Electronic Information Environment (EIE)

Service Specification Document/Interface Control Document

Navy Part Demand – External

External – In the above context is intended to reflect that this content is for the In-Service Support (ISS) Contractors who have been contracted to participate in an ISS phase of a Weapon System or Platform that the Department of National Defence has acquired.

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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   Introduction

This document establishes an interface between Canada Electronic Data Exchange (EDE) system and Industry systems to send part demand messages for Canada ship classes subject to Performance Based Contracting (PBC) to the In-Service Support (ISS) Contractor responsible for maintenance of the ship class. To support the Part Demand message exchange between Canada EDE and ISS Contractor, both systems need to support specific Web Service operations as well as request and response Extensible Markup Language (XML) schemas as described in this document.

The Part Demand service requires a service for ISS Contractor to report acknowledgement messages back to Canada EDE system.

1.1   Intended Audience

- ISS Contractor System Designers
- Canada EDE Designers
- ISS Contractor Testers
- Canada EDE Testers

1.2   References

[Ref. 1]   Electronic Information Exchange Business Use Case BUC 3.41 Navy - Exchange Part Demand Data

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

[Ref. 3]   Electronic Information Exchange Service Interaction Model

[Ref. 4]   Electronic Information Exchange Materiel Management Service Operational Model – External

2 Business Information

Business Information is based on the EIE Business Use Case for Part Demand [Ref. 1].

The business processes for supply of parts from ISS Contractor[1] inventory to a Canada maintainer involves a number of Supply Services to ensure accurate management of inventories and accountability for time elapsed in the Supply processes. The goal of the Part Demand service is to send to ISS Contractor, in a near real-time manner, requests for ISS Contractor owned and managed parts and Special Tools and Test Equipment (STTE)[2]. ISS Contractor will then supply the parts to allow for timely completion of tasks on maintenance Work Orders (WOs).

Within Canada, maintenance business processes are supported by two types of information systems, known generically as:

- Canada Maintenance Management System (CMMS)
- Canada Supply System (CSS)

Currently both functions are supported within Canada by the Defence Resource Management Information System (DRMIS).

2.1 Business Processes

The ISS Contractor-owned, managed and delivered Platform spares and consumables required for the Platform maintenance activities performed by Canada personnel will only be requested on as-needed basis during execution of maintenance activities. The parts required to complete maintenance tasks will be listed in the WO in CMMS. Each part within the WO will be identified as either Canada or ISS Contractor-owned/managed. For all ISS Contractor-owned/managed parts, the CSS checks for availability of the parts at Canada storage locations. If the required parts are available at one of the supplying locations, a reservation will be created for the part(s). 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. If the ISS Contractor supplied parts are not available at the supplying storage locations, a Part Demand transaction for the required parts is generated in CSS and sent to the ISS Contractor. In response, ISS Contractor will send either response to part demands indicating availability and a pick-up location of the demanded parts, or an Estimated Date of Delivery (EDD) if the part is not immediately available. ISS Contractor is required to provision requested parts within contractually agreed time in order to meet Performance Based parameters.

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[1] In this document the terms Industry and ISS Contractor are synonymous. The term ISS Contractor is used during description of the business process to align with the Business Use Cases. The term Industry is used during description of service interactions and service descriptions.

[2] Wherever the word "part" is used, this also encompasses STTE's. The service is designed to support Special Tools and Test Equipment (STTE) but may or may not be used for STTE.

Once a part is available and ready to be provided to Canada from ISS Contractor, ISS Contractor will send a part issuance message through Canada EDE to CSS. A Canada technician will pick up the part from the Hand-Over Point (HoP) and acknowledge the receipt of the part in CSS. CSS will send a part receipt message through Canada EDE to ISS Contractor, completing the transaction cycle for a part.

In preparation for deployment, Canada may request a Pack-up Kit (PUK) through the Part Demand service. A demand for a PUK is not associated with a WO, and is expressed as a single line item within the Part Demand message. ISS Contractor will respond with an Estimated Date or Delivery (EDD) for the ready PUK. Once the PUK is available and ready to be provided to Canada from ISS Contractor, ISS Contractor will send the parts using the PUK issuance service through Canada EDE to CSS which identifies all items contained within the PUK. Canada will perform a physical audit of the contents of the PUK from the HoP and acknowledge the receipt of the PUK contents within CSS. CSS will send a part receipt message for all parts within the PUK through Canada EDE to ISS Contractor, completing the transaction cycle for a PUK.

2.2   Business Triggers

The following actions within CMMS, the business triggers, will result in Part Demand data being sent to the ISS Contractor:

- 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 required.

For further information, including cross-references to business processes, please refer to the EIE Business Use Case for Part Demand [Ref. 1].

2.3   Business Error Processing

In the event the ISS Contractor encounters business errors while attempting to post Part Demand data to their backend systems, the ISS Contractor will report errors on all line items within a Part Demand message Purchase Order.

Where possible, CSS will correct line item data based upon reported errors, and generate a new Part Demand message with a new Purchase Order Number. CSS will not re-use the initial Purchase Order Number.

Canada will send only the corrected line items in a new Part Demand message, with a new Purchase Order number. In this case, only some of the line items in the original Part Demand message will ever be satisfied, while all items of the new Part Demand message are expected to be satisfied.

3   Business Constraints

Constraints on *Usage* of the Service

1) The Industry Part Demand service shall only be invoked by the Canada EDE System. Canada EDE system will only invoke this service upon receiving a Part Demand message from CSS.

2) Every invocation of a service operation shall be secured using secure credentials, such as PKI Certificate.

Constraints on *Behaviour* of the Service

3) The Part Demand service shall operate in near-real time[3].

4) Canada systems shall ensure Part Demand data set for a Platform is sent only to the Industry system which is properly authenticated and authorized to see maintenance and materiel data for that ship class.

5) Industry will authorize invocations of operations of the Part Demand service.

6) Canada EDE does not guarantee that Part Demand messages will be received by Industry in the same order they were created.

7) Industry will report any business processing errors through the Part Demand Error operation exposed by Canada using a distinct and separate invocation.

8) Canada does not expect Industry to report successful conclusion of business processing of the Part Demand other than a Part Demand Response message. Part Demand Response Service is defined in a separate document.

9) Part Demand messages will be signed using digital certificates between Canada EDE and Industry. Please see Service Interaction Model [Ref. 3] for details.

10) Canada EDE may attempt to repeat operation invocations in response to technical faults. This behaviour is controlled by parameters for each operation. Please see Service Interaction Model [Ref. 3] for details.

