Draft Standard
MEF 80 Draft (R5)

Quote Management
Requirements and Use Cases

November 2020

This draft represents MEF work in progress and is subject to change.

This draft document represents MEF work in progress, has not achieved full MEF standardization and is subject to change. There are known unresolved issues that are likely to result in changes before this becomes a fully endorsed MEF Standard. The reader is strongly encouraged to review the Release Notes when making a decision on adoption. Additionally, because this document has not been adopted as a Final Specification in accordance with MEF's Bylaws, Members are not obligated to license patent claims that are essential to implementation of this document under MEF's Bylaws.

Disclaimer

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1   List of Contributing Members

The following members of the MEF participated in the development of this specification and have requested to be included in this list.

Member Company
Amdocs
Amartus
AT&T
Cataworx
Colt
Ericsson
Iometrix
Netcracker
Orange
Spirent Communications
Telus
Verizon

Table 1 – Contributing Member Companies

2 Abstract

This specification identifies the common Quote use cases and attributes needed to support inter-carrier Quote management. It supports the requirements defined in the MEF Lifecycle Service Orchestration (LSO) Reference Architecture and Framework (MEF 55 [9], "LSO RA") requirements for Quotes over the Sonata Interface Reference Point(interactions between a Service Provider and a Partner). Information contained within this specification will be utilized by both Buyer and Seller for the development of automated API based interaction.

3 Release Notes

This document is undergoing a review of the Call for Comments Ballot on this version of the document. There are no outstanding issues that are known at this time. All comments from the previous Call for Comments Ballot have been addressed in this version of the document. Based on the ongoing review, issues may be identified that will be addressed prior to the document proceeding to Letter Ballot.

4   Terminology and Acronyms

This section defines the terms used in this specification. In many cases, the normative definitions to terms are found in other documents. In these cases, the third column is used to provide the reference that is controlling, in other MEF or external documents.

In addition, terms that are defined in MEF 10.3 [4], MEF 12.2 [5], MEF 26.2 [6], MEF 50.1 [7], MEF 51.1 [8], MEF 55 [9], MEF 57.1 [10], and MEF 79 [11] are included in this document by reference and are not repeated in the table below.

Term	Definition	Reference
Budgetary Quote	A quote that is provided quickly and with very little analysis such that the Buyer can get an idea of how much the requested Product Offering could cost. Any charges specified are subject to change.	This document
Buyer	In the context of this document, denotes the organization acting as the customer in a transaction over a Sonata Interface (Service Provider <-> Partner).	MEF W113
Currency	The unit of measurement in which a monetary cost is expressed. Currency is represented by currency codes defined in ISO 4217:2015 [1].	This document
Deferred Quote Response	A Seller's response to a Buyer's Create Quote Request whereby the Seller immediately acknowledges that the Create Quote Request was received and, over time, sends notifications to update the Buyer on the status and results of the Create Quote Request (assuming the Buyer has subscribed to receive the notifications). The Buyer can also poll the Seller for the Quote details which also includes the status of the Quote. A Deferred Quote Response may take some time for the Seller to fulfill.	This document derived from MEF 79 [11]
Duration	A period of time specified in seconds, minutes, hours, business hours, business days, or calendar days.	This document
Firm Quote	A quote provided to the Buyer based on a complete pre-order analysis. All Monthly Recurring Charges and Non-Recurring Charges specified on a Firm Quote are committed. A Firm Quote may expire at some date specified by the Seller.	This document

Term	Definition	Reference
Firm – Subject to Feasibility Check Quote	A quote that is provided to the Buyer based on some, but not a complete, pre-order analysis. At this stage, the Seller may not be willing to perform any further work on the quote and requests that the Buyer use the Firm – Subject to Feasibility Check Quote to proceed to the Order process. Ordering is possible based on the Firm – Subject to Feasibility Check Quote with some stipulations as to how cost identified during delivery is addressed. The Monthly Recurring Charges specified in the Quote Response are final. Non-Recurring Charges specified in the Quote Response are subject to change.	This document
Immediate Quote Response	A Seller's response to the Buyer's Create Quote Request, whereby the Seller responds immediately with the results of the Create Quote Request or indicates that the request cannot be processed. The maximum time to provide an Immediate Quote Response is for further study but is expected to be less than 30 seconds.	
Money	For the purposes of this document, a combination of a Currency and an amount in the currency specified by the Seller or as agreed upon between the Buyer and Seller.	This document
Recurring Charge	Charge for a product that is incurred by the Buyer each specified time interval for that product.	This document
MRC	Monthly Recurring Charge	This document
Non-Recurring Charge	One-time charge for a product that is incurred by the Buyer. Examples are standard installation charges, construction charges, and expedite charges.	This document
Notification	A message sent from the Seller to the Buyer to inform them of an event that has occurred in regard to a specific instance of a POQ, Quote, or Order.	This document
NRC	Non-Recurring Charge	This document
Request	A message passed from one party to the other that initiates a process.	This document
Response	A message returned by the party receiving the Request.	This document
Seller	In the context of this document, denotes the organization acting as the supplier in a transaction over a Sonata Interface (Service Provider <-> Partner).	MEF W113

Table 2 – Terminology and Abbreviations

5   Scope

This specification defines the process for MEF Quote Management between a Seller and Buyer. This specification is limited to the business process requirements depicted as Use Cases and attribute definitions needed for Quote Management.

6   Compliance Levels

The key words "**MUST**", "**MUST NOT**", "**REQUIRED**", "**SHALL**", "**SHALL NOT**", "**SHOULD**", "**SHOULD NOT**", "**RECOMMENDED**", "**NOT RECOMMENDED**", "**MAY**", and "**OPTIONAL**" in this specification are to be interpreted as described in BCP 14 (RFC 2119, RFC 8174) when, and only when, they appear in all capitals, as shown here. All key words must be in bold text.

Items that are **REQUIRED** (contain the words **MUST** or **MUST NOT**) are labeled as **[Rx]** for required. Items that are **RECOMMENDED** (contain the words **SHOULD** or **SHOULD NOT**) are labeled as **[Dx]** for desirable. Items that are **OPTIONAL** (contain the words **MAY** or **OPTIONAL**) are labeled as **[Ox]** for optional**.**

7 Introduction

This specification defines the business requirements and process-related guidelines for the Product Quote process over the Sonata Interface Reference Point. The Sonata Interface Reference Point is defined in MEF 55 [9] as the Management Interface Reference Point supporting the management and operations interactions (e.g. ordering, billing, trouble management, etc.) between two network providers (e.g. Service Provider Domain and Partner Domain). The scope of this specification is limited to interactions between these parties; within this specification, they are referred to as the "Buyer" and the "Seller". A Buyer is defined as the organization acting as the customer in a transaction over a Sonata Interface Reference Point (Service Provider <-> Partner). A Seller is defined as the organization acting as the supplier in a transaction over a Sonata Interface Reference Point (Service Provider <-> Partner).
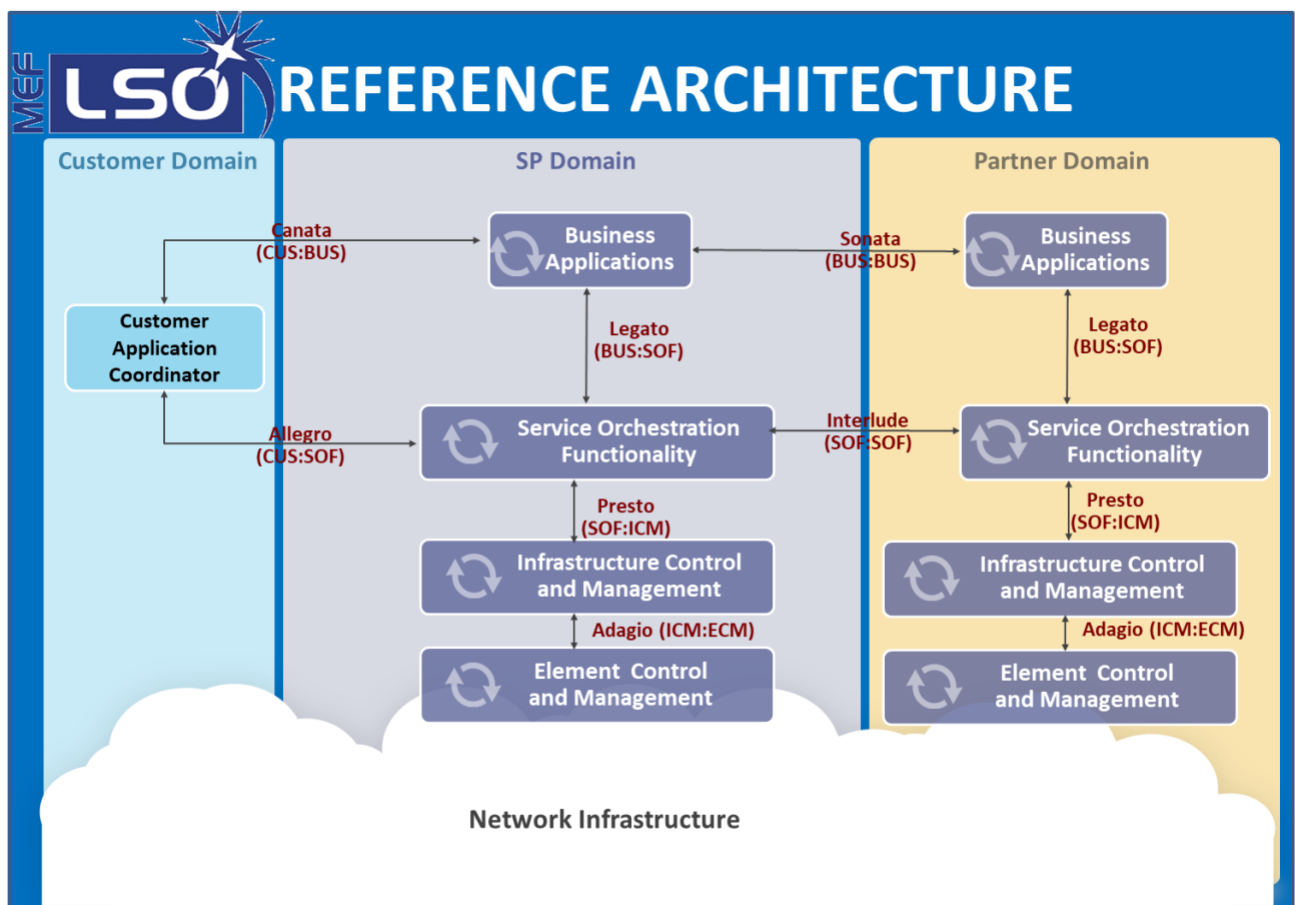
Figure 1 – LSO Reference Architecture

Within this document the following terms are used with the definition as specified below:

Notification - A message sent from the Seller to the Buyer to inform them of an event that has occurred in regard to a specific instance of a POQ, Quote, or Order. The attributes that are contained within a notification are specified within this document.

Request - A message passed from one party to the other that initiates a process. The attributes that are contained within a request are specified within this document.

Response - A message returned by the party receiving the Request. The attributes that are contained within a response are specified within this document.

Immediate Quote Response - A Seller's response to the Buyer's Create Quote Request, whereby the Seller responds immediately with the results of the Create Quote Request or indicates that the request cannot be processed. The Seller's response includes Quote and Quote Item attributes as specified.

Deferred Quote Response - A Seller's response to a Buyer's Create Quote Request whereby the Seller immediately acknowledges that the Create Quote Request was received with a response that includes a minimum set of Quote and Quote Item attributes. Over time, the Seller sends notifications to update the Buyer on the status and a Quote with the results of the Create Quote Request (assuming the Buyer has subscribed to receive the notifications).

Quote – A Quote is considered provided to the Buyer by the Seller when the state of the Quote is one of the completion states as shown in section 10 and the state of each Quote Item is one of the following:
- ANSWERED
- ABANDONED
- INSUFFICIENT_INFORMATION_PROVIDED
- ORDERABLE
- ORDERABLE_ALTERNATE
- UNABLE_TO_PROVIDE

The Buyer requests a quote for the delivery of one or more of the Seller's Product Offerings or for an action to be performed on an existing Product. The terms Product Offerings and Products are defined in MEF 79 [11]. For an installation, the Buyer references a Product Offering. . If the Buyer is requesting a quote to change or disconnect one of their existing products that is in the Seller's product inventory, the Buyer references the Seller's Product Identifier. A Buyer might request a quote for a disconnect to determine if there are any termination charges.

There are 2 associated "patterns" of interaction between the Buyer and Seller when the Buyer issues a Quote request:

1. The Seller may respond immediately with the results of the request.
2. The Seller may acknowledge that the request has been received, but will not complete processing it immediately, and send notifications to update the Buyer on the status (assuming the Buyer has subscribed to receive the notifications).

Note: The Buyer may retrieve the Quote at any time to obtain status and details on the Quote.

The Seller may indicate process of the request is not possible (immediately or after initiating processing) if the Product Offering is not supported at a requested location, does not support the requested attributes, or for other exceptions.

A Buyer may request either a Budgetary or Firm Quote Level using the Buyer Requested Quote Level Quote attribute.

A Seller returns a Budgetary Quote if the Buyer requested a Budgetary Quote Level. All Quote Items in the Seller's Quote must be at the Budgetary level.

A Seller returns a Firm or Firm – Subject to Feasibility Check Quote if the Buyer requested a Firm Quote Level. All Quote Items in the Seller's Quote must be at either the Firm or Firm – Subject to Feasibility Check level.

A Budgetary Quote Level provides estimated charges for the product install, change, or disconnect. A Budgetary level quote might be requested by a Buyer during negotiations with a customer for a service. The Buyer is simply seeking a high-level estimate of the cost associated with the service. The Seller must return a Budgetary Quote if the Buyer requests a Budgetary Quote Level.

A Buyer requests a Firm Quote Level using the Buyer Requested Quote Level Quote attribute when committed charges are needed. As an example, if the Buyer is trying to provide pricing to an end customer, the Buyer may require firm MRC and if possible, NRCs to provide the end customer with committed pricing.

A Seller responds with a Firm Quote Level when committed MRCs and, where applicable, committed NRCs for the service install, change, or disconnect can be provided. When the Seller responds with a Firm Quote Level, this represents a commitment to the Buyer that the pricing will not change unless there are additional actions requested by the Buyer such as an Expedite request.

A Seller responds with a Firm – Subject to Feasibility Check Quote Level when they have completed all work that they are willing to perform. A Firm - Subject to Feasibility Check level allows the Seller to provide an indication of the pricing without the commitment of a Firm Quote Level. The Firm – Subject to Feasibility Check level Quote includes a committed MRC and a combination of committed and estimated NRCs. Additional NRCs may be added during fulfillment as costs are identified. This can only be done with quotes with the Quote Level of Firm – Subject to Feasibility Check.

When the Buyer Requested Quote Level in the Create Quote Request is Firm, there are two states related to the Quote that provide information to the Customer. These are the IN_PROGRESS_DRAFT state and the ORDERABLE_ALTERNATE state. The IN_PROGRESS_DRAFT state is used by the Seller to provide a Quote that is not yet fully completed. It indicates that the Seller has provided some of the requested information from the Quote Request but has not fully completed their work on the Quote. A Quote in the IN_PROGRESS_DRAFT state may have a Quote Level of Budgetary or Firm – Subject to Feasibility Check. A Quote in the ORDERABLE_ALTERNATE state indicates that the Seller has completed all the work on the Quote Request that they are willing to do. It indicates that the

Seller is not able to exactly match non-product configuration attributes (e.g., Term, Quote Level) of the Quote Request. A Quote in the ORDERABLE_ALTERNATE state may have a Quote Level of Firm – Subject to Feasibility Check, or Firm. See section 10 for detailed definitions of these states.

