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Supplement 2
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SERIES M: TMN AND NETWORK MAINTENANCE:
INTERNATIONAL TRANSMISSION SYSTEMS,
TELEPHONE CIRCUITS, TELEGRAPHY, FACSIMILE
AND LEASED CIRCUITS

Telecommunications management network

Enhanced Telecom Operations Map (eTOM)

**Supplement 2: Public B2B Business Operations
Map (BOM)**

ITU-T Recommendation M.3050 – Supplement 2

ITU-T M-SERIES RECOMMENDATIONS

**TMN AND NETWORK MAINTENANCE: INTERNATIONAL TRANSMISSION SYSTEMS, TELEPHONE
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ITU-T Recommendation M.3050

Enhanced Telecom Operations Map (eTOM)

Supplement 2

Public B2B Business Operations Map (BOM)

Summary

ITU-T Recs M.3050.x series contain a reference framework for categorizing the business activities that a service provider will use. The Enhanced Telecom Operations Map[®] (or eTOM for short), which has been developed by the TeleManagement Forum, describes the enterprise processes required by a service provider and analyse them to different levels of detail according to their significance and priority for the business. This business process approach has built on the concepts of Management Services and Functions in order to develop a framework for categorizing all the business activities.

This Supplement provides a definition of the taxonomy of B2B Transactions called the eTOM Public B2B Business Operations Map (ePBOM) and provides a taxonomy/content for the ICT industry equivalent to the RosettaNet Business Operations Map (BOM), and the proposed ebXML Repository.

Source

Supplement 2 to ITU-T Recommendation M.3050 was agreed on 7 May 2004 by ITU-T Study Group 4 (2001-2004).

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

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ITU-T Recommendation M.3050

Enhanced Telecom Operations Map (eTOM)

Supplement 2

Public B2B Business Operations Map (BOM)

1 Scope

The Enhanced Telecom Operations Map[®] (eTOM) [GB921] has been developed by the TeleManagement Forum as a reference framework for categorizing all the business activities that a service provider will use. It should be noted that the TMF retains ownership of the eTOM and copyright of the underlying IPR. The ITU-T will own the copyright on the M.3050.x series ITU-T Recommendations themselves.

This Supplement is a part of a series of ITU-T texts dealing with eTOM, and which have the following structure:

- M.3050.0: eTOM – Introduction.
- M.3050.1: eTOM – The business process framework. (TMF GB921 v4.0.)
- M.3050.2: eTOM – Process decompositions and descriptions. (TMF GB921 v4.0 Addendum D.)
- M.3050.3: eTOM – Representative process flow examples. (TMF GB921 v4.0 Addendum F.)
- M.3050.4: eTOM – B2B integration: Using B2B inter-enterprise integration with the eTOM. (TMF GB921 v4.0 Addendum B.)
- M.3050 Supplement 1: eTOM – ITIL application note. (TMF GB921 v4.0 Addendum L.)
- M.3050 Supplement 2: eTOM – Public B2B Business Operations Map (BOM). (GB921 Addendum C.)
- M.3050 Supplement 3: eTOM to M.3400 mapping.

Additional parts will be published as material becomes available.

This series of ITU-T Recs M.3050.x build on the Management Services approach described in ITU-T Recs M.3010 and M.3200 by developing a Business Process Framework.

This Supplement provides a definition of the taxonomy of B2B Transactions called the eTOM Public B2B Business Operations Map (ePBOM) and provides a taxonomy/content for the ICT industry equivalent to the RosettaNet Business Operations Map (BOM), and the proposed ebXML Repository.

2 References

- ITU-T Recommendation M.3010 (2000), *Principles for a telecommunications management network*.
- ITU-T Recommendation M.3200 (1997), *TMN management services and telecommunications managed areas: overview*.

- ITU-T Recommendation X.745 (1993) | ISO/IEC 10164-12:1994, *Information technology – Open Systems Interconnection – Systems Management: Test management function*.
- ITU-T Recommendation X.790 (1995), *Trouble management function for ITU-T applications*.

3 Definitions

The following term is defined in ITU-T Rec. M.3050.0:

- a) eTOM

4 Abbreviations

Abbreviations used in this Recommendation are defined in ITU-T Rec. M.3050.4.

5 Introduction

5.1 What need is being addressed?

While eTOM is the global *de facto* Business Process Framework at the Enterprise Level for the Telecommunications Industry, specific process frameworks and good practice guides have also been developed for use between enterprises in other industries, e.g., the Supply Chain Council, RosettaNet, Electronic Business XML (ebXML) process frameworks, and the Balanced Scorecard.

This Supplement is part of a series of texts showing how the frameworks and best practices developed and used by other industry sectors can be used together with the eTOM Business Process Framework to provide a richer and more complete Enterprise Business Process Framework.

This Supplement provides a definition of the taxonomy of B2B Transactions called the eTOM Public B2B Business Operations Map (ePBOM) and provides a taxonomy/content for the ICT industry equivalent to the RosettaNet Business Operations Map (BOM), and the proposed ebXML Repository.