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[3] This will be discussed further in EDE Service Interaction Model [Ref. 3].
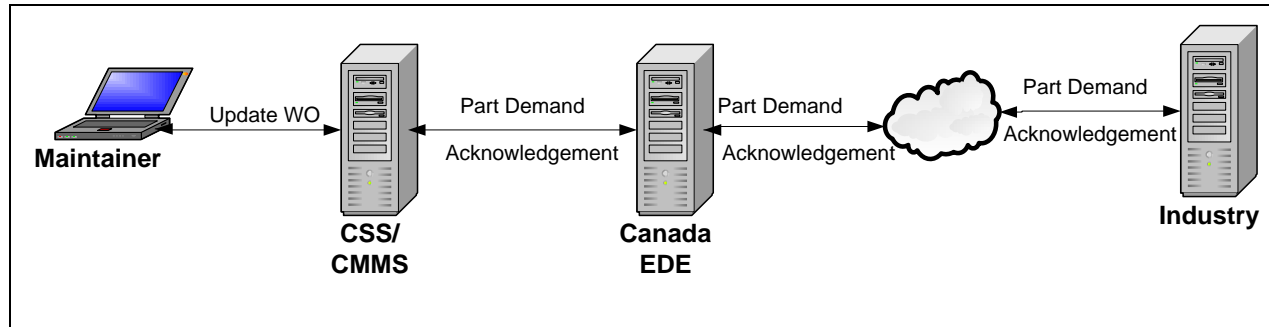
4 Service Use Case

The requirements for the Part Demand service are defined by one use case with several scenarios.

4.1 Service Context[4]

A high level view of the context of the service is shown in Figure 4-1 below. For simplicity this view omits any error scenarios. These are discussed in Service Use Case Scenarios.

Figure 4-1 Navy Part Demand Service Context

The following steps occur:

1) Maintainer or Supervisor either releases a Work Order (WO) in CMMS or adds one or more tasks (which require parts or STTE) to a WO, or adds a component to an existing WO. Collectively any one of these actions always results in an update to WO.

2) CMMS determines the parts and materiel required for the WO or added task(s) or component, and if parts not available in Canada storage locations, or reduces inventory below minimum levels, sends to CSS.

3) CSS creates a Purchase Order (PO).

4) CSS generates a Part Demand message.

5) CSS sends Part Demand to Canada EDE – Canada EDE accepts the message and returns a 'technical' response.

6) Canada EDE sends Part Demand to Industry – Industry accepts the message and returns a 'technical' response.

7) Industry Supply system performs the required "back-end" processing including enforcement of pre-established business rules as per agreement with Canada and Industry.

Once the Part Demand is sent the maintainer may perform other activities until the Industry Part Demand Response is received. This mode of interaction is termed *Business Asynchronous*.

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[4] Terms Industry and ISS Contractor are used interchangeably in this document.
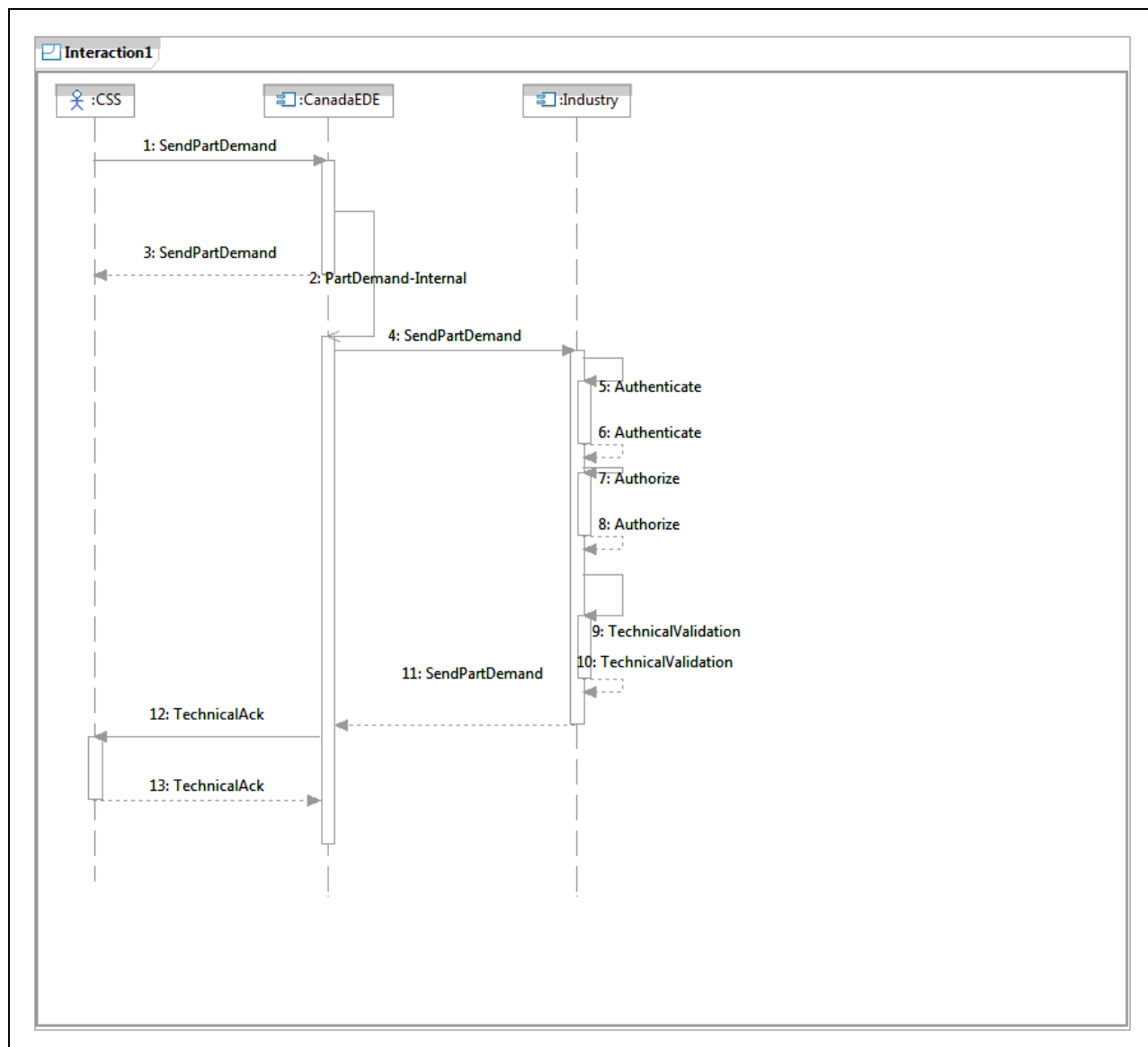
The "technical response" referred to above either (*i*) confirms a party in the exchange has accepted a message for further processing, or (*ii*) contains a fault message. A technical acceptance does not preclude subsequent "business" errors being observed by Industry and reported back to Canada as required.

4.2 Successful Request and Technical Response

Figure 4-2 presents the Part Demand Message Flow. This is the main or "Happy Day" scenario.