To fully define the business interactions associated with inter-carrier quotes, this specification is focused on the following key areas:

- Quote Management Use Cases and Business Process Definitions

- Specific Quote Attributes supported in this specification

- Process Flows for Quotes and Quote Items

- Notifications of events that occur during processing of the Quote

8   Quote Use Cases and Business Process Definitions

8.1   High-Level Use Cases

This section provides the complete set of Use Cases needed to support Product Quote Management and expands on the quote process defined in MEF 50.1 [7]. These Use Cases are based on business process standards of interactions between Buyers and Sellers of Products. The specific attributes associated with each Use Case are defined in section 9. Prior arrangements for Buyer authentication, security verification, and system interface requirements are not addressed within these use cases. All onboarding requirements must be agreed to between the Buyer and Seller prior to applying the quote process described in the Use Cases described in this section.

The Buyer might have performed an Address or Site check or a Product Offering Qualification (POQ) as specified in MEF 79 [11] prior to the process of establishing a quote. The Seller may mandate that every request for an installation or change include an Address Identifier, Site Identifier, and/or POQ Identifier, and will reject the Quote request if those identifiers are not provided by the Buyer. The Quote functionality is not specific to any particular product, and thus the Buyer is able to get a quote on any of the Product Offerings available to the Buyer that are supported by the Seller. The characteristics of the product are found in its associated Product Specifications and Product Offerings.

Sonata Interface Pre-Order and Order Functions
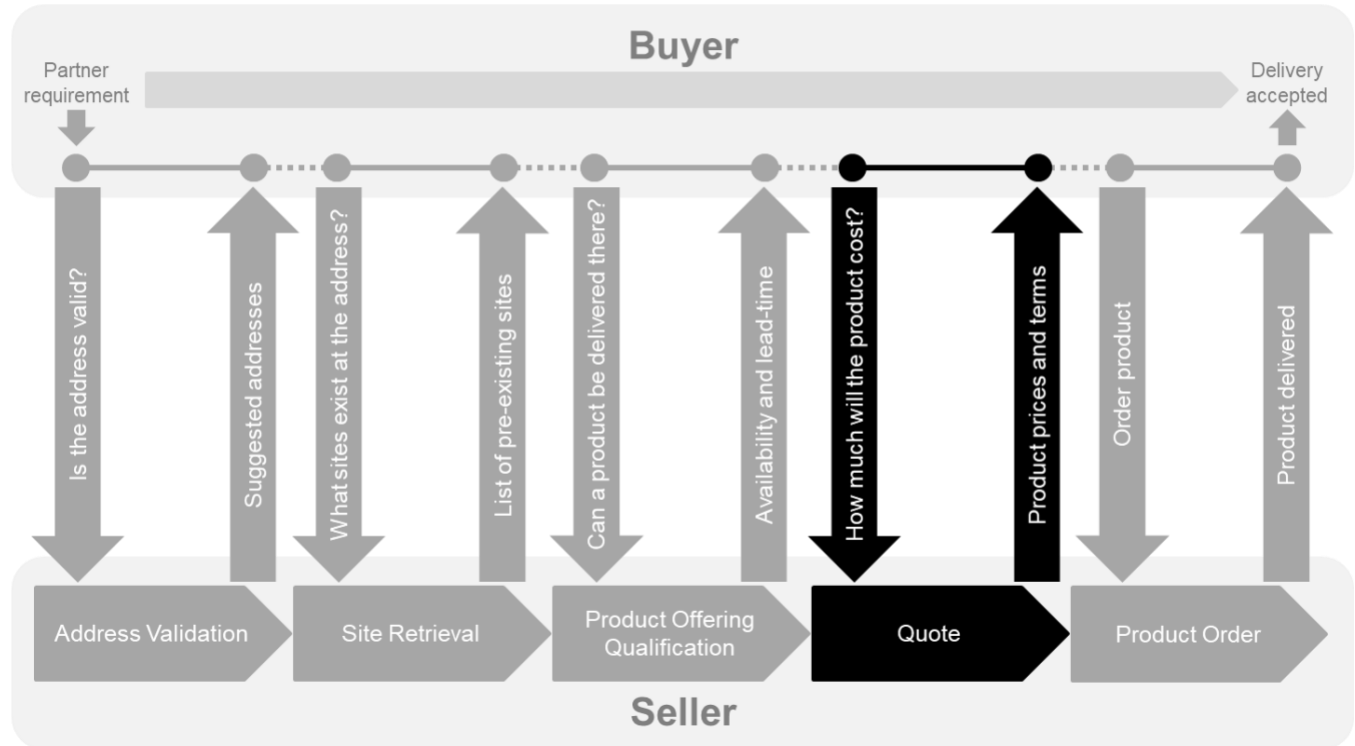
Figure 2 – Sonata Interface Focus

Figure 2 shows the Sonata Pre-Order and Order functions:

- Address Validation

- Site Retrieval

- Product Offering Qualification

- Quote

- Product Order

The use cases within this document support Quote Management. Quote Management allows the Buyer to submit a request to find out how much the installation of an instance of a product offering, an update to an existing product, or a disconnect of an existing will cost. The Seller Quote contains the prices for each product or product offering included within the request.

 The Buyer may request, and the Seller may offer either an Immediate response or a Deferred response. An Immediate response is returned quickly, normally < 30 seconds from receiving the request. The Immediate response includes the Seller's Quote. A Deferred response allows the Seller some time period, days, weeks, etc., to complete the request. For a Deferred response, the Seller responds immediately with the attributes specified in this document and then provides

notifications to update the status of the quote process. The Buyer can identify in their request and the Seller can offer either an Immediate response or a Deferred response.

8.2   Quote Use Cases

This section defines the use cases that support Quote Management.
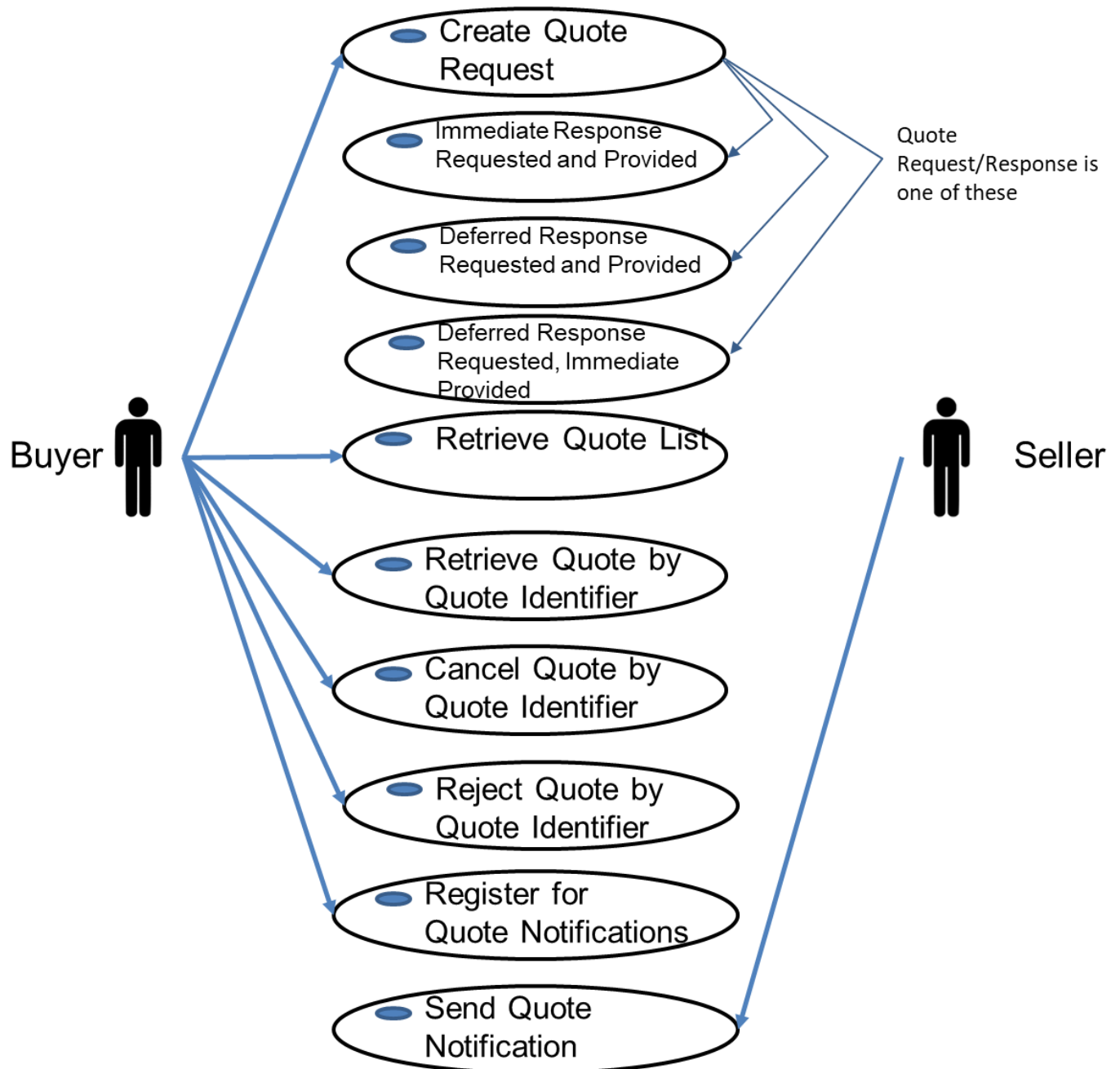
Figure 3 – Quote Use Cases

Use Case #	Use Case Name	Use Case Description
1	Create Quote Request	The Buyer requests a Product Quote from the Seller using one of the sub-Use Cases below.
1a	Create Quote Request, Immediate Quote Response	The Buyer requests a Product Quote from the Seller and requests an Immediate Quote Response.
1b	Create Quote Request, Deferred Quote Response, Deferred Response Provided	The Buyer requests a Product Quote from the Seller and does not request an Immediate Quote Response. The Seller provides a Deferred Quote Response.
1c	Create Quote Request Deferred Quote Response, Immediate Response Provided	The Buyer requests a Product Quote from the Seller and does not request an Immediate Quote Response. The Seller provides an Immediate Quote Response.
2	Retrieve Quote List	The Buyer requests a list of Product Quotes from the Seller based on Product Quote filter criteria.
3	Retrieve Quote by Quote Identifier	The Buyer requests detailed information related to a single Product Quote based on a Quote Identifier.
4	Cancel Quote by Quote Identifier	The Buyer requests to Cancel a Product Quote.
5	Reject Quote by Quote Identifier	The Buyer requests to Reject a Product.
6	Register for Quote Notifications	A request initiated by the Buyer to instruct the Seller to send notifications of Quote state changes in the event the Seller uses the Deferred Response pattern to respond to a Create Quote Request.
7	Send Quote Notification	Seller sends Notification to the Buyer

Table 3 – Use Case Table

The Buyer being on-boarded with the Seller is a Pre-Condition for all Use Cases. The on-boarding process includes the Buyer and Seller agreeing to several items including the language used for communication between the parties and the currency type used for price information.

> **[D1]** For all Addresses that have not been validated, a Buyer **SHOULD** initiate a Validate Address request, to get the Seller's full details associated with this Address prior to submitting a Create Quote Request.

> **[D2]** For all Addresses that have been validated, the Buyer **SHOULD** use the Seller's Address Identifier to describe the location when submitting a Create Quote Request and a Service Site Identifier does not exist.

A Seller assigns a Site Identifier to an address at some point in the POQ, Quote, or Order process. This is dependent upon the Seller and their processes. If a Site Identifier has been assigned by the Seller then the following requirements ([D3], [D4]) apply.

[D3] After validating an Address, a Buyer **SHOULD** initiate a Retrieve Service Site List request and obtain the Seller's Service Site Identifiers for all Service Sites the validated Address prior to submitting a Create Quote Request.

[D4] Once the Buyer has obtained the Service Site list, then for all subsequent operations related to this Service Site, the Buyer **SHOULD** use the Seller's Service Site Identifier to reference this Service Site when submitting a Create Quote Request.

Each Related Product Identifier may be specified by the Buyer as a list of one or more items. The Related Product Identifiers that may be included are defined in the Product Specification. When the Buyer provides a list, the Seller processes the list as defined in the Product Specification. From the list of values provided by the Buyer, the Seller is able to return the best result for the Quote Request over any of the Related Product Identifiers in the list.

Table 4 defines the details for Quote Use Case 1a.

Field	Description
Use Case Number	1a
Use Case Name	Create Quote Request, Immediate Quote Response
Description	The Buyer requests a Product Quote from the Seller and requires an Immediate Quote Response
Actors	Buyer/Seller
Pre-Conditions	1. Buyer is authorized to purchase products from the Seller (Buyer on-boarded)
Process Steps	1. The Buyer initiates and submits a Create Quote Request as specified in section 9.2.1. 2. The Seller validates the Create Quote Request based on business validation rules and pre-conditions. 3. The Seller verifies the pre-order POQ Identifier, if provided. 4. The Seller moves the Quote to the appropriate state as described in section 10. 5. The Seller returns an Immediate Quote Response as shown in section 9.2.2.
Post-Conditions	The Buyer obtains an Immediate Quote Response, including a Quote Identifier.
Alternative Paths	1. The Seller returns an error message if an error is encountered while processing that prevents the Seller from completing the request. 2. The Seller rejects the Quote and returns an error message if mandated pre-ordering references are absent. 3. The Seller returns an error if the attributes specified in the Quote Request do not match the attributes in the specified POQ or if the specified POQ has expired.

Business Process	MEF 50.1 Order-to-Delivery

Table 4 – Use Case 1a Create Quote Request Immediate Quote Response

Note: Prior to submitting a Create Quote Request the Buyer is advised to complete pre-order Address validation, Site retrieval and check, and/or POQ.

Table 5 defines the details for Quote Use Case 1b.

Field	Description
Use Case Number	1b
Use Case Name	Create Quote Request Deferred Quote Response, Deferred Response Provided
Description	The Buyer requests a Product Quote from the Seller and does not request an Immediate Response. The Seller replies with a Deferred Response.
Actors	Buyer/Seller
Pre-Conditions	1. Buyer is authorized to purchase products from the Seller (Buyer on-boarded)
Process Steps	1. The Buyer initiates and submits a request for a quote as specified in section 9.2.1 and does not specify that an Immediate Quote Response is required. 2. The Seller validates the Create Quote Request based on business validation rules and pre-conditions. 3. The Seller verifies the requested date and time by which a Quote is to be provided and determines that they will not provide an Immediate Quote Request response. 4. The Seller verifies the pre-order POQ Identifier, if provided. 5. The Seller moves the Quote to the appropriate state as described in section 10. 6. The Seller returns a Deferred Quote Response with a Quote Identifier. 7. The Seller begins to work on the Quote.
Post-Conditions	The Buyer obtains a Deferred Quote Response including a Seller Quote Identifier. The Buyer either queries the Quote Identifier to obtain status updates or subscribes to Notifications from the Seller and the Seller notifies the Buyer of Quote state changes. The Buyer may receive more than one notification about the Quote Request.

Alternative Paths	1. The Seller returns an error message if an error is encountered while processing that prevents the Seller from completing the request. 2. The Seller rejects the Quote and returns an error message if mandated pre-ordering references are absent. 3. The Seller returns an error if the attributes specified in the Quote Request do not match the attributes in the specified POQ or if the specified POQ has expired.
Business Process	MEF 50.1 Order-to-Delivery

Table 5 – Use Case 1b Request Quote without Immediate Quote Response

Note: Prior to submitting a Create Quote Request the Buyer is advised to complete pre-order Address validation, Site retrieval and check, and/or POQ.

