	4
Sub-Operation Number	An identifier of a sub-operation within an operation of the Work Order. Blank sub-operations are possible.	Number	4
Operation User Status Code	A user status manually set against an operation or sub-operation.	Char	4
Operation User Status Description	The description of the WO Operation's User Status.	Char	30
Operation User Status Start Date	Date and time the WO user status set event is logged in ISS Contractor system.	Datetime	
Operation User Status Stop Date	Date and time the WO user status un-set event is logged in ISS Contractor system.	Datetime	
Performing Work Centre	A unique identifier of a work centre that is in overall charge when a maintenance task is carried out in the ISS Contractor system. A work centre may be representing a trade	Char	8

Name	Description	Type	Length
	group. The trades are mapped to generic Work Centres in the CMMS to fleet's specific Work Centres. The mapping has to be agreed between Canada and the contractor.		
Performing Work Centre Description	The description of the performing work centre.	Char	20
Operation Short Text	Operation short text - may come from associated Task List or manually input.	Char	40
Operation Long Text	Long text associated to operation.	Char	2 GB
Planned Work - Operation	A number representing sum of amount of work planned per operation	Decimal	7.1
Planned Work UOM	Unit of measure for planned work	Char	3
Actual Work	A number representing sum of amount of work done per operation.	Decimal	13.3
Actual Work UOM	Unit of measure of the actual time of work performed per operation. (Example, HR (hour)).	Char	3
Actual Number of Resources	Actual Number of people who worked on the operation/sub-operation	INT	3
Normal Duration	The planned duration of operation	Decimal	5.1
Number of resources	The number of resources planned for the activity	Integer	3
Actual Start Date - Operation	The date that the work started for the operation	Datetime	
Actual Execution Finish Date - Operation	The date that the work was completed for the operation	Datetime	
Component Item Number	A unique identifier of a component line item number against an operation. (CMMS will use the system's internal field "reservation item number" since the actual component's item number can be changed).	Char	4
Component Cage Code	Commercial And Government Entity (CAGE) code number that uniquely identifies the manufacturer of the part or product defined in the Operation, sometimes produced under government contract.	Char	5
Component MPN	Manufacturer Part Number (MPN) of the	Char	34

Name	Description	Type	Length
	component – a combination of numbers, letters, and symbols assigned by a designer, a manufacturer, or vendor to identify a specific part or item of materiel defined in the Operation. Note: DND-supplied parts may have an MPN up to 34 characters in length. Industry-supplied parts must have an MPN of 31 characters or less.		
Component Description	Short description of the component.	Char	40
Component Long Text	Free form text field that may be populated by a maintainer to capture additional information about the component.	Char	2 GB
Required Quantity	Quantity of the component required for the operation execution.	Decimal	13.3
Component Unit of Measure	Unit of measure for the component.	Char	3

4. Issues and Exceptions

None identified.

5. Business Process Flows

Refer to EIE Maintenance 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
DND	Department of National Defence
E&M	Engineering and Maintenance
EDE	Electronic Data Exchange
EMR	Equipment Master Record
FMF	Fleet Maintenance Facility
ISS	In Service Support
MCP	Major Capital Project
MER	Master Equipment Record
MPN	Manufacturer Part Number
MTL	Maintenance Task List
PBC	Performance Based Contract
PMO	Project Management Office
WO	Work Order

7. Document Control

7.1 Document History

Revision Number	Description	Date
1.0	Final version ready for Navy RFP	17 August 2015