Figure 4-2 Part Demand Message Flow

Main Flow	
Scenario	"Happy Day:" Canada EDE successfully sends Part Demand to Industry (ISS Contractor).
Pre-Condition	Maintainer has released a work order in CSS, and CSS has determined some parts are not available in Canada storage locations.
Post-Condition	Part Demand message is successfully received by Industry. CSS is advised of successful delivery of message to Industry.
Steps	1) CSS sends Part Demand message to Canada EDE. 2) Canada EDE successfully Authenticates, Authorizes and Validates the message; then starts an internal process. 3) Canada EDE responds that the message has been accepted. 4) The Canada EDE system invokes the Industry hosted and exposed SendPartDemand operation. 5/6) Industry successfully Authenticates the service consumer. 7/8) Industry successfully Authorizes use of the service/operation. 9/10) Industry conducts the required validations as per Service Interaction Model [Ref. 3]- Section Technical Delivery Phase 11) Industry provides technical response to Canada EDE. The response may indicate a status of Success or contain a fault. 12/13) Canada EDE sends *Technical* Acknowledgement to CSS.

Implicit in the above diagram is that a service Consumer may retry to send a message to the service Provider in the event there is no technical response from the Provider or if the Provider response indicates a technical error. Resend behaviour is governed by parameters in the non-functional requirements of each operation.

Canada EDE will have received a Part Demand message from CSS. The following scenarios apply to all uses of the Part Demand service.

Alternate Flow 1 (Authentication Failure)	
Scenario	Canada EDE does not provide appropriate credentials to Industry.
Pre-Condition	Canada EDE has invoked Industry Part Demand Service.
Post-Condition	Industry sends an Authentication Failure fault response
Steps	1) The authentication credentials are either not provided or are incorrect. 2) Industry sends an Authentication Failure fault as the technical response. 3) Canada EDE processes the fault.
Alternate Flow 2 (Authorization Failure)	
Scenario	Canada EDE is not authorized to use a service.

Pre-Condition	Canada EDE has invoked the Industry Part Demand Service. Industry has completed Authentication successfully.
Post-Condition	Industry sends an Unauthorized Request fault as the technical response.
Steps	1) The request message does not pass Industry authorization. 2) Industry sends an Unauthorized Request fault as the technical response. 3) Canada EDE processes the authorization failure.
Alternate Flow 3 (Technical Validation Failure)	
Scenario	Canada EDE sends a malformed message to Industry.
Pre-Condition	Canada EDE has invoked the Industry Part Demand Service. Industry has completed Authentication and Authorization successfully.
Post-Condition	Industry sends a Malformed Message fault response.
Steps	1) The message does not pass validation as per agreed schema. (Regardless of the number and types of errors). 2) Industry sends schema validation error information as the technical response as the fault message as defined within the exposed interface. 3) Canada EDE processes the schema validation error.
Alternate Flow 4 (Industry Service unresponsive)	
Scenario	Canada EDE does not receive technical response within ACK_TIME_INTERVAL.
Pre-Condition	Canada EDE has invoked the operation but does not receive the technical response within the time specified for the Part Demand service.
Post-Condition	Canada EDE marks the message as Dead Message.
Steps	1) Canada EDE does not receive any technical response from Industry within the allowed ACK_TIME_INTERVAL. 2) Canada EDE will retry sending the message up to the defined maximum retry count, or Time to Live interval, whichever comes first. 3) If there is no response, then Canada EDE marks the request message as Dead and handles it via the DeadMessageHandlerService.

Figure 4-3 presents the Part Demand Business Validation Failure Message Flow.
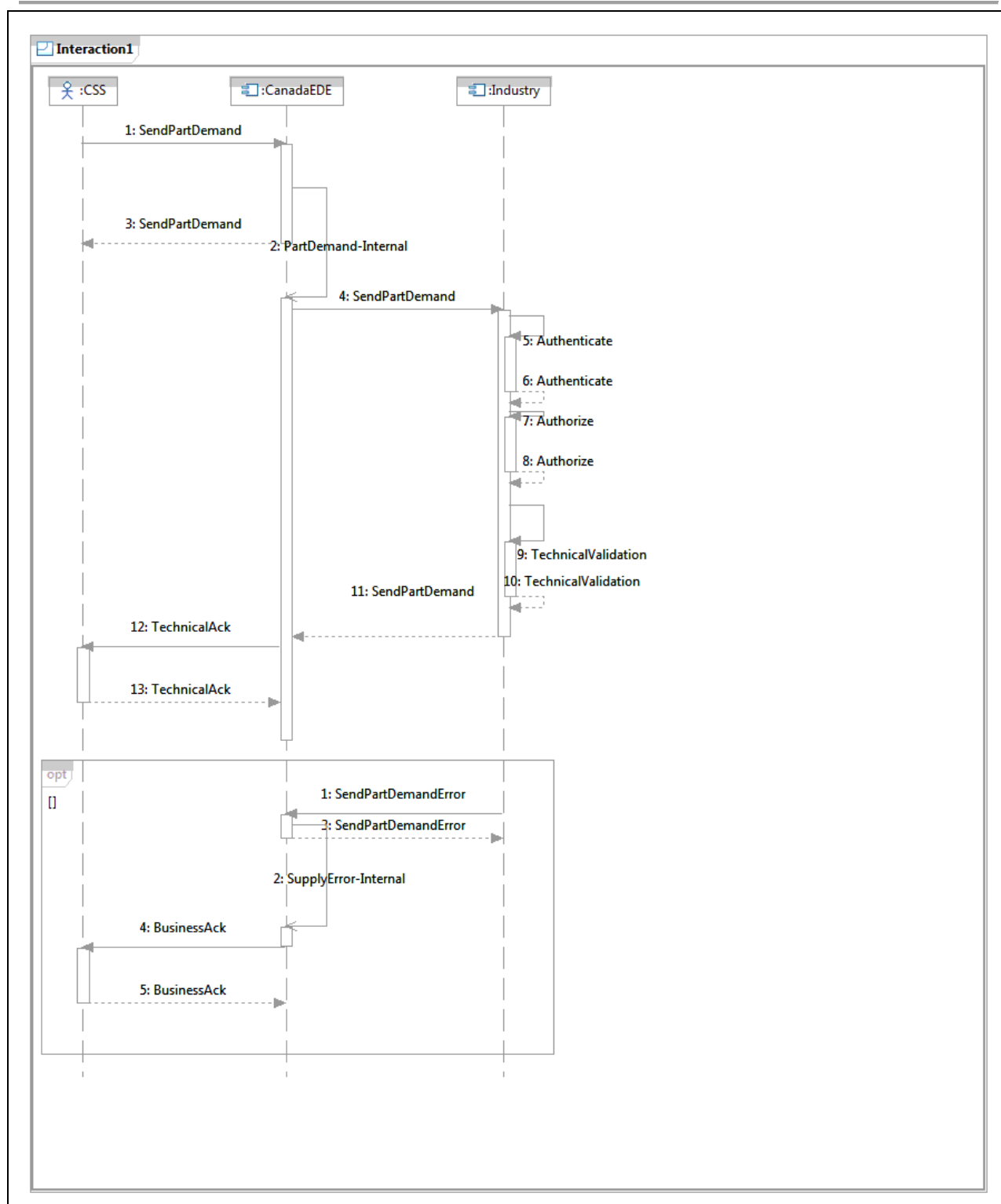
Figure 4-3 Part Demand Business Validation Failure Message Flow