Table 6 defines the details for Quote Use Case 1c

Field	Description
Use Case Number	1c
Use Case Name	Create Quote Request Deferred Quote Response, Immediate Response Provided
Description	The Buyer requests a Product Quote from the Seller and does not request an Immediate Quote Response. The Seller provides an Immediate Quote Response.
Actors	Buyer/Seller
Pre-Conditions	1. Buyer is authorized to purchase products from the Seller (Buyer on-boarded)
Process Steps	1. The Buyer initiates and submits a request for a quote as specified in section 9.2.1. 2. The Seller validates the Create Quote Request based on business validation rules and pre-conditions. 3. The Seller verifies the requested date and time by which a Quote is to be provided. 4. The Seller verifies the pre-order POQ Identifier, if provided. 5. The Seller moves the Quote to the appropriate state as described in section 10. 6. The Seller returns an Immediate Quote Response as shown in section 9.2.2.
Post-Conditions	The Buyer obtains an Immediate Quote Response, including a Quote Identifier.

Alternative Paths	1. The Seller returns an error message if an error is encountered while processing that prevents the Seller from completing the request. 2. The Seller rejects the Quote and returns an error message if mandated pre-ordering references are absent. 3. The Seller returns an error if the attributes specified in the Quote Request do not match the attributes in the specified POQ or if the specified POQ has expired.
Business Process	MEF 50.1 Order-to-Delivery

Table 6 – Use Case 1c Request Quote with Deferred Response, Immediate Provided

Note: Prior to submitting a Create Quote Request the Buyer is advised to complete pre-order Address validation, Site retrieval and check, and/or POQ. Note: In Use Cases 1a, 1b, and 1c, a Create Quote Request cannot be modified once submitted. If the Buyer wants to change the Create Quote Request attributes The Quote can be cancelled or rejected and another Create Quote Request submitted. If the Seller determines that the Quote Request cannot be provided due to an error in the Buyer provided attributes, they will place the Quote in a terminal state and the Buyer may submit another Create Quote Request.

Table 7 defines the details for Quote Use Case 2.

Field	Description
Use Case Number	2
Use Case Name	Retrieve Quote List
Description	The Buyer requests a list of Product Quotes from the Seller based on Product Quote filter criteria.
Actors	Buyer/Seller
Pre-Conditions	Buyer is authorized to purchase products from the Seller (Buyer on-boarded).
Process Steps	1. The Buyer submits a Retrieve Quote List request as shown in section 9.4.1 based on the filter criteria options. 2. The Seller receives and validates the request. 3. The Seller determines if there are any quotes that match the filter criteria in the request. 4. The Seller returns a summarized list of quote instances as specified in section 9.4.2 including the Quote Identifier for each instance in the list.
Post-Conditions	Buyer has received a list of summarized quotes.

Alternative Paths	1. The Seller returns an error message if an error is encountered while processing that prevents the Seller from completing the request. 2. The Seller returns a response indicating that they cannot find a match to the given criteria. 3. The Seller returns an error if the number of responses exceeds the Seller specified limit. The error indicates that query resulted too many Quotes being returned, and no results are returned. In this case, the Buyer would likely elect to reinitiate the Retrieve Quote List request using more specific criteria to obtain a summarized list containing fewer matching Quotes.
Business Process	MEF 50.1 Order-to-Delivery

Table 7 – Retrieve Quote List

Table 8 defines the details for Quote Use Case 3.

Field	Description
Use Case Number	3
Use Case Name	Retrieve Quote by Quote Identifier
Description	The Buyer requests detailed information related to a single Product Quote based on a Quote Identifier.
Actors	Buyer/Seller
Pre-Conditions	1. Buyer is authorized to purchase products from the Seller (Buyer on-boarded). 2. Buyer knows the identifier of the product quote to be retrieved.
Process Steps	1. The Buyer submits a request to retrieve information associated with a single Quote by Quote Identifier as shown in section 9.5.1. 2. The Seller receives and validates the request. 3. The Seller determines if there is a Product Quote that matches the identifier. 4. The Seller returns the matching quote instance with all the attributes as shown in section 9.5.2.
Post-Conditions	Buyer has detailed information on the Quote identified by the Quote Identifier.

Alternative Paths	1. The Seller returns an error message if an error is encountered while processing that prevents the Seller from completing the request. 2. The Seller will return an error if the quote instance with the specified quote identifier is not found. 3. The Seller returns an error because the Quote has been archived and is no longer able to be retrieved. The timeframe that a Quote in the final state remains available to be retrieved is agreed to by the Buyer and Seller during the on-boarding process.
Business Process	MEF 50.1 Order-to-Delivery

Table 8 – Retrieve Quote by Id

Note: the timeframe that a Quote in the final state remains available to be retrieved is agreed to by the Buyer and Seller during the on-boarding process.

Table 9 defines the details for Quote Use Case 4.

Field	Description
Use Case Number	4
Use Case Name	Cancel Quote by Quote Identifier
Description	The Buyer requests to Cancel a Product Quote.
Actors	Buyer/Seller
Pre-Conditions	The Quote state is IN_PROGRESS or IN_PROGRESS_DRAFT.
Process Steps	1. The Buyer submits a Cancel Quote Request with the Seller Quote Identifier as shown in section 9.3. 2. The Seller receives the request for cancellation, verifies the Quote Identifier exists and that the current state of the referenced Quote allows a transition to the CANCELLED state The Seller sets the Quote as CANCELLED. 3. The Seller provides a response to the Buyer as shown in section 9.2.2.
Post-Conditions	The Buyer receives a response that the referenced Quote Identifier has been cancelled.
Alternative Paths	1. The Seller returns an error message if an error is encountered while processing that prevents the Seller from completing the request. 2. The Seller sends an error if the quote to be cancelled does not exist. 3. The Seller sends an error if they are unable to Cancel the quote because the referenced Quote is not in the correct state. As an example, a request to cancel a Quote that is not in the IN_PROGRESS , or IN_PROGRESS_DRAFT state would generate an error from the Seller.

Business Process	MEF 50.1 Order-to-Delivery

Table 9 – Cancel Quote

[R1]   The Seller **MUST** provide the ability for a Buyer to cancel a Quote when the Quote Request is in the following states: IN_PROGRESS, IN_PROGRESS_DRAFT.

Table 10 defines the details for Quote Use Case 5.

Field	Description
Use Case Number	5
Use Case Name	Reject Quote by Quote Identifier
Description	The Buyer requests to Reject a Product Quote that is in the ORDERABLE or ORDERABLE_ALTERNATE state.
Actors	Buyer/Seller
Pre-Conditions	The Quote state is ORDERABLE or ORDERABLE_ALTERNATE.
Process Steps	1. The Buyer submits a Reject Quote Request with the Quote Identifier as shown in section 9.3. 2. The Seller receives the request for rejection of a Quote, verifies that the referenced Quote Identifier exists, and that the current Quote state of the Quote referenced by the Quote Identifier allows the transition to REJECTED. 3. The Seller sets the Quote as REJECTED. 4. The Seller provides a response to the Buyer as shown in section 9.2.2.
Post-Conditions	The Buyer receives a response that the referenced Quote has been rejected.
Alternative Paths	1. The Seller returns an error message if an error is encountered while processing that prevents the Seller from completing the request. 2. The Seller sends an error if the quote to be rejected does not exist. 3. The Seller sends an error if they are unable to Reject the quote because the referenced Quote is not in the correct Quote State.
Business Process	MEF 50.1 Order-to-Delivery

Table 10 – Reject a Quote

[R2]   The Seller **MUST** provide the ability for a Buyer to reject a Quote when the Quote is in the following states: ORDERABLE_ALTERNATE, ORDERABLE.

Table 11 defines the details for Quote Use Case 6.

Field	Description
Use Case Number	6
Use Case Name	Register for Quote Notifications
Description	A request initiated by the Buyer to instruct the Seller to send notifications of Quote state changes in the event the Seller uses the Deferred Response pattern to respond to a Create Product Quote Request. Notifications Types are: • Quote creation • Quote state change
Actors	Buyer/ Seller
Pre-Conditions	Buyer is authorized to purchase products from the Seller (Buyer on-boarded).
Process Steps	1. The Buyer sends the Register for Quote Notification request as shown in section 9.6.1 to the Seller specifying the criteria of where to send such notifications and which Notification Types to include in notifications. 2. The Seller receives this request, records which notifications to send, where to send such notifications for this Buyer, and returns an acknowledgement to the Buyer as shown in section 9.6.2.
Post-Conditions	The Seller is aware of where to send notifications of Quote state changes as described in Use Case 7 in Table 12.
Alternative Paths	1. The Seller returns an error message if an error is encountered while processing that prevents the Seller from completing the request. 2. The Seller returns an error message if they do not support notifications.
Business Process	MEF 50.1 Lead-Response-to-Contract

Table 11 – Register for Notifications

Note: Notifications are sent per Quote Identifier. Each Quote contains one or more Quote Item Identifier(s). A Quote Item Identifier state change may result in a Quote Identifier state change. See section 10 for more details on Quote and Quote Item states and their interaction.

Table 12 defines the details for Quote Use Case 7.

Field	Description
Use Case Number	7
Use Case Name	Send Quote Notifications
Description	The Seller sends notifications for the following qualifying events: • Quote creation • Quote state change
Actors	Buyer/ Seller

Pre-Conditions	Buyer is authorized to purchase products from the Seller (Buyer on-boarded).
Process Steps	The Seller sends the notification to the location(s) requested by the Buyer as shown in section 9.7.
Post-Conditions	The Seller has sent quote related notification.
Alternative Paths	
Business Process	MEF 50.1 Lead-Response-to-Contract

Table 12 – Quote Notifications

Note: if the notification fails, the Seller may continue to try to send notifications to the endpoint or may mark that end point as failed and stop sending notifications to that endpoint.

9 Quote Operation Attributes

This section identifies the attributes needed for each of the Quote Use Cases defined previously. It is important to note that this section defines the superset of all MEF-defined attributes needed to support the Use Cases for Quote Management defined in this document.

The columns in the tables are as follows:

Attribute	The name of the attribute
Description	A short description of the attribute
Type	Specified data type for the attribute such as string, integer, duration, date/time, or reference to another entry in the table
Comments	Comments about the attribute

9.1 Attribute Tables

The tables below identify and describe the attributes related to Quote.

9.1.1 Buyer and Seller Attributes

Table 13 shows the Buyer and Seller attributes.

Attribute	Description	Type	Comments
Buyer	The mutually agreed unique name of the organization that is acting as the customer in this transaction within the Seller's system.	String	See section MEF 79 [11] section 8.8 for rules on use of Buyer
Seller	The mutually agreed unique name of the organization that is acting as the supplier in this transaction within the Seller's system.	String	See section MEF 79 [11] section 8.8 for rules on use of Seller
Seller Response Code	A response identifier, indicating if the Seller was able to successfully accept the request. The detailed response options are for further study but include: Success and Failure.	String	For further study

Table 13 – Buyer and Seller Information

[R3] The Seller Response Code **MUST** be included in all Seller responses.

The Buyer and the Seller can be used in Use Cases 1a, 1b, 1c,

9.1.2   Quote Attributes

Table 14 shows the Quote attributes.

Attribute	Description	Type	Comments
Seller Quote Identifier	Unique (within the Seller quoting domain) identifier for the quote, as attributed by the Seller.	String	The identifier created by the Seller when the product quote is created.
Buyer Quote Identifier	Identifier given by the Buyer to facilitate Buyer searches subsequently.	String	Set by the Buyer
Project Identifier	An identifier that is used to group Quotes that represent a unit of functionality that is important to a Buyer. A Project can be used to relate multiple Quotes together.	String	Optional attribute set by the Buyer. This is retained by the Seller.
Description	Description of the Quote.	String	Optional attribute set by the Buyer
Quote State	The state of the Quote.	One of • ACCEPTED • ANSWERED • CANCELLED • EXPIRED • IN_PROGRESS • IN_PROGRESS_DRAFT • INSUFICIENT_INFORMATION_PROVIDED • ORDERABLE_ALTERNATE • ORDERABLE • REJECTED • UNABLE_TO_PROVIDE	Set by the Seller

Attribute	Description	Type	Comments
Quote Request Date	Date when the Quote was created within the Seller's system	DateTime	This value is set by the Seller.
Quote IN_PROGRESS Date	Date when the Quote State was set to IN_PROGRESS	DateTime	This value is set by the Seller
Quote IN_PROGRESS_ DRAFT Date	Date when the Quote State was set to IN_PROGRESS_DRAFT	DateTime	This value is set by the Seller
Quote REJECTED Date	Date when the Quote State was set to REJECTED.	DateTime	This value is set by the Seller.
Quote EXPIRED Date	Date when the Quote State was set to EXPIRED.	DateTime	This value is set by the Seller.
Quote ACCEPTED Date	Date when the Quote State was set to ACCEPTED.	DateTime	This value is set by the Seller.
Expected Quote Completion Date	This is the date provided by the Seller to indicate expected Quote completion date.	DateTime	This value is set by the Seller. When an Instantaneous Synchronous Response is provided this is the current date.
Valid Until Date	The date that the quote is valid until.	DateTime	Set by the Seller
Quote Completion Date	Date when the Quote State was set to one of the Completion States	DateTime	Set by Seller

Attribute	Description	Type	Comments
Quote Completion State	The Completion State of the Quote	String that is one of: • ORDERABLE • ORDERABLE_ALTERNATE • CANCELLED • ANSWERED • UNABLE_TO_PROVIDE • INSUFFICIENT_INFORMATION_PROVIDED	Set by Seller
Buyer Requested Quote Level	An indication of whether the Buyer's Quote Request is Budgetary or Firm.	One of the following: • BUDGETARY • FIRM	Set by the Buyer. Buyer Requested Quote Level contains the possible values and may be set by the Buyer on the Request. All Quote Items in a Quote have the same Quote Level.
Quote Level	An indication of whether the Seller's Quote Response is Budgetary, Firm – Subject to Feasibility Check, or Firm.	One of the following: • BUDGETARY • FIRM – SUBJECT TO FEASIBILITY CHECK • FIRM	Set by the Seller. The Quote Level is provided by the Seller when responding to a Create Quote Request.

Attribute	Description	Type	Comments
Immediate Quote Response	If this flag is set to TRUE, Buyer requests an immediate quote to be provided in the response to the creation of a quote. If TRUE, the Requested Quote Completion Date is ignored.	Boolean	Set by the Buyer. If set to FALSE, the Seller does not have to provide an immediate quote but may elect to. If set to TRUE and the Seller cannot accommodate the request, the Quote is moved to the UNABLE_TO_PROVIDE state, and the process is stopped.
Requested Quote Completion Date	This is the date desired by the Buyer to have the quote completed (meaning priced). The accuracy of the pricing might differ based on the Quote Level.	DateTime	Set by the Buyer if Immediate Quote Response is FALSE. If Immediate Quote Response is TRUE, this is ignored by the Seller.
Notes	A set of unstructured comments or information associated to the Quote. This can be empty.	List of Reference to a Note (see Table 22)	The notes may be defined by the Buyer or Seller
Quote Items	The Quote is composed of one or more Quote Items. This is the list of associated Quote Items.	List of Reference to a Quote Item (see Table 15)	
Buyer Contact Information	The contact information for the person or organization representing the Buyer that can answer questions related to this Quote request.	Reference to Contact Information (see Table 21)	Buyer Contact Information. This is required for a Quote request when Immediate Quote Response is FALSE. This is optional for a Quote request when Immediate Quote Response is TRUE.
Seller Contact Information	The contact information for the person or organization representing the Seller that can answer questions related to this Quote request.	Reference to Contact Information (see Table 21)	Set by the Seller

Table 14 – Quote Attributes

9.1.3   Quote Item Attributes

Table 15 shows Quote Item attributes.

Attribute	Description	Type	Comments
Quote Item Reference Number	A Buyer provided identifier to identify Quote Items and to be able to relate them to one another.	String	This is set by the Buyer and is unique per Quote Request. Examples of Reference Number could be 1, 2, 3 or A, B, C. The Reference Number can be reused in multiple Quote Requests to identify a Quote Item within that Quote Request.
Quote Item Product Action	Action to be performed on this Quote Item. This corresponds to the Order Item Product Action when an associated product is ordered.	String that is one of • INSTALL • CHANGE • DISCONNECT	Set by the Buyer
Requested Quote Item Term	The terms of the Quote Item	Reference to a Quote Item Term (see Table 17)	Used to describe a term (also known as commitment) for a Quote Item. Each Quote Item in a Quote Request could have a different Requested Quote Item Term. The Buyer specifies the longest term that they would accept. The Buyer may be willing to accept a shorter term. If the Seller responds with a term longer than the Buyer's request, it is treated as an alternate response.
Requested Quote Item Installation Interval	The installation interval requested by the Buyer.	Reference to Duration (see Table 28)	Set by the Buyer. This matches the installation interval unit returned by the Seller in the POQ.
Product Identifier	The Buyer's existing Product for which the quote is being requested.	String	Set by the Buyer if the Quote Item Product Action is CHANGE or DISCONNECT.

Attribute	Description	Type	Comments
Product Offering Identifier	The identifier of the Product Offering the buyer wants to have a quote on from the Seller for ordering a new product.	String	Set by the Buyer if the Quote Item Product Action is INSTALL.
Product Specific Attributes	The technical attributes for the Product that would be delivered to fulfill this Quote Item. This essentially specifies the values for attributes defined in the Product Specification. The detail of the Product Specification is for further study.		For further study.
Subject to Feasibility Check	For a Firm Quote Level indicates if the pricing requires a Feasibility Check.	boolean	The Seller indicates if the Quote Item requires a Feasibility Check. This is not used for a Budgetary Quote Level.
Place Relationship	The relationship between this Quote Item and Place	List of Reference to Place Relationship (see Table 24)	List of Places. If the Product Specification does not include a Place, this is unused.
Quote Item Location Contact	The person to call to get access to this Service Site in case such access is required to complete the evaluation of this Quote Item.	List of Reference to Contact Information (see Table 21))	Set by Buyer. Used only if there is a Place defined.
Quote Item Technical Contact	The person to contact when additional technical information is needed in order to be able to provide a correct quote for the Quote Item.	List of Reference to Contact Information (see Table 21))	Set by Buyer
Quote Item Relationship	The relationship between Quote Items within the same Quote. Shown as a list.	List of Reference to Quote Item Relationship (see Table 19)	Set by Buyer

Attribute	Description	Type	Comments
Product Relationship	The relationship between a Quote Item and an existing Product Identifier shown as a list.	List of Reference to Product Relationship (see Table 20)	
Notes	A set of unstructured comments or information associated to the Quote Item. This can be empty.	List of Reference to a Note (see Table 22)	The notes may be defined by the Buyer or Seller
Agreement	Name of the agreement. The name is unique between the Buyer and Seller.	String	Set by the Buyer. Agreement is a unique method of identifying a contract, service description, or other identifier.
POQ Item	The Product Offering Qualification Item associated to this Quote Item.	Reference to a POQ Item (see Table 23)	Set by the Buyer. The POQ Item may be required by the Seller. In that case, this is a mandatory field. If the Seller does not require the POQ, then this is an optional attribute.
Quote Item State	The state of the Quote Item	One of • ANSWERED • IN_PROGRESS • IN_PROGRESS_DRAFT • ORDERABLE_ALTERNATE • UNABLE_TO_PROVIDE • ORDERABLE • ABANDONED • INSUFFICIENT_INFORMATION_PROVIDED	Set by the Seller.
Quote Item Price	Price associated to the Quote Item.	Reference to a Quote Item Price (see Table 18)	Set by Seller

Attribute	Description	Type	Comments
Quote Item Term	Quote Item Term	Reference to Quote Item Term (see Table 17)	Set by Seller
Quote Item Deal Reference	A pre-agreed pricing modifier reference that the Seller is offering to the Buyer which will impact the price	String	Set by Buyer
Quote Item Installation Interval	Quote Item Installation Interval	Reference to Duration (see Table 28)	Set by Seller. To move the Quote Request to the ORDERABLE state, the installation interval must be ≤ the Requested Quote Item Installation Interval set by the Buyer. If the Seller returns a value > the Requested Quote Item Installation Interval, the Quote moves to the ORDERABLE_ALTERNATE state.
Quote Item Termination Error	When the Seller cannot process the Quote Item Request, the Seller returns a text-based list of reasons here.	List of String	Set by the Seller. Reasons are for further study.

Table 15 – Quote Item Attributes

[R4]   If the Buyer's Request has the Quote Level set to BUDGETARY, the Quote Level in the Seller's Quote **MUST** be BUDGETARY.

[R5]   If the Seller's Quote is BUDGETARY and at least one Quote Item is in the ANSWERED state, the Quote state **MUST** be ANSWERED.

[R6]   If the Seller's Quote is BUDGETARY and no Quote Items are in the ANSWERED state, the Quote State **MUST NOT** be ANSWERED as shown in Table 37.

[R7]   If the Seller's Quote is BUDGETARY and the Quote is in a terminal state, all Quote Items **MUST** be in a terminal state as shown in Figure 6.

[R8]   If the Buyer's Request has the Quote Level set to FIRM, the Quote Level in the Seller's Quote **MUST** be either FIRM – SUBJECT_TO_FEASIBILITY_CHECK or FIRM.

9.1.4   Cancel or Reject Quote Request Attributes

Table 16 shows the Cancel or Reject Quote Request level attributes.

Attribute	Description	Type	Comments
Seller Quote Identifier	Unique (within the Seller quoting domain) identifier for the quote, as attributed by the Seller.	String	Set by the Buyer to match the Quote Request that the Buyer desires to Cancel or Reject.
Reason	Allows the Buyer to specify a reason for the Cancel or Reject Quote Request	String	Set by the Buyer
Requested Quote State	The state, either CANCELLED or REJECTED, to which the Buyer wants to move the specified Quote.	One of • CANCELLED • REJECTED	Set by Buyer

Table 16 – Cancel or Reject Quote Attributes

9.1.5 Quote Item Term Attributes

Table 17 shows Quote Item Term attributes. A Quote Item Term is the length of the contract commitment by the Buyer for each Quote Item.

Attribute	Description	Type	Comments
Quote Item Term Name	Name of the term	String	Set by Buyer in Request. Set by the Seller in Quote
Quote Item Term Description	Description of the term	String	Set by Buyer in Request. Set by the Seller in Quote

Attribute	Description	Type	Comments
Quote Item Term Duration	Duration of the term	Reference to Duration	Set by the Buyer in the Request, set by the Seller in the Quote. The Seller bases their Quote on the Requested Quote Item Term in the Quote Request. The Seller provides the term that is closest to the Buyer's requested term. That term may be longer or shorter than the requested term. If shorter it is treated as an alternate term.
Seller End of Term Action	The action the Seller will take once the term expires.	Indicator with following allowed values: • ROLL • AUTO_DISCONNECT • AUTO_RENEW	Set by the Seller. Roll indicates that the Product's contract will continue on a rolling basis for the duration of the Roll Interval at the end of the Quote Item Term. Auto-disconnect indicates that the Product will be disconnected at the end of the Quote Item Term. Auto-renew indicates that the Product's contract will be automatically renewed for the Quote Item Term Duration at the end of the Quote Item Term.
Roll Interval	The recurring period that the Buyer must pay to the end of upon disconnecting the Product after the original term has expired.	Reference to Duration	Set by Seller

Table 17 – Quote Item Term Attributes

9.1.6 Quote Item Price Attributes

Table 18 shows Quote Item Price attributes.

Attribute	Description	Type	Comments
Quote Item Price Name	Name of the Quote Item price.	String	Set by the Seller
Quote Item Price Description	Description of the Quote/Quote Item price.	String	Set by the Seller
Quote Item Price Type	Indicates if the price is for recurring, non-recurring, or usage-based charges.	One of • RECURRING • NON_RECURRING • USAGE_BASED	Set by the Seller
Quote Item Price Recurring Charge Period	Used for a recurring charge to indicate period	One of • HOUR • DAY • WEEK • MONTH • YEAR	
Quote Item Price Unit Of Measure	Unit of Measure (Gb, SMS volume, etc.) if Quote Item Price Type = USAGE_BASED	String	Set by the Seller if Quote Item Price Type = USAGE_BASED
Quote Item Price	The associated price.	Reference to a Price (see Table 25)	Set by the Seller

Table 18 – Quote Item Price Attributes

9.1.7 Quote Item Relationship Attributes

Table 19 shows Quote Item Relationship attributes.

Attribute	Description	Type	Comments
Related Quote Item Reference Number	Reference number of the related Quote Item (must be in the same quote).	String	Set by Buyer

Attribute	Description	Type	Comments
Quote Item Relationship Nature	Specifies the nature of the relationship to the related Quote Items. The nature of required relationships vary for Products of different types. For example, a UNI or ENNI Product may not have any relationships, but an Access E-Line may have two mandatory relationships (related to the UNI on one end and the ENNI on the other). More complex Products such as multipoint IP or Firewall Products may have more complex relationships. As a result, the allowed and mandatory Relationship Nature values are defined in the Product Specification.	String that is one of the relationship types specified in the Product Specification.	Set by the Buyer

Table 19 – Quote Item Relationship Attributes

9.1.8 Product Relationship Attributes

Table 20 shows Product Relationship attributes.

Attribute	Description	Type	Comments
Related Product Identifier	A list of one or more IDs of the related products in the inventory. Any Product ID in inventory can be used by the Quote Item.	List	Set by Buyer

Attribute	Description	Type	Comments
Product Relationship Nature	Specifies the nature of the relationship to the related Product. The nature of required relationships vary for Products of different types. For example, a UNI or ENNI Product may not have any relationships, but an Access E-Line may have two mandatory relationships (related to the UNI on one end and the ENNI on the other). More complex Products such as multipoint IP or Firewall Products may have more complex relationships. As a result, the allowed and mandatory Relationship Nature values are defined in the Product Specification.	String that is one of the relationship types specified in the Product Specification.	Set by the Buyer

Table 20 – Product Relationship Attributes

Note: The Buyer may provide a list of Product IDs at the time the Create Quote Request is submitted based on what is agreed to by the Buyer and Seller.

9.1.9   Contact Information Attributes

Table 21 shows Contact Information attributes.

Attribute	Description	Type	Comments
Contact Name	The person or organization to be contacted.	String	
Contact Phone Number	The telephone number for this contact.	String	
Contact Phone Number Extension	The telephone number extension for this contact.	String	

Contact email Address	The email address for this contact.	String	
Contact Address	Identifies the address of the person or office to be contacted.	Reference to Place Relationship (Fielded/Form atted Address)	
Contact Organization	The organization or company that the contact belongs to	String	

Table 21 – Contact Information Attributes

[R9] The Contact Information **MUST** include the Contact Name, Contact Phone Number, and Contact email Address attributes.

[O1] The Contact Information **MAY** include the Contact Phone Number Extension, Contact Geographic Address, and Contact Organization.

9.1.10 Note Attributes

Table 22 shows Note attributes.

Attribute	Description	Type	Comments
Note Date	The date of the note.	DateTime	Set by Buyer or Seller. The Buyer creates a note when requesting the quote. The Seller may add notes.
Note Author	The author of the note.	String	
Note Source	Indicates if the note is from Buyer or Seller	One of: • BUYER • SELLER	Set by the Buyer or Seller
Note Text	The text of the note.	String	

Table 22 – Note Attributes

[R10] All attributes of a Note **MUST** be included when a Note is added.

9.1.11 POQ Attributes

Table 23 shows POQ and POQ Item attributes.

Attribute	Description	Type	Comments
POQ Identifier	Identifier of the Product Offering Qualification	String	Reference to a POQ. Provided by the Buyer from the Seller's response to a Create POQ Request as specified in MEF 79 [11]. The Seller can make this field mandatory or optional. If mandatory, the Buyer must include the POQ Identifier.
POQ Item Identifier	Identifier of the Product Offering Qualification Item	String	A unique identifier of the POQ item. Provided by the Buyer from the Seller's response to a Create POQ Request as specified in MEF 79 [11]. Seller can make this field mandatory or optional.
Alternate Product Proposal Identifier	A unique identifier for this Alternate Product Proposal assigned by the Seller.	String	If the Buyer has performed a POQ and desires to select one and only one of the Alternate Product Proposals per Quote Item they identify the alternate proposal using the Alternate Product Proposal Identifier from the POQ response as specified in MEF 79 [11].

Table 23 – POQ Attributes

9.1.12 Place Relationship Attributes

Table 24 shows Place Relationship Attributes.

Attribute	Description	Type	Comments
Role	The role of the place as specified in the Product Specification	String	Set by the Buyer as defined by the Seller in the Product Specification

Attribute	Description	Type	Comments
Quote Item Location Type	The method used to describe the location at which this Quote Item is installed or is to be installed if needed per the Product Specification.	String that is one of: • SERVICE_SITE_IDENTIFIER • FIELDED_ADDRESS • FORMATTED_ADDRESS • GEOGRAPHIC_POINT • ADDRESS_REFERENCE	The Buyer is encouraged to use the Seller's SERVICE_SITE_IDENTIFIER if one exists. If one does not exist, then the Buyer may use any other Quote Item Location Type.
Quote Item Location	The detailed location at which this Quote Item is installed or is to be installed if this Quote Item is to be installed at a particular location.	Reference to MEF 79 [11]: • Service Site (see MEF 79 sec 8.10) • Fielded Address (see MEF 79 sec 8.9.2) • Formatted Address (see MEF 79 sec 8.9.3) • Global Address Reference (see MEF 79 sec 8.9.4) • Geographic Point (see MEF 79 sec 8.9.5)	

Table 24 – Place Attributes

9.1.13   Price Attributes

Table 25 shows Price attributes.

Attribute	Description	Type	Comments
Price Tax Rate	The tax rate applied.	String	This is an optional attribute set by the Seller.
Price Tax Included Amount	All taxes included amount (expressed in the given currency).	Money • Currency • Value	This is an optional attribute set by the Seller. If the Seller provides a BUDGETARY or FIRM – SUBJECT TO FEASIBILITY CHECK Quote Item Level, the maximum value is provided here.
Price Duty Free Amount	All taxes excluded amount (expressed in the given currency).	Money • Currency • Value	If the Seller provides a BUDGETARY or FIRM – SUBJECT TO FEASIBILITY CHECK Quote Level, the maximum value is provided here.

Table 25 – Price Attributes

9.1.14   Register for Notification Attributes

Table 26 shows the Register for Notification attributes.

Attribute	Description	Type	Comments
Notification Target Information	The detailed information on the technical API end-point address specifying where the Seller is to send any Quote Notifications. There can be multiple locations for one Buyer.	String	This is the Callback target in the API
List of Notification Types	The types of notifications that the Buyer wishes to receive. Each item in the list is either CREATE (send notification when a new Quote is created), QUOTE STATE CHANGE (send notification when there is a change to the state of the Quote), or QUOTE_ITEM_STATE_CHANGE (send notification when there is a change to the state of any Quote Item)	List of one or more of: • CREATE • QUOTE STATE CHANGE • QUOTE_ITEM_STATE_CHANGE	This is a list of attributes
Action	Specification to Start Notifications or Stop Notifications.	One of: • START • STOP	

Table 26 – Register for Quote Notifications Buyer Attributes

9.1.15   Notification Attributes

Table 27 shows Quote Notification attributes.