Alternate Flow 5 (Business Validation Failure)	
Scenario	Industry business validations fail on one or more Part Demand data records.
Pre-Condition	Canada EDE has invoked the Industry Part Demand operation, the message has passed Authentication, Authorization and Schema Validation and a successful technical response has been received by Canada EDE.
Post-Condition	• Industry invokes Canada's hosted part demand error service. • Canada determines how to handle the error. • The original part demand has not been accepted by Industry for fulfillment.
Steps	1) The Part Demand data records failed the Industry's business validation process. 2) Industry sends Business Error information by invoking the Part Demand Error operation. 3) Canada's business user is notified of the error 4) Canada initiate internal error handling procedures 5) Where possible, CSS will correct line item data based upon reported errors, and generate a new Part Demand message with a new Purchase Order Number. CSS will not re-use the initial Purchase Order Number. 6) Canada will send only the corrected line items in a new Part Demand message, with a new Purchase Order number. In this case, only some of the line items in the original Part Demand message will ever be satisfied, while all items of the new Part Demand message are expected to be satisfied.

5   Service Description – Part Demand Service

5.1   Service Overview

Part Demand service requires interacting web services exposed by Canada EDE System and Industry. Industry will expose a service which Canada EDE System will use to send the Part Demand message (see Section 7 for message definition). Upon receipt and acceptance of the message, Industry will send a technical response back to Canada EDE System within the same transport communication session as per the request-response message pattern as defined in the Service Interaction Model [Ref. 3] .

Canada EDE will provide a Part Demand Error operation to be used by Industry to report a Business error if errors are found during Industry processing of the part demand request by its internal Supply Systems that are within the scope for Canada to rectify.

5.2   Service Properties

Service Property	Description
Enterprise Service Name (Business)	Part Demand Service
Enterprise Service Name (Technical)	PartDemand_Industry PartDemand_Canada
Purpose	This service supports the Canada PBC Maintenance process for scheduled and unscheduled maintenance activities. On the occurrence of business triggers as defined in [Ref. 1] and [Ref. 3], this service sends part demand messages to Industry on a near-real time basis. This service also supports reporting of business errors encountered while processing Part Demand messages within Industry supply systems.
Business Response Time Interval	5 minutes (time for Industry to respond with Part Demand Response message upon receipt of the Part Demand message)
Service Domain	Supply Management
Business Owner	ADM (IM)
Service Grouping	Supply Materiel / Part Demand
Source Provider	Industry
Target Service Consumers	Canada EDE
Business Process Supported (now)	Perform 1st and 2nd level maintenance Execute Corrective or Preventive Maintenance
Business Process Supported (future)	None currently identified.

Service Property	Description
Business Objective Supported	See Section 2: Business Information.
Expected life time	The full lifecycle of the subject Platform using PBC.

5.3   Service Operations

Provider	Consumer	Operation
Industry	Canada EDE	SendPartDemand
Canada EDE	Industry	SendPartDemandError

5.3.1   SendPartDemand Operation

This operation is used by Canada EDE to send a Part Demand message to Industry. Industry's implementation of this operation will perform authentication, authorization and schema validation on the Part Demand message. Industry will return a status or fault information to the consumer.

If Industry accepts the message for further processing an output message is returned. The content of the output indicates SUCCESS, Industry accepts custody of the message for further processing. If Industry does NOT accept the message, Industry will return one or more fault blocks.

5.3.2   SendPartDemandError Operation

This operation is used by Industry to send a Part Demand Error message to Canada EDE. Canada's implementation of this operation will perform authentication, authorization and schema validation on the Part Demand Error message. Canada will return a status or fault information to the consumer.

If Canada accepts the message for further processing an output message is returned. The content of the output indicates SUCCESS, Canada accepts custody of the message for further processing. If Canada does NOT accept the message, Canada will return one or more fault blocks. Irrespective of outcome, if Industry reports a business error through this service, no further processing of the originating Part Demand message takes place.

5.4   Message Interaction

As defined in Section 4: Service Use Case, the Part Demand service supports a business-asynchronous interaction with a message-passing paradigm. Each Web Service operation must be defined such that the messages required by the system use case (faults in particular, see Section 4.4 Alternate Scenarios) are explicit in the Web Service definition. This implies each Part Demand web service operations must be defined with an input, output and fault element. This corresponds well to an http transport where the output or fault elements would be in the http response.

Message interaction is further described in Electronic Information Exchange Service Interaction Model [Ref. 3].

6 Information Model

This section describes the **business objects** which are used in the Part Demand service. The Unified Modeling Language (UML) notation is used. A <u>functional view</u>[5] of the information model is provided in the EIE Business Use Case for Part Demand [Ref. 1], Section 3: Functional Data Definition, and an Entity-Relationship diagram (ERD) is provided in Appendix A of this document.

The purpose of this section is to provide a bridge between the functional view of the information model and the concrete details of the design as expressed in an XML Schema.

Note: The only authoritative source for purpose of the information exchange will be the specific XML Schema for the business object.

6.1 Purchase Order

A Part Demand message contains a Purchase Order business object. The Purchase Order information model is shown in Figure 6-1 below.

The Purchase Order is used to manage demand for parts through delivery and receipt of demanded parts between Canada and Industry. A Purchase Order is uniquely identified by the Purchase Order Number. If the Purchase Order is generated as a result of a maintenance action, it will include the Work order Number.

A Purchase Order contains one or more Line Items. A Line Item represents a demand for a quantity of a certain part – a part is identified by Manufacturer Part number and Cage Code. A Line Item must be contained in a Purchase Order. For each part demanded the required date must be specified, referred to here as a SupplySchedule. A SupplySchedule must be contained in a LineItem.