Attribute	Description	Type	Comments
Notification Type	The type of notification.	One of: • CREATE • QUOTE STATE CHANGE • QUOTE_ITEM_STATE_CHANGE	
Seller Quote Identifier	Unique (within the Seller quoting domain) identifier for the quote, as attributed by the Seller.	String	
Quote Item Identifier	Unique identifier of the Quote Item	String	Only used when Notification Type is QUOTE_ITEM_STATE_CHANGE

Table 27 – Seller Quote Notification

9.1.16 Duration

Table 28 shows the attributes for Duration.

Attribute	Description	Type	Comments
Duration Unit	The unit of the duration.	String one of the following: • BUSINESS_DAYS • BUSINESS_HOURS • BUSINESS_MINUTES • CALENDER_MONTHS • CALENDAR_DAYS • CALENDAR_HOURS • CALENDAR_MINUTES	
Duration Value	The value of the duration.	Integer	

Table 28 – Duration Attributes

9.2 Request Quote

The Buyer's request and the Seller's response and Quote are defined in the following sections.

9.2.1 Buyer Create Quote Request

9.2.1.1 *This section contains the Service Attributes and requirements for Use Case 1a, 1b, and 1c. Common Requirements*

The requirements that are common to all Quote Item Product Actions are defined in this section.

[R11] The Seller **MUST** support either Use Case 1a or 1b.

[O2] The Seller **MAY** support Use Cases 1a, 1b, and 1c.

[R12] A Buyer **MUST** include at least one Quote Item in a Create Quote Request.

[R13] A Buyer requesting a Quote **MUST** include the following attributes as defined in Table 14:

- Buyer Requested Quote Level

- Quote Item(s)

- Immediate Quote Response

[O3] The Buyer **MAY** include the Agreement attribute as defined in Table 15.

[R14] The Buyer **MUST** specify the following attributes in Table 15 for each Quote Item in the Buyer Create Quote Request:

- Quote Item Reference Number

- Quote Item Product Action

[R15] If the Immediate Quote Response is FALSE, the Buyer **MUST** include the Quote Item Technical Contact Information attribute in Table 15 for each Quote Item in the Buyer's Create Quote Request.

[R16] If the Immediate Quote Response is FALSE, the Buyer **MUST** include the Buyer Contact Information.

[R17] If the Buyer Create Quote Request specifies the Immediate Quote Response of FALSE the Buyer **MUST** specify the Requested Quote Completion Date defined in Table 14.

[R18] If the Buyer has specified Immediate Quote Response to be TRUE, then the Seller **MUST** ignore the Requested Quote Completion Date attribute if it is specified by the Buyer.

[O4] The Seller **MAY** make the POQ Identifier mandatory for a Buyer Create Quote Request.

[CR1]<[O4] The Buyer **MUST** provide the valid POQ and POQ Item Identifier(s) in the Quote Request as defined in Table 23 if required by the Seller.

9.2.1.2 Quote Item Product Action – INSTALL

[R19] The Buyer Create Quote Request **MUST** include the following attributes for each Quote Item as defined in Table 15 when Quote Item Product Action is INSTALL:

- Product Offering Identifier

- Product Specific Attributes

[O5] The Buyer Create Quote Request **MAY** include the following attributes for each Quote Item as defined in Table 15 when Quote Item Product Action is INSTALL:

- Requested Quote Item Installation Interval

- Quote Item Deal Reference

[CR2]<[O5] If the Buyer includes the Requested Quote Item Installation Interval in the Create Quote Request and they completed a POQ prior to submitting the Create Quote Request, the Requested Quote Item Installation Interval **MUST** be longer or equal to the interval returned in the referenced POQ.

Note: if the Buyer includes the Requested Quote Item Installation Interval in the Create Quote Request and they have not completed a POQ prior to submitting the Create Quote Request, the Requested Quote Item Installation Interval may be any value allowed by the Seller.

[R20] If the request includes a Quote Item that refers to a Product Offering for which a location is required, the Buyer Create Quote Request **MUST** include the Place Relationship attributes.

[R21] If the Buyer provides a Place Relationship, it **MUST** comply with the format agreed to by the Buyer and Seller during the on-boarding process.

[R22] If the Quote Item requires a location and the Immediate Quote Response is FALSE, the Buyer **MUST** include the Quote Item Location Contact Information for that Quote Item.

[R23] If the Buyer desires to select an Alternate Product that was proposed in the POQ response, they **MUST** include a valid POQ Item Identifier and Alternate Product Proposal Identifier attribute in Table 23.

[R24] If the Buyer does not desire to select an Alternate Product in their Create Quote Request, they **MUST NOT** include the Alternate Product Proposal Identifier attribute in Table 23.

[R25] If Quote Item Product Action is INSTALL, the Buyer **MUST NOT** specify the Product Identifier attribute in Table 15.

[O6] The Buyer Create Quote Request **MAY** contain any of the other attributes in Table 15 marked as Set by Buyer.

9.2.1.3   *Quote Item Product Action - CHANGE*

[R26]   The Buyer Create Quote Request **MUST** include the following for each Quote Item as defined in Table 15 when Quote Item Product Action is CHANGE:

- Product Identifier

[R27]   If the Quote Item Product Action is CHANGE, the Buyer Create Quote Request **MUST** include the following for each Quote Item as defined in Table 15

- Product Specific Attributes

[O7]   The Buyer Create Quote Request **MAY** include the following attributes for each Quote Item as defined in Table 15 when Quote Item Product Action is CHANGE:

[CR3]<[O7]   Requested Quote Item Installation Interval   If the Buyer includes the Requested Quote Item Installation Interval in the Create Quote Request, they **MUST** be ≥ to the interval returned in the referenced POQ.

Note: if the Buyer includes the Requested Quote Item Installation Interval in the Create Quote Request and they have not completed a POQ prior to submitting the Create Quote Request, the Requested Quote Item Installation Interval may be any value allowed by the Seller.

9.2.1.4   *Quote Item Product Action – DISCONNECT*

[R28]   The Buyer Create Quote Request **MUST** include the following for each Quote Item as defined in Table 15 when Quote Item Product Action is DISCONNECT:

- Product Identifier

[R29]   If the Quote Item Product Action is DISCONNECT, the Buyer **MUST** specify the Product Identifier as described in Table 15.

[R30]   If the Quote Item Product Action is DISCONNECT, the Buyer **MUST NOT** specify the following attributes in Table 15:

- Product Offering Identifier

- Product Specific Attributes

- Product Relationships

- Quote Item Place Relationship

- Quote Item Location Contact

- Quote Item Relationship

[R31]   The Requested Quote Item Installation Interval **MUST** be ≥ the Installation Interval identified in the referenced POQ via the Installation Interval Unit and the Installation Interval Value as described in MEF 79 [11].

Note: if the Buyer includes the Requested Quote Item Installation Interval in the Create Quote Request and they have not completed a POQ prior to submitting the Create Quote Request, the Requested Quote Item Installation Interval may be any value allowed by the Seller.

9.2.2   Seller Request Quote Response and Quote Attributes

The Seller responds to the Buyer's Create Quote Request.

If the Immediate Quote Response is TRUE in the Buyer's Create Quote Request, the Seller's response includes the Seller's Quote including the Seller's Quote Identifier.

If the Immediate Quote Response is FALSE in the Buyer's Create Quote Request and the Seller is providing a deferred response (see section 7), the Seller's response includes at least the Seller's Quote Identifier and the Seller provides their Quote at a later time. The Buyer retrieves the Quote using the Retrieve Quote by Quote Identifier function.

If the Immediate Quote Response is FALSE in the Buyer's Create Quote Request and the Seller opts to provide an immediate response, the response includes their Quote including the Seller's Quote Identifier.   This section contains the attributes with which the Seller answers the Buyer's Create Quote Request.

9.2.2.1   Common Requirements for Immediate and Deferred Response

[R32]   When providing a response to a Quote Request the Seller **MUST** specify the Seller Response Code attribute shown in Table 13.

The following requirements apply if the Seller Response Code does not indicate success.

[R33]   If the Seller Response Code does not indicate success, the Seller **MUST NOT** specify any of the following attributes in Table 14 in the response: Quote Identifier, Quote State, Seller Contact Information, and Quote Items.

The following requirements apply when the Seller Response Code indicates success.

[R34]   When providing a response to a Quote Request, the Seller **MUST** specify the Seller Quote Identifier attribute in Table 14 in the response.

[R35]   The Seller's Quote **MUST** echo back all attributes and values set by the Buyer in their Create Quote Request.

[R36]   The Seller's Quote **MUST** contain each Quote Item in the Buyer's Create Quote Request.

[R37] For a Create Quote Request with a Buyer Requested Quote Level of FIRM, the Seller's Quote **MUST** contain the Quote Level which is either FIRM or FIRM_SUBJECT_TO_FEASIBILITY_CHECK.

[R38] The Seller's Quote Level **MUST** be FIRM-SUBJECT_TO_FEASIBILITY_CHECK if any of the Quote Item's Subject to Feasibility Check attribute is set to TRUE.

[R39] For a Create Quote Request with a Buyer Requested Quote Level of BUDGETARY, the Seller's Quote **MUST** contain a Quote Level of BUDGETARY.

[R40] The Seller **MUST** specify the Seller Contact Information attribute in Table 14 in the Quote.

[R41] The Seller **MUST** specify the Quote Item Reference Number attribute in Table 15 in their Quote. This number **MUST** match precisely one of the Quote Item Reference Numbers provided by the Buyer in the Create Quote Request.

[R42] Each Quote Item in the Seller's Quote **MUST** correspond to one and only one Quote Item in the Buyer's Create Quote Request.

[R43] The Seller **MUST** specify the Quote Item State attribute in Table 15 in their Quote as described in section 10.

[R44] If the Quote Level is FIRM-SUBJECT_TO_FEASIBILITY_CHECK, the Seller **MUST** specify the Subject to Feasibility Check attribute in Table 15 in their Quote for each Quote Item.

[R45] If the Buyer's Create Quote Request contains a Requested Quote Item Installation Interval, the Seller's Quote **MUST** contain a Quote Item Installation Interval that is ≤ the Buyer's Requested Quote Item Installation Interval if the Quote Item State is ORDERABLE or ANSWERED.

[R46] If the Buyer's Create Quote Request contains a Requested Quote Item Installation Interval and the Seller's Quote **MUST** contains a Quote Item Installation Interval that is > the Buyer's Requested Quote Item Installation Interval the Quote Item State is ORDERABLE_ALTERNATE.

[R47] If the Buyer's Create Quote Request does not contain a Requested Quote Item Installation Interval the Seller's Quote **MUST** contain a Quote Item Installation Interval when the Quote state is ANSWERED, ORDERABLE, or ORDERABLE_ALTERNATE.

[R48] When a Quote moves to the ORDERABLE_ALTERNATE state, the Seller **MUST** make available the information contained within Table 14 available.

[R49] If the Seller's Quote is in UNABLE_TO_PROVIDE, INSUFFICIENT_INFORMATION_PROVIDED, ANSWERED, ORDERABLE, ORDERABLE_ALTERNATE, or CANCELLED state, all Quote Items within the Quote Request **MUST** be in a terminal state.

[R50] If the Seller is unable to provide a Quote for a Quote Item that matches the Requested Quote Level, the Seller **MUST** set the Quote Item State attribute to UNABLE_TO_PROVIDE.

[R51] If the Quote Item State Attribute is INSUFFICIENT_INFORMATION_PROVIDED or ABANDONED, the Seller **MUST NOT** specify the following attributes in Table 15 :

- Installation Interval

[R52] If the Quote Item State is INSUFFICIENT_INFORMATION_PROVIDED, the Seller **MUST** specify the Termination Error attribute as specified in Table 15.

The following requirements apply to pricing as shown in Table 17, Table 18, and Table 25 and apply only if the Seller Response Code indicates success.

[R53] The Seller **MUST** provide a Quote Item Price for each Quote Item in IN_PROGRESS_DRAFT, ANSWERED, ORDERABLE, or ORDERABLE_ALTERNATE state including the following attributes shown in Table 18 and Table 25:

- Quote Item Price Name

- Quote Item Price Type

- Quote Item Price

- Price Duty Free Amount

[O8] The Seller **MAY** provide a Quote Item Price for each Quote Item in IN_PROGRESS_DRAFT, ANSWERED, ORDERABLE, or ORDERABLE_ALTERNATE state including the following attributes shown in Table 25:

- Price Tax Rate

- Price Tax Included Amount

[R54] If the Quote state is ORDERABLE and the state of all Quote Items is ORDERABLE the Seller **MUST** provide a Price Duty Free Amount for each Quote Item as shown in Table 25.

[R55] If the Quote Item Price Type is RECURRING, the Seller **MUST** include the Quote Item Price Recurring Charge Period in their response.

[R56] Table 29 shows the combination of attributes that **MUST** be provided for each Price Type.

Price Type	Price Recurring Charge Period	Price Unit of Measure	Price Duty Free Amount	Comments
RECURRING	X		X	
NON-RECURRING			X	
USAGE_BASED		X	X	USAGE_BASED Price Duty Free Amount is the charge per Unit of Measure

Table 29 – Price Type Required Information

[R57] If the Seller's Quote includes a Price Type of USAGE_BASED for a Quote Item, it **MUST** include the attributes shown in Table 17 for that Quote Item.

[R58] If the Seller's Quote includes a Seller End of Term Action of Roll for a Quote Item, then the Seller **MUST** specify the Roll Interval as shown in Table 17 for that Quote Item.

[R59] If the Seller's Quote includes a Seller End of Term Action of Auto-disconnect or Auto-renew, then the Seller **MUST NOT** specify the Roll Interval as shown in Table 17 for that Quote Item.

[D5] The grace period after auto-renewal during which the Buyer can disconnect the Product without penalty **SHOULD** be agreed between Seller and Buyer as part of on-boarding if the Seller chooses to use the value "Auto-renew" for the Seller End of Term Action attribute.

9.2.2.2 Requirements for Request with Immediate Response = TRUE Seller Provides Immediate Response

The following requirements apply if the Seller Response Code indicates success.

[R60] When providing a response to a Quote Request with an Immediate Quote Response of TRUE, the Seller **MUST** include their Quote in the response.

[R61] When providing a response to a Quote Request with an Immediate Quote Response of TRUE, the Seller **MUST** specify the Quote State attribute in Table 14 in the Quote. This **MUST** be either ANSWERED, ORDERABLE, ORDERABLE_ALTERNATE, UNABLE_TO_PROVIDE, or INSUFFICIENT_INFORMATION_PROVIDED.

[R62] When providing a response to a Quote Request with an Immediate Quote Response of TRUE and the Quote state indicates ORDERABLE or ORDERABLE_ALTERNATE, then for each Quote Item in the request, the Seller **MUST** specify the Quote Items attribute in Table 15 in the Quote.

[R63] If the Quote state indicates ORDERABLE_ALTERNATE at least one of the Quote Items **MUST** indicate a Quote Item State of ORDERABLE_ALTERNATE.

[R64] When providing a response to a Quote Request with an Immediate Quote Response of TRUE and the Quote state indicates ORDERABLE or ORDERABLE_ALTERNATE, then for each Quote Item which has recurring charges, the Seller **MUST** specify the Seller End of Term Action of Roll, Auto-disconnect, or Auto-renew as shown in Table 17.

[R65] When providing a response to a Quote Request with an Immediate Quote Response of TRUE and the Quote state indicates ORDERABLE, then for each Quote Item in the request, the Seller **MUST** specify the Quote Items attribute in Table 15 in the Quote and all of those Quote Items **MUST** indicate a Quote Item State of ORDERABLE.

[R66] When providing a response to a Quote Request with an Immediate Quote Response of TRUE and the Quote state indicates INSUFFICIENT_INFORMATION_PROVIDED, then for at least one of the Quote Items in the request, the Quote Item State **MUST** be INSUFFICIENT_INFORMATION_PROVIDED.

[R67] If the Buyer's Quote Request contains a Requested Quote Item Installation Interval the Seller's response to a Quote Request with an Immediate Quote Response of TRUE and a state of ORDERABLE **MUST** include a Quote Item Installation Interval that is ≤ the Buyer's Requested Quote Item Installation Interval for that Quote Item.