The field descriptions are elaborated in the Functional view (please see EIE Business Use Case for Part Demand [Ref. 1]).
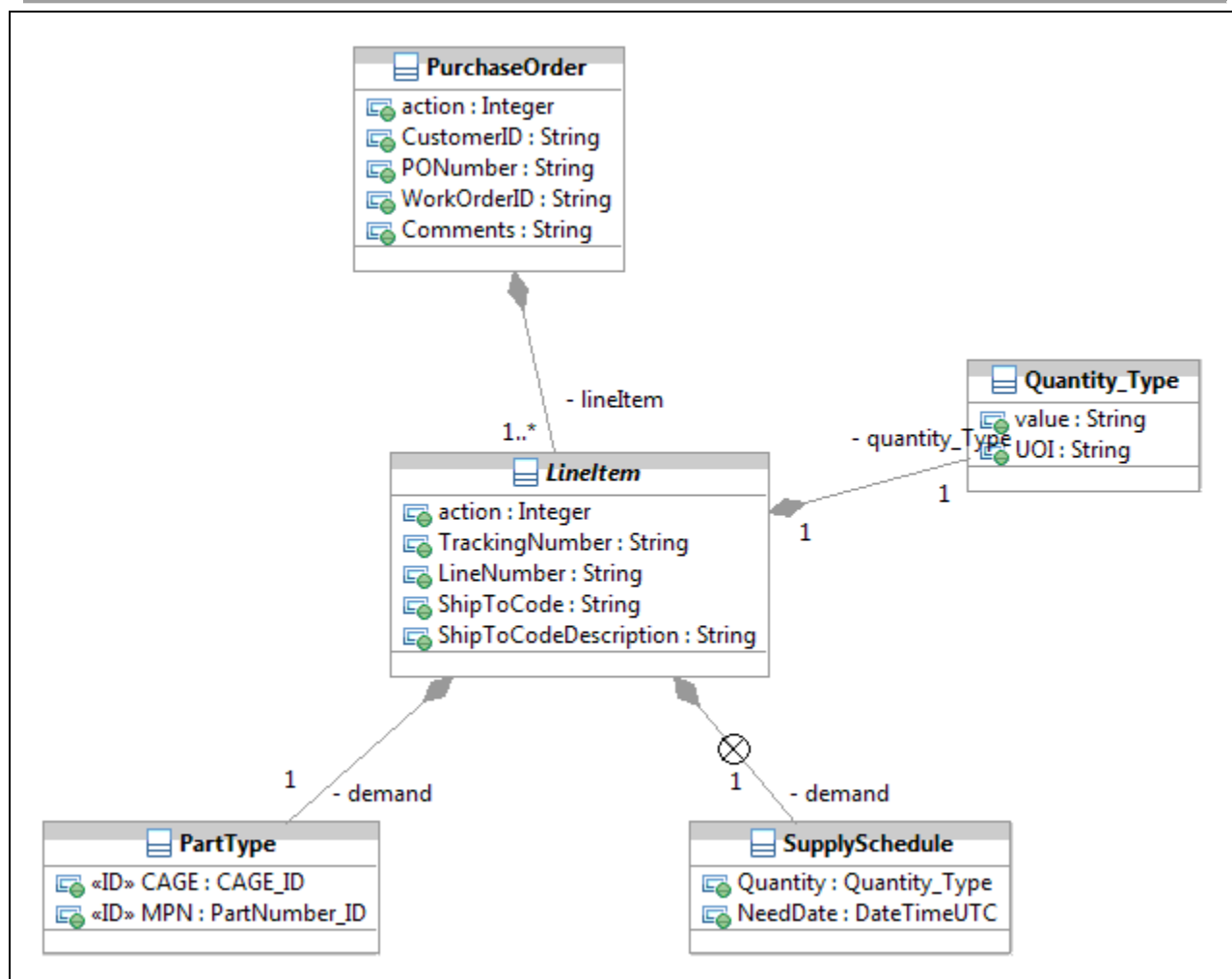
Note: Canada Supply System supports demand quantities that include decimal format, and this decimal representation exists within the Canada-defined interfaces.

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[5] The Functional View details the collection of fields which make up a purchase order and its sub-records.

Figure 6-1 Information Model –Purchase Order

The 'action' attribute is discussed in Section 7.1.1 Part Demand Input Messages.

7 Operation Message Model

This section describes how the business objects described above (Section 6 Information Model) are aggregated for the purpose of reliable information exchange.

Since EIE Supply services are request/response, each operation requires input, output and fault message definitions. Message definitions use a common supply message header definition, as well as a common security block definition. Please refer to Electronic Information Exchange Service Interaction Model [Ref. 3] for details on message header and security block definition

7.1 Part Demand Message Constructs

7.1.1 Part Demand Input Body

As shown in Figure 7-1, a Part Demand input message consists of

- A Message Header;
- A Security Block;
- A Purchase Order (with contained LineItem(s) etc.).

In order to uniquely identify data from a business payload, certain elements will be identified as elements that can make up the unique Business identifier for each business object that has been transmitted. These elements will then be used by either the consumer or provider to report any errors associated with the contained business payload.
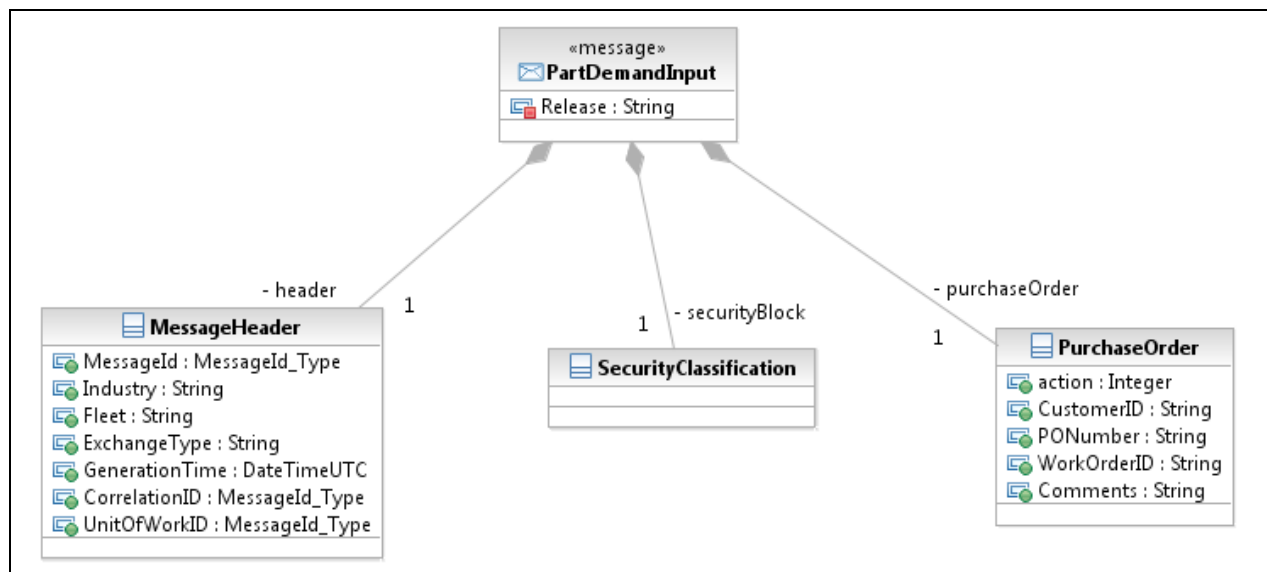
Figure 7-1 Exchange Messages – Part Demand Body

For a PartDemand InputBody the MessageHeader Correlation ID and Unit of Work ID are not used.

Within the PurchaseOrder and LineItem business objects (the latter not shown here) there is an attribute named 'action' which is set by the service consumer as a directive to Industry on handling the business object. Valid values for 'action' are:

- Create a new business object: action = 1;

- Edit an existing business object: action = 2;

- Delete a business object: action = 3.

In the context of a part demand, action =1 is for a new PO, action =2 is to modify a PO or line item, and action=3 is to cancel a PO or a line item.Part Demand Output Body

The output of the SendPartDemand operation is the PartDemandOutputBody. As shown in Figure 7-2, the output body consists of:

- A Message Header;

- A PartDemandOutput indicating acceptance; the Purchase Order is accepted in its entirety only.

The output message has no security block. The output message type does not contain any sensitive or protected information.
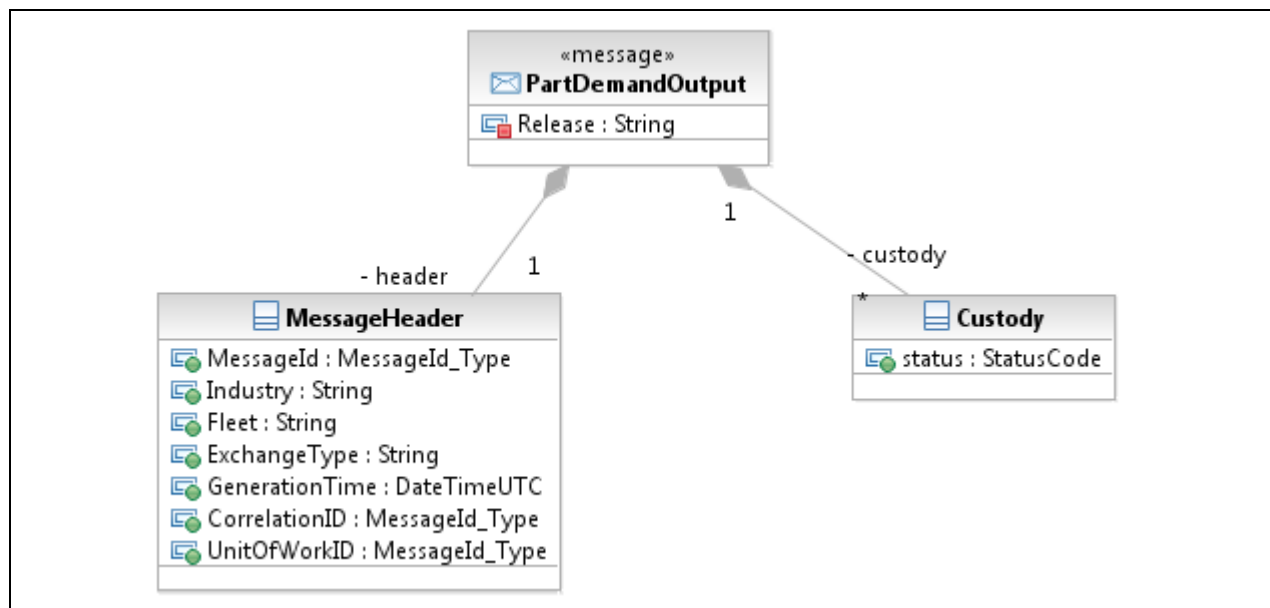
Figure 7-2 Part Demand Output Body

For a PartDemandOutputBody:

- The MessageHeader Correlation ID will reflect the Message ID of the originating Part Demand input message.

- UnitofWorkID is not used or applicable for this type of message;

- the MessageHeader Exchange Type must be set to the Exchange Type of the PartDemandInputBody;

- The value of the PartDemandOutput 'Custody' evaluates to "success".

7.1.2 Part Demand Fault Body

A fault returned by the SendPartDemand operation uses the PartDemandFaultBody element. As shown in Figure 7-3, the fault body consists of:

- A Message Header;

- A Security Block;

- One or more FaultBlocks.

Each fault block pertains to zero-to-many business objects, to the level of granularity which the Service provider can provide. If the system cannot determine a Business Identifier then this is omitted. To report differing faults on more than one business object extra fault blocks can be included in the fault message.
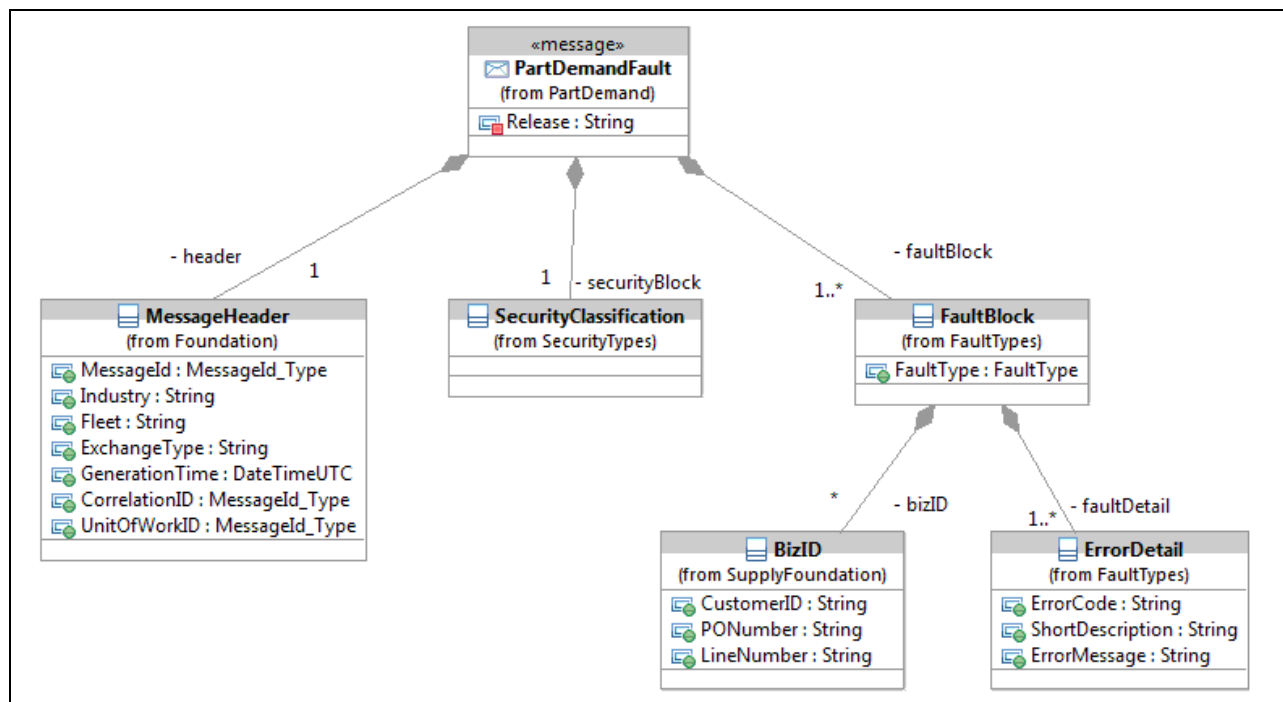

Figure 7-3 Part Demand Fault Body

For a PartDemandFaultBody:

- The MessageHeader Correlation ID will reflect the Message ID of the originating Part Demand input message.