[O9] If the Buyer's Quote Request contains a Requested Quote Item Installation Interval the Seller's response to a Quote Request with an Immediate Quote Response of TRUE and a state of ORDERABLE_ALTERNATE **MAY** include an Quote Item Installation Interval that is > the Buyer's Requested Quote Item Installation Interval for that Quote Item.

9.2.2.3 *Requirements for Request with Immediate Response = FALSE Seller Provides Deferred Response*

The following requirements apply if the Seller Response Code indicates success.

[R68] When providing an Deferred response to a Quote Request with an Immediate Quote Response of FALSE and the Quote state indicates ORDERABLE or ORDERABLE_ALTERNATE, then for each Quote Item in the request, the Seller **MUST** specify the Quote Items attribute in Table 15 in the Quote.

[R69] If the Quote state indicates ORDERABLE_ALTERNATE at least one of the Quote Items **MUST** indicate a Quote Item State of ORDERABLE_ALTERNATE.

[R70] The Seller's Quote with an Immediate Quote Response of FALSE that has moved to the ORDERABLE state **MUST** include a Quote Item Installation Interval that is ≤ the Buyer's Requested Order Item Installation Interval.

[R71] If the Seller's Quote with an Immediate Quote Response of FALSE contains an Order Item Installation Interval that is > the Buyer's Requested Quote Item Installation Interval the Quote **MUST** be moved to the ORDERABLE_ALTERNATE state.

[R72] If the Seller's Quote with an Immediate Quote Response of FALSE moves to the ANSWERED state, the Seller **MUST** make available the information contained in Table 15.

9.2.2.4   *Requirements Request with Immediate Response = FALSE Seller Provides Immediate Response*

The following requirements apply if the Seller Response Code indicates success.

[R73] When providing a Quote with an Immediate Quote Response of FALSE and the Seller is providing an Immediate Quote Response, the Seller **MUST** specify the Quote State attribute in Table 14 in the Quote. This **MUST** be either ANSWERED, ORDERABLE, ORDERABLE_ALTERNATE, UNABLE_TO_PROVIDE, or INSUFFICIENT_INFORMATION_PROVIDED.

[R74] When providing a Quote with an Immediate Quote Response of FALSE and the Seller is providing an Immediate Quote Response and the Quote state indicates ORDERABLE_ALTERNATE, then for each Quote Item in the request, the Seller **MUST** specify the Quote Items attributes in Table 15, in the Quote and at least one of the Quote Items **MUST** indicate a Quote Item State of ORDERABLE_ALTERNATE.

[R75] When providing a Quote with an Immediate Quote Response of FALSE and the Seller is providing an Immediate Quote Response and the Quote state indicates ORDERABLE, then for each Quote Item in the request, the Seller **MUST** specify the Quote Items attribute in Table 15, in the response and all of those Quote Items **MUST** indicate a Quote Item State of ORDERABLE.

[R76] When providing a Quote with an Immediate Quote Response of FALSE and the Seller is providing an Immediate Quote Response and the Quote state indicates INSUFFICIENT_INFORMATION_PROVIDED, then for at least one of the Quote Items in the request, the Seller **MUST** specify the Quote Items attribute in Table 15, in the response that indicates a Quote Item State of INSUFFICIENT_INFORMATION_PROVIDED. In this case, the Seller Quote **MUST** provide details for each Quote Item in this Create Quote Request.

9.3   Cancel or Reject Quote

The Buyer may Cancel a Quote Request that is in progress or may Reject a Quote Response that the Seller has provided. The requirements are the same for both a Cancel Request and a Reject Request. A Buyer creates a Cancel or Reject Quote Request. The Seller does not need to respond with an Accept or Reject. Instead, it is inferred that if the Seller does not return an error, that the request has been accepted.

9.3.1 Buyer Create Cancel or Reject Request

This section contains the Quote Attributes and requirements for Use Case 4 and Use Case 5. Table 16 contains the attributes that the Buyer may set in the Create Cancel or Reject Request.

[R77] A Buyer requesting to Cancel, or Reject a Quote **MUST** include the following attributes as defined in Table 16:

- Seller Quote Identifier

- Requested Quote State

[O10] The Buyer Cancel or Reject Quote Request **MAY** specify the reason attribute in Table 16.

9.3.2 Seller Create Cancel or Reject Request Response

This section defines the attributes and requirements for the Seller's response to a Create Cancel or Reject Request. If the response does not include an error, the request is considered accepted and the Seller takes the appropriate action on the Quote.

[R78] When providing a response to a Buyer Create Cancel or Reject Request, the Seller **MUST** specify the Seller Response Code attribute shown in Table 13.

9.4 Retrieve Quote List

The Buyer's request and the Seller's response are defined in the following sections.

9.4.1 Buyer's Retrieve Quote List Request

This section contains the Quote Attributes and requirements for Use Case 2. Table 13 Table 14 contains the attributes that the Buyer may set in the Retrieve Quote List Request.

[O11] The Buyer **MAY** use any of the following filter criteria specified in Table 13 for a Retrieve Quote List request:

- Seller ID

- Buyer ID

[O12] The Buyer **MAY** use any of the following filter criteria specified in Table 14 for a Retrieve Quote List request:

- Buyer Quote Identifier

- Requested Quote Completion Date (range of dates)

- Quote Request Date (range of dates)

- Quote Completion Date (range of dates)

- Quote State

- Quote Level

- Expected Quote Completion Date (range of dates)

- Buyer Project Identifier

[O13] The Buyer **MAY** use a combination of filter criteria to avoid getting a Too Many Records response code.

9.4.2 Seller Response to Retrieve Quote List Request

The Seller responds to the Retrieve Quote List request with the attributes shown in Table 13 and Table 14.

[R79] The Seller's response to the Buyer's Retrieve Quote List request **MUST** contain the following from Table 13 and Table 14 for each Quote Identifier that matches the filter criteria:

- Seller ID

- Buyer ID

- Seller Response Code

- Quote Identifier

- Buyer Quote Identifier

- Quote Request Date

- Quote Completion Date

- Quote Completion State

- Quote State

- Quote Level

- Expected Quote Completion Date

- Buyer Project Identifier

- Requested Quote Completion Date

[R80]   If the Seller Response Code does not indicate success, the Seller **MUST NOT** reply with any of the attributes in Table 14.

9.5   Retrieve Quote by Quote Identifier

The Buyer's request and the Seller's response for Use Case 3 are shown in the following sections.

9.5.1   Buyer Retrieve Quote by Quote Identifier Request

The Buyer's request uses the Quote Identifier attribute from Table 14.

[R81]   The Buyer **MUST** include the Quote Identifier as specified in Table 14 in their Retrieve Quote by Quote Identifier request.

9.5.2   Seller Response to Retrieve Quote by Quote Identifier Request

The attributes with which the Seller responds to the Buyer's Retrieve Quote by Quote Identifier Request are shown in this section.

	ACCEPTED	CANCELLED	EXPIRED	IN_PROGRESS	IN_PROGRESS_DRAFT	INSUFFICIENT_INFORMATION_PROVIDED	ORDERABLE	ORDERABLE_ALTERNATE	REJECTED	UNABLE_TO_PROVIDE
Seller ID	E	E	E	E	E	E	E	E	E	E
Buyer ID	E	E	E	E	E	E	E	E	E	E
Seller Response Code	M	M	M	M	M	M	M	M	M	M
Quote Identifier	M	M	M	M	M	M	M	M	M	M
Buyer Quote Identifier	E	E	E	E	E	E	E	E	E	E
Buyer Project Identifier	E	E	E	E	E	E	E	E	E	E
Description	E	E	E	E	E	E	E	E	E	E
Quote State	M	M	M	M	M	M	M	M	M	M
Quote Request Date	M	M	M	M	M	M	M	M	M	M
Quote IN_PROGRESS Date				M						
Quote IN_PROGRESS_DRAFT Date					M					
Quote REJECTED Date									M	
Quote EXPIRED Date			M							
Quote ACCEPTED Date	M									
Expected Quote Completion Date				M	M					

	ACCEPTED	CANCELLED	EXPIRED	IN_PROGRESS	IN_PROGRESS_DRAFT	INSUFFICIENT_INFORMATION_PROVIDED	ORDERABLE	ORDERABLE_ALTERNATE	REJECTED	UNABLE_TO_PROVIDE
Valid Until Date							M	M		
Quote Completion Date		M		M	M	M	M	M		M
Quote Completion State		M		M	M	M	M	M		M
Buyer Requested Quote Level	E	E	E	E	E	E	E	E	E	E
Quote Level	M	M	M	M	M	M	M	M	M	M
Immediate Quote Response	E	E	E	E	E	E	E	E	E	E
Requested Quote Completion Date	E	E	E	E	E	E	E	E	E	E
Note	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller
Buyer Contact Information	E	E	E	E	E	E	E	E	E	E
Seller Contact Information	M	M	M	M	M	M	M	M	M	M
Quote Item Reference Number	E	E	E	E	E	E	E	E	E	E
Quote Item Product Action	E	E	E	E	E	E	E	E	E	E
Requested Quote Item Term	E	E	E	E	E	E	E	E	E	E
Requested Quote Item Installation Interval	E	E	E	E	E	E	E	E	E	E

	ACCEPTED	CANCELLED	EXPIRED	IN_PROGRESS	IN_PROGRESS_DRAFT	INSUFFICIENT_INFORMATION_PROVIDED	ORDERABLE	ORDERABLE_ALTERNATE	REJECTED	UNABLE_TO_PROVIDE
Product Identifier	E	E	E	E	E	E	E	E	E	E
Product Offering Identifier	E	E	E	E	E	E	E	E	E	E
Product Specific Attributes	E	E	E	E	E	E	E	E	E	E
Subject to Feasibility Check	M		M		M		M	M	M	
Place Relationship	E	E	E	E	E	E	E	E	E	E
Quote Item Location Contact	E	E	E	E	E	E	E	E	E	E
Quote Item Technical Contact	E	E	E	E	E	E	E	E	E	E
Quote Item Relationship	E	E	E	E	E	E	E	E	E	E
Product Relationship	E	E	E	E	E	E	E	E	E	E
Note	E – Buyer / M - Seller	E – Buyer / M - Seller	E – Buyer / M - Seller	E – Buyer / M - Seller	E – Buyer / M - Seller	E – Buyer / M - Seller	E – Buyer / M - Seller	E – Buyer / M - Seller	E – Buyer / M - Seller	E – Buyer / M - Seller
Agreement	E	E	E	E	E	E	E	E	E	E
POQ Item	E	E	E	E	E	E	E	E	E	E
Quote Item State	M	M	M	M	M	M	M	M	M	M
Quote Item Price	M		M		M		M	M	M	
Quote Item Term	M		M		M		M	M	M	

	ACCEPTED	CANCELLED	EXPIRED	IN_PROGRESS	IN_PROGRESS_DRAFT	INSUFFICIENT_INFORMATION_PROVIDED	ORDERABLE	ORDERABLE_ALTERNATE	REJECTED	UNABLE_TO_PROVIDE
Quote Item Deal Reference	E	E	E	E	E	E	E	E	E	E
Quote Item Installation Interval	M		M		M		M	M	M	
Quote Item Termination Error	M	M	M	M	M	M	M	M	M	M

Table 30 – Seller Response to Query by ID FIRM Quote Level

	ANSWERED	CANCELLED	EXPIRED	IN_PROGRESS	INSUFFICIENT_INFORMATION_PROVIDED	UNABLE_TO_PROVIDE
Seller ID	E	E	E	E	E	E
Buyer ID	E	E	E	E	E	E
Seller Response Code	M	M	M	M	M	M
Quote Identifier	M	M	M	M	M	M
Buyer Quote Identifier	E	E	E	E	E	E
Buyer Project Identifier	E	E	E	E	E	E
Description	E	E	E	E	E	E
Quote State	M	M	M	M	M	M
Quote Request Date	M	M	M	M	M	M
Quote IN_PROGRESS Date				M		

	ANSWERED	CANCELLED	EXPIRED	IN_PROGRESS	INSUFFICIENT_INFORMATION_PROVIDED	UNABLE_TO_PROVIDE
Quote IN_PROGRESS_DRAFT Date	NA	NA	NA	NA	NA	NA
Quote REJECTED Date	NA	NA	NA	NA	NA	NA
Quote EXPIRED Date			M			
Quote ACCEPTED Date	M					
Expected Quote Completion Date				M		
Valid Until Date	NA	NA	NA	NA	NA	NA
Quote Completion Date		M		M	M	M
Quote Completion State		M		M	M	M
Buyer Requested Quote Level	E	E	E	E	E	E
Quote Level	M	M	M	M	M	M
Immediate Quote Response	E	E	E	E	E	E
Requested Quote Completion Date	E	E	E	E	E	E
Note	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller
Buyer Contact Information	E	E	E	E	E	E
Seller Contact Information	M	M	M	M	M	M

	ANSWERED	CANCELLED	EXPIRED	IN_PROGRESS	INSUFFICIENT_INFORMATION_PROVIDED	UNABLE_TO_PROVIDE
Quote Item Reference Number	E	E	E	E	E	E
Quote Item Product Action	E	E	E	E	E	E
Requested Quote Item Term	E	E	E	E	E	E
Requested Quote Item Installation Interval	E	E	E	E	E	E
Product Identifier	E	E	E	E	E	E
Product Offering Identifier	E	E	E	E	E	E
Product Specific Attributes	E	E	E	E	E	E
Subject to Feasibility Check	NA	NA	NA	NA	NA	NA
Place Relationship	E	E	E	E	E	E
Quote Item Location Contact	E	E	E	E	E	E
Quote Item Technical Contact	E	E	E	E	E	E
Quote Item Relationship	E	E	E	E	E	E
Product Relationship	E	E	E	E	E	E
Note	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller	E – Buyer M - Seller
Agreement	E	E	E	E	E	E

	ANSWERED	CANCELLED	EXPIRED	IN_PROGRESS	INSUFFICIENT_INFORMATION_PROVIDED	UNABLE_TO_PROVIDE
POQ Item	E	E	E	E	E	E
Quote Item State	M	M	M	M	M	M
Quote Item Price	M		M			
Quote Item Term	M		M			
Quote Item Deal Reference	E	E	E	E	E	E
Quote Item Installation Interval	M		M			
Quote Item Termination Error	M	M	M	M	M	M

Table 31 - Seller Response to Query by ID BUDGETARY Quote Level

[R82]   If the Seller Response Code does not indicate success, the Seller **MUST NOT** specify the Quote Identifier attribute in Table 14 in the response.

[R83]   If the Seller Response Code does not indicate success, the Seller **MUST NOT** specify any of the following attributes in Table 14 in the response: Quote Identifier, Quote State, Seller Contact Information, and Quote Items.

[R84]   If the Seller Response Code indicates success, the Seller's response to a Buyer Retrieve Quote by Quote Identifier request with a Quote Level = FIRM, the Seller **MUST** specify the attributes as shown in Table 30.

[R85]   If the Seller Response Code indicates success, the Seller's response to a Buyer Retrieve Quote by Quote Identifier request with a Quote Level = BUDGETARY, the Seller **MUST** specify the attributes as shown in Table 31.

[R86]   Each Quote Item in the Seller's response **MUST** correspond to one and only one Quote Item in the Buyer's Create Quote Request.

The following apply to pricing as shown in Table 17, Table 18, and Table 25

[R87]   If the Quote state is ORDERABLE or ORDERABLE_ALTERNATE and the state of all Quote Items is ORDERABLE or ORDERABLE_ALTERNATE the Seller **MUST** provide a Quote Item Price for each Quote Item including the following attributes shown in Table 18:

- Quote Item Price Name

- Quote Item Price Type

- Quote Item Price Unit of Measure

- Quote Item Price

[R88]   If the Quote state is ORDERABLE or ORDERABLE_ALTERNATE and the state of all Quote Items is ORDERABLE or ORDERABLE_ALTERNATE the Seller **MUST** provide a Price Duty Free Amount for each Quote Item including the following attributes shown in Table 25.