- UnitofWorkID is not used.

- The MessageHeader Exchange Type must be set to the Exchange Type of the PartDemandInputBody.

7.2 Part Demand Error Message Constructs

In the event Industry encounters a business error while processing the purchase order in their backend supply system, Industry will send Canada a Part Demand Error message through the following constructs.

7.2.1 Part Demand Error Input Body

As shown in Figure 7-4, a Part Demand Error input message consists of:

- A Message Header;

- A Security Block;

- One or more Error body.
  - o Within the Error Body, at least one BizID must be provided, along with at least one ErrorDetail block.
    - If appropriate, multiple BizIDs may be provided referencing a set common error(s).

- If appropriate, multiple errors can be defined within the error body. These errors would apply to all BizIDs defined within the ErrorBody construct.
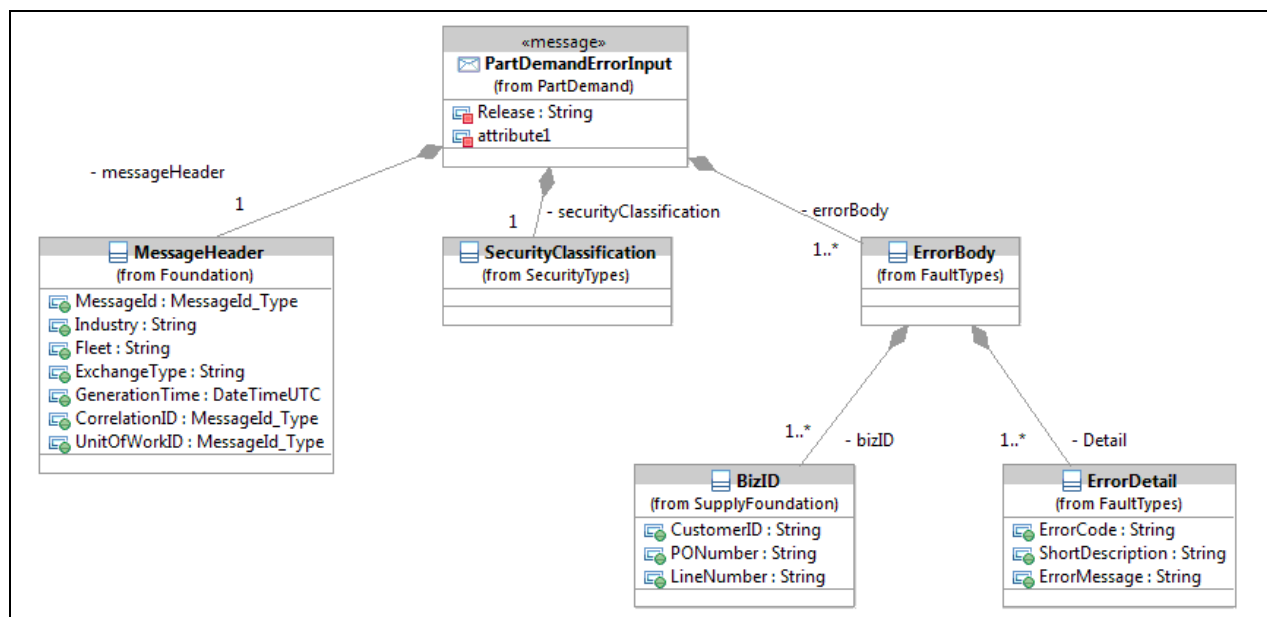
Figure 7-4 Exchange Messages – Part Demand Error Input Body

For a PartDemandError InputBody the MessageHeader CorrelationID and UnitofWorkID are not used.

The error input body consists of:

- A Message Header;

- A Security Block;

- One or more errors;

Each error pertains to one or more business objects, to the level of granularity which the Service consumer can provide. To report differing errors on more than one business object extra error blocks can be included in the error input message.

7.2.2   Part Demand Error Output Body

The output of the SendPartDemandError operation is the PartDemandErrorOutputBody. The output body is similar to the PartDemandOutputBody.

Please refer to 7.1.2 Part Demand Output Body for this definition.

7.2.3   Part Demand Error Fault Body

A fault returned by the SendPartDemandError operation uses the PartDemandError FaultBody element.

Please refer to 7.1.3 Part Demand Fault Body for this definition.

8   Service Operation Details

8.1   Detailed Operation Characteristics – SendPartDemand

Canada EDE system will invoke the exposed Industry Part Demand service through this operation. A part demand message will contain a purchase order generated by CSS.

Refer to PartDemand_Industry.wsdl for implementation details.

Detailed Operation Characteristics

Interface Definition	Description
Operation Name	Send Part Demand
Operation Technical Name	SendPartDemand
Operation Description	This operation is invoked by Canada to send a Purchase Order record to Industry. The Purchase Order describes parts Canada is demanding.
Target Operation Provider	Industry
Target Operation Consumer	Canada EDE
Properties	*Request/Response* message exchange pattern.
Input Message Definition	Please refer to Operation Message Model Section 7.1.1 Part Demand Input for details.
Output Message Definition	Please refer to Operation Message Model Section 7.1.2 Part Demand Output for details.
Fault Definition	Please refer to Operation Message Model Section 7.1.3 Part Demand Faults for details. As discussed in Section 4: Service Use Case the following faults may be reported: 1) Unauthenticated access 2) Unauthorized request 3) Malformed message 4) Service Unavailable

Non Functional Requirements

Non Functional Requirements/Technical Details	
Frequency	Based on Service Level Agreements (SLA) to be determined between Canada and Industry on a per ship class basis
Peak Throughput Time	Based on Service Level Agreements (SLA) to be determined between Canada and Industry on a per ship class basis

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.

Non Functional Requirements/Technical Details	
Peak Throughput Volume	Based on Service Level Agreements (SLA) to be determined between Canada and Industry on a per ship class basis
Payload Size	~ 2KB per Part Demand Line Item
Attachments	None
Attachment Size	N/A
ACK Time Interval	2 minutes
Retry Time Interval	2 minutes
Number of Retries	5
Biz. Response Time Interval	Industry to respond with Part Demand Response message within 5 minutes
Time to Live Span	Nominally 1 hour – if message cannot be delivered within 1 hour, revert to secondary delivery channel, which may be manual.
Service Op Availability	During core processing hours. The specific period will be defined during later phases of service realization 95% available uptime is the goal of the service
Downtime Requirements	The service cannot be used during established maintenance windows, which is currently expected to be for about 2 hours per week. The unavailability window may be accumulated and invoked during major maintenance periods, but ensuring that the overall availability of the service is still maintained.
Dead Message Handling	Alternative communication channel to convey the error being observed when Canada EDE cannot successfully send Part Demand message to Industry.