[R89]   If the Quote State is IN_PROGRESS_DRAFT the request **MUST** include Quote Item Price for each Quote Item including the following attributes shown in Table 18:

- Quote Item Price Name

- Quote Item Price Type

- Quote Item Price Unit of Measure

- Quote Item Price

[R90]   If the Quote state is IN_PROGRESS_DRAFT, the Quite Items **MUST** all be in the IN_PROGRESS_DRAFT state.

[R91]   If the Quote Item is in IN_PROGRESS_DRAFT state it **MUST** include Price Duty Free Amount as shown in Table 25.

9.6   Register for Quote Notifications

The Buyer's request and the Seller's response for Use Case 7 are shown in the following sections.

9.6.1   Buyer Register for Notification Request

The Buyer's request uses the attributes from Table 26.

[R92]   When making a Register for Notification request, the Buyer **MUST** specify the Notification Target Information, List of Notification Types, and Action attributes shown in Table 26.

[R93]   If the Action attribute is START, the Buyer **MUST** specify the List of Notification Types to be started.

[R94]   If the Action attribute is STOP, the Buyer **MUST** specify the List of Notification Types to be stopped.

9.6.2   Seller Response to a Register for Notification Request

The Seller's response to a Buyer's Register for Notification request uses the Seller Response Code from Table 13.

[R95]   When responding to a Quote notification request, the Seller **MUST** specify the Seller Response Code attribute shown in Table 13.

9.7   Quote Notification

This section contains the Attributes and requirements for Use Case 7 as shown in Table 27. The following requirements apply to the Seller Quote Notification.

 [O14]   The Seller **MAY** support Quote Notifications.

[CR4]<[O14]The Seller **MUST** be able to send Quote Notifications to Buyers for both Immediate Quote Responses and Deferred Quote Notifications.

[CR5]<[O14]Quote Notifications for Immediate Quote Responses **MUST** indicate when a quote has changed from the ORDERABLE_ALTERNATE or ORDERABLE states to one of the end states (REJECTED, EXPIRED, or ACCEPTED).

[CR6]<[O14]The Seller **MUST NOT** send Quote Notifications to Buyers who have not registered for Quote Notifications.

[CR7]◁[O14]The Seller **MUST** send Quote Notifications to Buyers who have registered for Quote Notifications.

[CR8]◁[O14]Quote Notifications **MUST** include the Attributes shown in Table 27.

10 Process Flows

10.1   Quote Process Flow

The Quote process flows are shown below. The diagrams capture various states that the Quote goes through in its lifecycle. The specific states are managed by the Seller based on its processing and/or based on Buyer's action. If the Buyer subscribes to Quote state change notifications, they will receive a notification every time the state changes.

[R96]   For a Quote with a Quote Level of FIRM, the Seller **MUST** support Quote states and their associated state transitions as shown in Figure 3 and Table 32.

[R97]   For a Quote with a Quote Level of BUDGETARY, the Seller **MUST** support Quote states and their associated state transitions as shown in Figure 5 and Table 33.

[R98]   For a Quote with a Quote Level of FIRM the Seller **MUST** support Quote Item states, and their associated state transitions shown in, Figure 6 and Table 33, Table 34.

[R99]   For a Quote with a Quote Level of BUDGETARY the Seller **MUST** support Quote Item states, and their associated state transitions shown in Figure 7 Table 34Table 35.
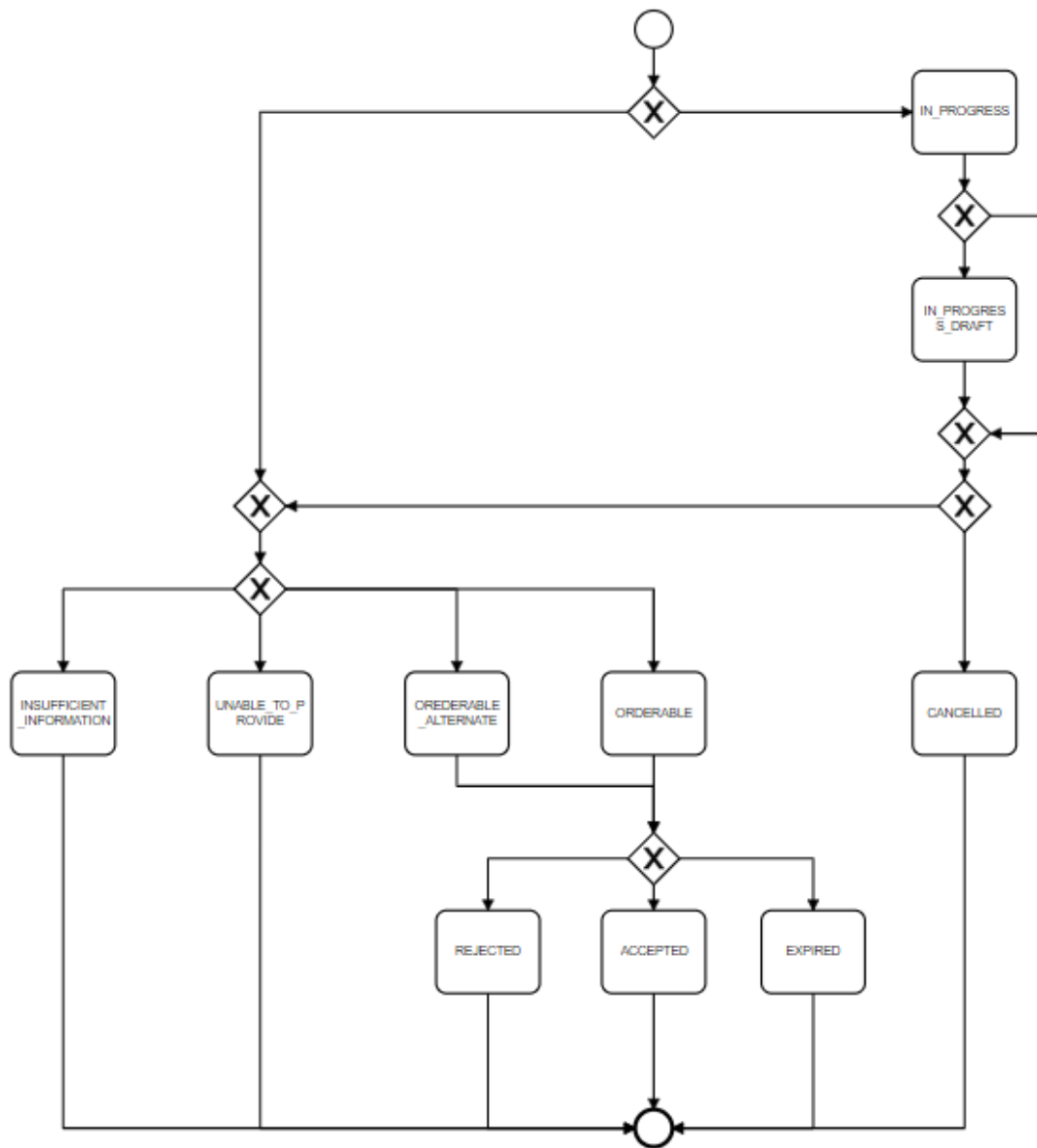
Figure 4 – FIRM Buyer Quote Level Quote Process Flow

Note: Figure 4 reflects a Quote Request with a Quote Level of FIRM which can result in a Seller Quote of either FIRM or FIRM – SUBJECT_TO_FEASIBILITY_CHECK.

The definitions of the various quote states for a FIRM Quote Level are as follows:

State	Description
ACCEPTED	The ACCEPTED state is set by the Seller. It is triggered by a product order. All Quote Items must be in an ORDERABLE or ORDERABLE_ALTERNATE state. In that case, the Quote moves from the ORDERABLE_ALTERNATE state to the ACCEPTED state.
CANCELLED	A quote can only be cancelled when it is in an IN_PROGRESS state or an IN_PROGRESS_DRAFT state. The CANCELLED state is when the quote process is stopped by a Buyer through an explicit Cancel Request. Quote items might be in an IN_PROGRESS, IN_PROGRESS_DRAFT, or ORDERABLE state. Any Quote Items in an IN_PROGRESS or IN_PROGRESS_DRAFT state are moved to an ABANDONED state. The Seller moves the Quote Request to the CANCELLED state upon the receipt of a Cancel Request from the Buyer.
EXPIRED	This state is set by the Seller from an ORDERABLE state or ORDERABLE_ALTERNATE state to indicate that the Valid Until date for the quote has passed and quote will no longer be honored. All the Quote Items must be in an ORDERABLE or ORDERABLE_ALTERNATE state
IN_PROGRESS	The IN_PROGRESS state is when the quote is currently in the hands of the Seller to build it according to the Buyer's requirements. The pricing and expected completion date should be updatable in this state. At least one Quote Item is in an IN_PROGRESS state. No Quote Items may be in an UNABLE_TO_PROVIDE or INSUFFIENT_INFORMATION_PROVIDED state.

State	Description
IN_PROGRESS_DRAFT	The IN_PROGRESS_DRAFT state is when the Seller has provided a Quote in answer to the Buyer's request. The Seller is continuing to work on the quote and the quote cannot be referenced in an order in this state. At least one Quote Item is in an IN_PROGRESS_DRAFT state. No Quote Items are in an UNABLE_TO_PROVIDE or INSUFFIENT_INFORMATION_PROVIDED state.
INSUFFICIENT_INFORMATION_PROVIDED	This state is set by the Seller when they do not have sufficient information for one or more Quote Items to respond to the Buyer's Quote Request. The Quote Request moves to INSUFFICIENT_INFORMATION_PROVIDED when one Quote Item is in an INSUFFICIENT_INFORMATION_PROVIDED state. Any Quote Items in an IN_PROGRESS state are moved to an ABANDONED state. When a quote is in the INSUFFICIENT_INFORMATION_PROVIDED state, some Quote Items might be in the ORDERABLE state. An Instantaneous Response can move from Start to the INSUFFICIENT_INFORMATION_PROVIDED state without going through the IN_PROGRESS state.
ORDERABLE_ALTERNATE	This state is set by the Seller when they have provided a Quote and have either decided that they will not perform any further work on the quote or the Seller's Quote contains a Quote Item Installation Interval and Quote Item Installation Interval Value that are > the Requested Quote Item Installation Interval and Requested Quote Item Installation Interval Value. Quote items are in the ORDERABLE_ALTERNATE or ORDERABLE state. From ORDERABLE or ORDERABLE_ALTERNATE the quote can move to the REJECTED, EXPIRED, or ACCEPTED states.

State	Description
ORDERABLE	The ORDERABLE state is where the quote has been internally approved by the Seller and is ready for the Buyer to review. All Quote Items must be in an ORDERABLE state. An Immediate Response can move from Start to ORDERABLE state without going through the IN_PROGRESS state.
REJECTED	The REJECTED state is used when the Buyer does not wish to progress with the quotation. The Buyer requests the state of the quote to REJECTED through a Reject Request. In order for a Buyer to reject the quote, all Quote Items must be in an ORDERABLE or ORDERABLE_ALTERNATE state. The Seller moves the Quote Request to REJECTED state.
UNABLE_TO_PROVIDE	This state is set by the Seller when they are not able to provide a Quote. The Seller may be unable to provide a Quote because they are unable to provide one or more Quote Items or because they are unable to provide a Price for a Quote Request with a Firm Quote Level. The Quote Request moves to UNABLE_TO_PROVIDE when one Quote Item is in an UNABLE_TO_PROVIDE state. Any Quote Items in an IN_PROGRESS state are moved to an ABANDONED state. When a quote is in the UNABLE_TO_PROVIDE state, some Quote Items might be in the ORDERABLE state. An Immediate Response can move from Start to the UNABLE_TO_PROVIDE state without going through the IN_PROGRESS state.

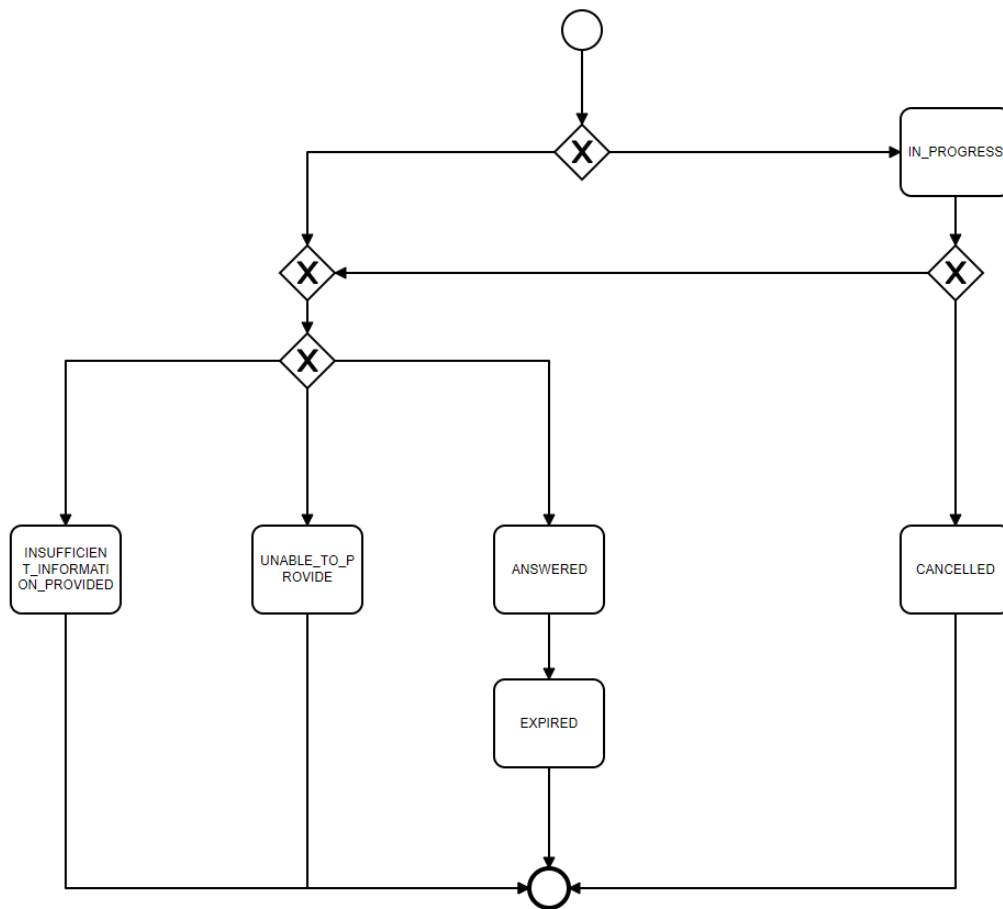**Table 32 – Firm Quote State Values**

Figure 5 – BUDGETARY Buyer Quote Level Quote Process Flow

The definitions of the various quote states for BUDGETARY Quote Level are as follows:

State	Description
ANSWERED	The ANSWERED state is applied when a Buyer Requested Quote Level is BUDGETARY, and the Seller has provided a Quote to answer the Buyer's Quote Request. When the Quote Request is in the ANSWERED state, all Quote Items must be in a terminal state.