8.2 Detailed Operation Characteristics – SendPartDemandError

Industry system will invoke the exposed Canada EDE Part Demand Error service through this operation. A part demand error message will contain Industry-reported business errors encountered while attempting to process a Part Demand message generated by CSS.

Refer to PartDemand_Canada.wsdl for implementation details.

Detailed Operation Characteristics

Interface Definition	Description
Operation Name	Send Part Demand Error
Operation Technical Name	SendPartDemandError

Interface Definition	Description
Operation Description	This operation is invoked by Industry to send a Business Error message to Canada. The Business Error describes errors encountered while processing Canada's part Demand message.
Target Operation Provider	Canada EDE
Target Operation Consumer	Industry
Properties	*Request-Response* message exchange pattern.
Input Message Definition	Please refer to Operation Message Model Section 7.2.1 Part Demand Error Input for details.
Output Message Definition	Please refer to Operation Message Model Section 7.2.2 Part Demand Error Output for details.
Fault Definition	Please refer to Operation Message Model Section 7.2.3 Part Demand Error Fault for details.

Non Functional Requirements

Non Functional Requirements/Technical Details	
Frequency	Based on Service Level Agreements (SLA) to be determined between Canada and Industry on a per ship class basis
Peak Throughput Time	N/A
Peak Throughput Volume	N/A
Payload Size	~ 5KB per Error
Attachments	None
Attachment Size	N/A
ACK Time Interval	2 minutes
Retry Time Interval	2 minutes
Number of Retries	5
Biz. Response Time Interval	N/A
Time to Live Span	Nominally 1 hour – if message cannot be delivered within 1 hour, revert to secondary delivery channel, which may be manual.
Service Op Availability	During core processing hours. 95% available uptime is the goal of the service

Non Functional Requirements/Technical Details	
Downtime Requirements	The service cannot be used during established maintenance windows, which is currently expected to be for about 2 hours per week. The unavailability window may be accumulated and invoked during major maintenance periods, but ensuring that the overall availability of the service is still maintained.
Dead Message Handling	Alternative communication channel to convey the error being observed when Industry cannot successfully send Part Demand Error message to Canada.

8.3   Service Bindings

8.3.1   SOAP Over http

The implementation of this service will use a Simple Object Access Protocol (SOAP) binding with document style messages and Hyper Text Transfer Protocol (http) transport.

The business objects (Section 6), MessageHeader and SecurityMarkings elements[6]are bound.to the SOAP Body element. The SOAP Header is used for EIE adopted WS-* standards-based elements (e.g., WS_Security assertions) elements[7].

In this binding the http response is used for operations' output or fault messages.

8.3.2   SOAP Over Java Message Service

Not currently supported for this service.

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[6] See the PartDemand Service WSDL file for the precise bindings.

[7] See the PartDemand Service WSDL file for the precise bindings.

9   Definitions, Acronyms, Abbreviations

Acronym	Description
ADM (IM)	Assistant Deputy Minister (Information Management)
ADM (Mat)	Assistant Deputy Minister (Materiel)
BUC	Business Use Case
CMMS	Canada Maintenance Management System
CSS	Canada Supply System
DND	Department of National Defence
DRMIS	Defence Resource Management Information System
EDD	Estimated Delivery Date
EDE	Electronic Data Exchange
EIE	Electronic Information Environment
HoP	Hand-Over Point
HTTP	Hyper Text Transfer Protocol
HTTPS	Hyper Text Transfer Protocol Secure
ICD	Interface Control Document
ISS	In-Service Support
JMS	Java Message Service
MER	Master Equipment Record
MP	Maintenance Plan
MPN	Manufacturer Part Number
MSN	Manufacturer Serial Number
PBC	Performance Based Contracting
PO	Purchase Order
SLA	Service Level Agreement
SOAP	Simple Object Access Protocol
STTE	Special Tools and Test Equipment
TBD	To Be Defined, To Be Determined
UML	Unified Modeling Language
URL	Uniform Resource Locator
WO	Work Order
WS	Weapon System
WSDL	Web Service Definition Language
XML	Extensible Markup Language
XSD	XML Schema Definition
XSL	Extensible Stylesheet Language

10 Appendix A – Information Model Entity Relationship View

Information Model – Entity-Relationship View
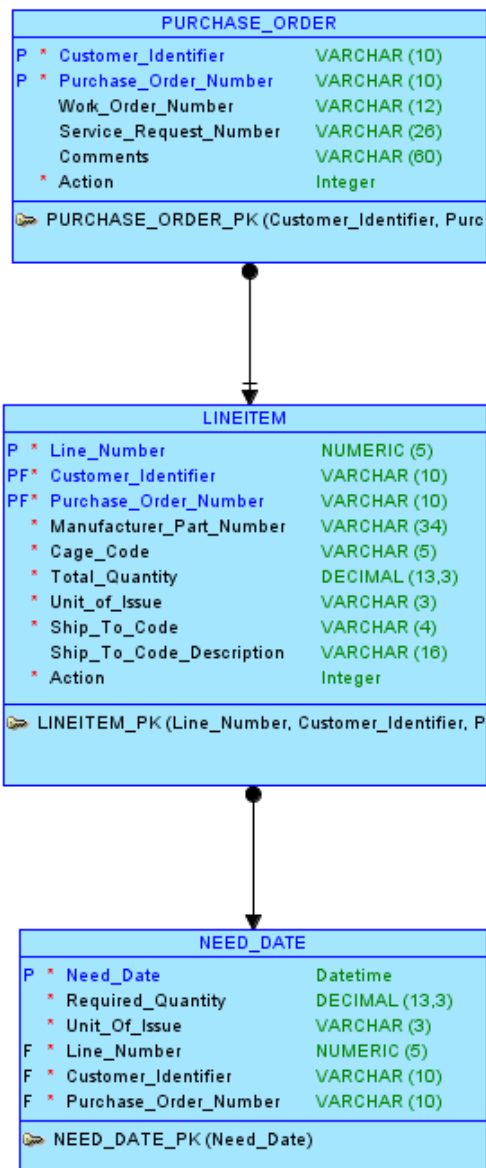
The information being provided is to illustrate the model that exists for business processes and information exchange within the Performance Based Contracting (PBC) solution for the Department of National Defence. The information is provided to facilitate an understanding of the business architecture 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.

11   Document History

Revision Number	Description	Date
1.0	Initial release for Navy RFP fleets	22 September 2015