State	Description
CANCELLED	A quote can only be cancelled when it is in an IN_PROGRESS state or an IN_PROGRESS_DRAFT state. The CANCELLED state is when the quote process is stopped by a Buyer through an explicit Cancel Request. Quote items might be in an IN_PROGRESS, IN_PROGRESS_DRAFT, or ORDERABLE state. Any Quote Items in an IN_PROGRESS state are moved to an ABANDONED state. The Seller moves the Quote Request to the CANCELLED state upon the receipt of a Cancel Request from the Buyer.
EXPIRED	This state is set by the Seller from an ORDERABLE state or ORDERABLE_ALTERNATE state to indicate that the Valid Until date for the quote has passed and quote will no longer be honored. All the Quote Items must be in an ORDERABLE or ORDERABLE_ALTERNATE state
IN_PROGRESS	The IN_PROGRESS state is when the quote is currently in the hands of the Seller to build it according to the Buyer's requirements. The pricing and expected completion date should be updatable in this state. At least one Quote Item is in an IN_PROGRESS state. No Quote Items may be in an UNABLE_TO_PROVIDE or INSUFFIENT_INFORMATION_PROVIDED state.

State	Description
INSUFFICIENT_INFORMATION_PROVIDED	This state is set by the Seller when they do not have sufficient information for one or more Quote Items to respond to the Buyer's Quote Request. The Quote Request moves to INSUFFICIENT_INFORMATION_PROVIDED when one Quote Item is in an INSUFFICIENT_INFORMATION_PROVIDED state. Any Quote Items in an IN_PROGRESS state are moved to an ABANDONED state. When a quote is in the INSUFFICIENT_INFORMATION_PROVIDED state, some Quote Items might be in the ORDERABLE state. An Instantaneous Response can move from Start to the INSUFFICIENT_INFORMATION_PROVIDED state without going through the IN_PROGRESS state.
UNABLE_TO_PROVIDE	This state is set by the Seller when they are not able to provide a quote. The Seller may be unable to provide a Quote because they are unable to provide one or more Quote Items or because they are unable to provide a Price for a Quote Request with a Firm Quote Level. The Quote Request moves to UNABLE_TO_PROVIDE when one Quote Item is in an UNABLE_TO_PROVIDE state. Any Quote Items in an IN_PROGRESS state are moved to an ABANDONED state. When a quote is in the UNABLE_TO_PROVIDE state, some Quote Items might be in the ORDERABLE state. An Instantaneous Response can move from Start to the UNABLE_TO_PROVIDE state without going through the IN_PROGRESS state.

Table 33 – BUDGETARY Quote State Values

10.2   Quote Item Process Flow

There are two Quote Item process flows. One when the Buyer Requested Quote Level is BUDGETARY and one when the Buyer Requested Quote Level is FIRM. These are shown below. The diagrams capture various states that the Quote Item goes through in its lifecycle. The specific states are managed by the Seller based on its processing and/or based on Buyer's action.
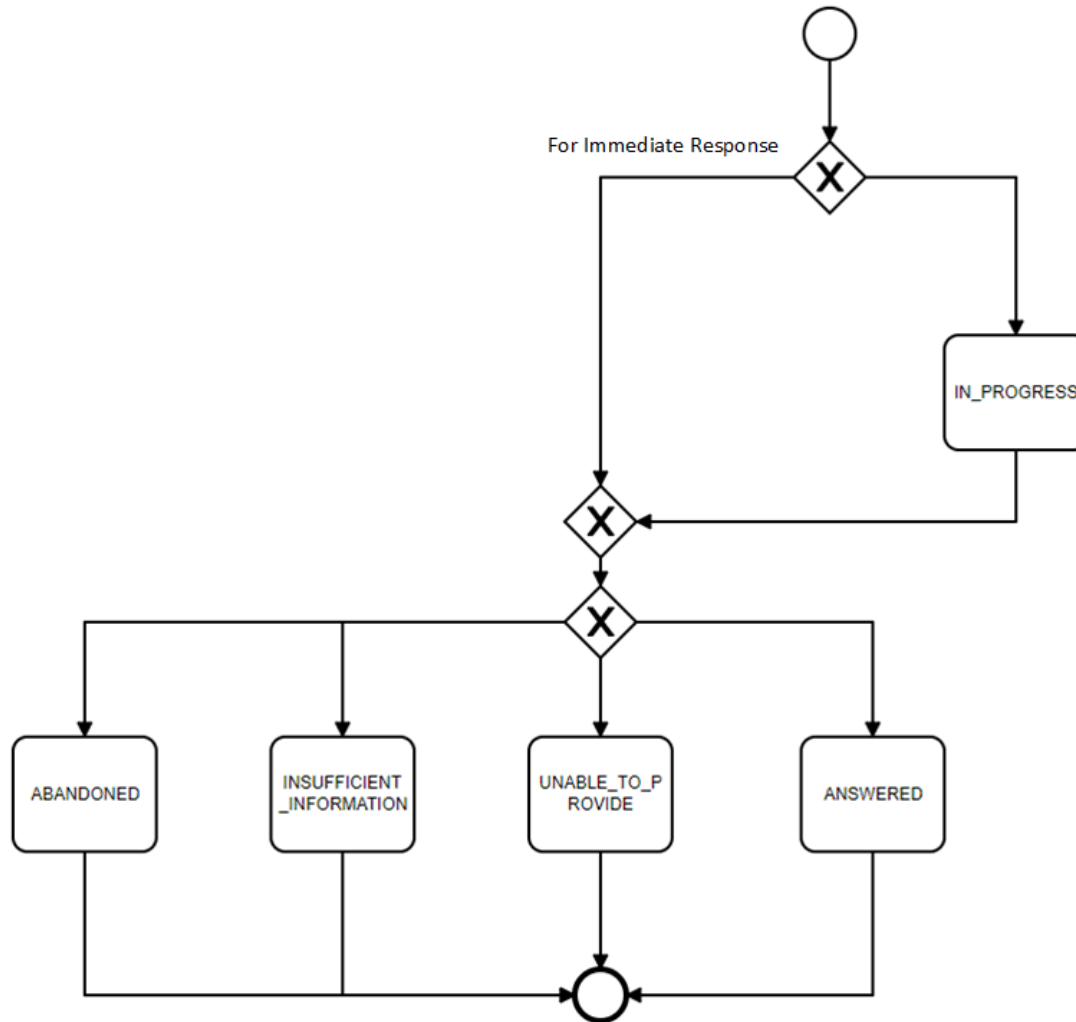
Figure 6 – BUDGETARY Buyer Requested Quote Level Quote Item Process Flow

The definitions of the various Quote Item states for a BUDGETARY Quote Level are as follows:

State	Description
ABANDONED	The ABANDONED state is applied to Quote Items that are in an IN_PROGRESS state when the quote is moved to a terminal state.
ANSWERED	The ANSWERED state is applied when a Buyer Requested Quote Level is BUDGETARY, and the Seller has provided a Quote in answer to the Buyer's Quote Request.

State	Description
IN_PROGRESS	The IN_PROGRESS state is applied when the Quote Item is currently in the hands of the Seller to build it regarding Buyer requirements. The Quote Item is under construction.
INSUFFICIENT_INFORMATION_PROVIDED	This state is set by the Seller when they do not have sufficient information for the Quote Item to respond to the Buyer's Quote Request. An Immediate Quote Response can move from Start to the INSUFFICIENT_INFORMATION_PROVIDED state without going through the IN_PROGRESS state. A Deferred Quote Response can move from Start to INSUFFICIENT_INFORMATION_PROVIDED or can move from IN_PROGRESS to INSUFFICIENT_INFORMATION_PROVIDED if the Seller determines that to provide a different Quote Level Quote they do not have all the information required.
UNABLE_TO_PROVIDE	The UNABLE_TO_PROVIDE state is set on a Quote Item when the Seller cannot provide a quote for this item. The Seller may be unable to provide the Quote Item because they are unable to provide the requested Quote Item. An Instantaneous Response can move from Start to the UNABLE_TO_PROVIDE state without going through the IN_PROGRESS state.

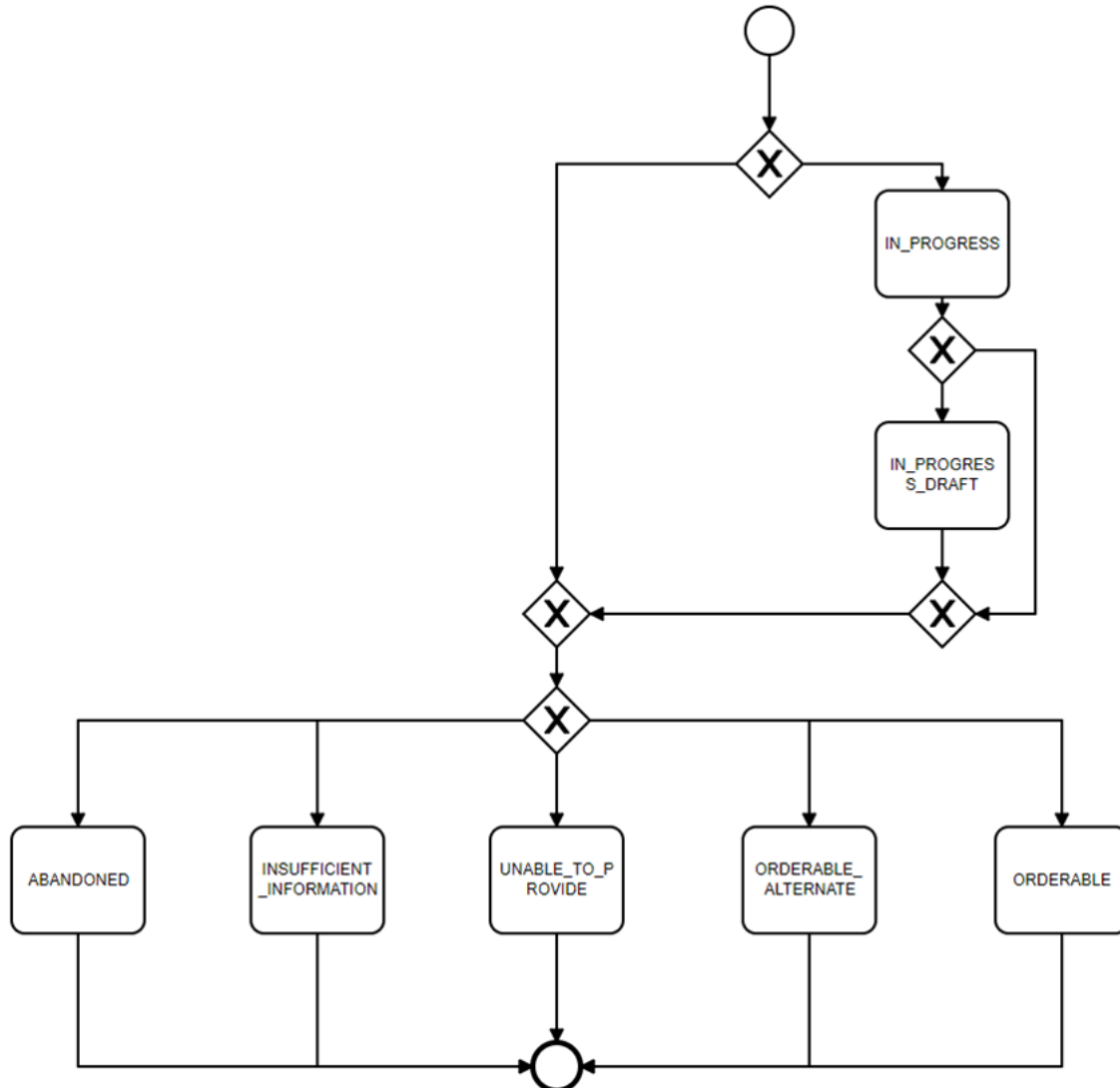**Table 34 – BUDGETARY Quote Item State Values**

Figure 7 – FIRM Buyer Requested Quote Level Quote Item Process Flow

The definitions of the various Quote Item states for a FIRM Quote Level are as follows:

State	Description
ABANDONED	The ABANDONED state is applied to Quote Items that are in an IN_PROGRESS state when the quote is moved to a terminal state.
IN_PROGRESS	The IN_PROGRESS state is applied when the Quote Item is currently in the hands of the Seller to build it regarding Buyer requirements. The Quote Item is under construction.

State	Description
IN_PROGRESS_DRAFT	The IN_PROGRESS_DRAFT state is applied to a Buyer Requested Quote Level is FIRM and the Seller is providing a Quote in answer to the Buyer's request for this Quote Item the Quote may be subject to revision.
INSUFFICIENT_INFORMATION_PROVIDED	This state is set by the Seller when they do not have sufficient information for the Quote Item to respond to the Buyer's Quote Request. An Immediate Quote Response can move from Start to the INSUFFICIENT_INFORMATION_PROVIDED state without going through the IN_PROGRESS state. A Deferred Quote Response can move from Start to INSUFFICIENT_INFORMATION_PROVIDED or can move from IN_PROGRESS or IN_PROGRESS_DRAFT to INSUFFICIENT_INFORMATION_PROVIDED if the Seller determines that to provide a different Quote Level they do not have all the information required.
ORDERABLE_ALTERNATE	This state is set by the Seller when they have provided IN_PROGRESS_DRAFT Quote for this Quote Item and have either decided that they will not perform any further work on the Quote or the Seller's Quote contains a Quote Item Installation Interval and Quote Item Installation Interval Value that are > the Requested Quote Item Installation Interval and Requested Quote Item Installation Interval Value.
ORDERABLE	The ORDERABLE state is where the Quote Item has been internally approved by the Seller. An Instantaneous Response can move from Start to ORDERABLE state without going through the IN_PROGRESS state.
UNABLE_TO_PROVIDE	The UNABLE_TO_PROVIDE state is set on a Quote Item when the Seller cannot provide a quote for this item. The Seller may be unable to provide the Quote Item because they are unable to provide the requested Quote Item. An Instantaneous Response can move from Start to the UNABLE_TO_PROVIDE state without going through the IN_PROGRESS state.

Table 35 – FIRM Quote Item State Values

Table 36 shows the allowable Quote Item states for each Quote state when the Quote Level is FIRM. As an example, if the Quote State is ACCEPTED, the state of the Quote Items in that Quote are either IN_PROGRESS or ORDERABLE.

Quote State	Quote Items State						
	ABANDONED	IN_PROGRESS	IN_PROGRESS_DRAFT	INSUFFICIENT_INFORMATION_PROVIDED	ORDERABLE_ALTERNATE	ORDERABLE	UNABLE_TO_PROVIDE
ACCEPTED					X	X	
CANCELLED	X			X	X	X	X
EXPIRED					X	X	
IN_PROGRESS		X	X		X	X	
IN_PROGRESS_DRAFT			X		X	X	
INSUFFICIENT_INFORMATION_PROVIDED	X			X	X	X	X
ORDERABLE_ALTERNATE					X	X	
ORDERABLE						X	
REJECTED					X	X	
UNABLE_TO_PROVIDE	X			X	X	X	X

Table 36 – Allowable Quote Item States per Quote State for FIRM Quote Level

Table 36 shows the allowable Quote Item states for each Quote state when the Quote Level is BUDGETARY. As an example, if the Quote State is ANSWERED, the state of the Quote Items in that Quote are either ANSWERED, UNABLE_TO_PROVIDE, or INSUFFICIENT_INFORMATION_PROVIDED.

Quote State	Quote Items State				
	ABANDONED	ANSWERED	IN_PROGRESS	INSUFFICIENT_INFORMATION_PROVIDED	UNABLE_TO_PROVIDE
ANSWERED		X		X	X
CANCELLED	X				
EXPIRED		X		X	X
IN_PROGRESS		X	X		
INSUFFICIENT_INFORMATION_PROVIDED	X			X	
UNABLE_TO_PROVIDE	X				X

Table 37 – Allowable Quote Item States per Quote State for BUDGETARY Quote Level

11 References

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[12]   TMF622, TM Forum, TMF622 Product Ordering Management API REST Specification R19.0.1, November 2019.

[13]   TMF637 TM Forum, *TMF637 Product Inventory Management API REST Specification R16.5.1*, April 2017.