There is a need for an eTOM Public B2B BOM because no other B2B initiative has a sufficient scope to support the required range of end-to-end ICT processes encountered by enterprises implementing the eTOM. The RosettaNet and ebXML B2B Models both assume the use of a registry/repository as part of the mechanism for establishing trading partnership agreements. To achieve consistency and interoperability, it is necessary to have a proposal for such a repository to support ICT inter-enterprise processes.

This Supplement provides this initial proposal and may at some stage be taken over by another industry group such as the ITU-T, RosettaNet, ITU-T SG 4, OASIS; or some combination of them in conjunction with the TMF.

5.2 ebXML repository model

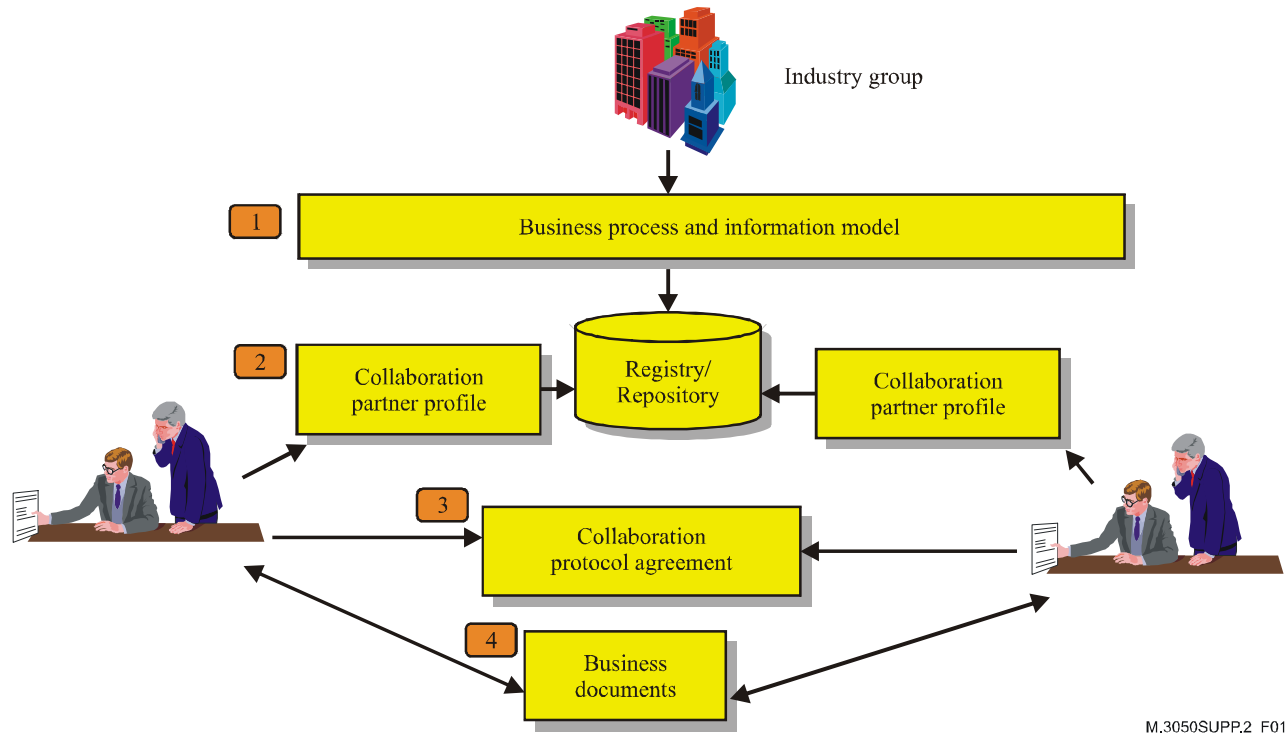


Figure 1 – ebXML repository

Figure 1 shows how enterprises use the ebXML Registry/Repository as part of the process for forming and operating automated Business Processes amongst themselves. However, there is an issue of how the Repository is created, and what is in it.

The above figure shows a simplified view of the Repository usage:

- Step 1 comprises the creation of the Repository content by industry groups;
- Step 2 is the registration of an individual enterprise profile in the Registry/Repository which describes the capabilities that it can support;
- Step 3 is the formation of a specific Collaboration Protocol Agreement (CPA) between a pair of enterprises; and
- Step 4 is the exchange of Business Documents as part of business transactions within a specific CPA.

Steps 2 to 4 are described in some detail in GB921B.

ebXML assumes that their core work will be extended to support vertical industry segments. However, no specific arrangements have been put in place to achieve this goal.

In the IT and software industries RosettaNet has extended these definitions, and has captured Business Transactions, and the Business Messages within its Partner Interchange Processes (PIP™). It has captured the definition of Business Entities through its Dictionary Structures and Dictionary Content. This taxonomy of Business Transactions – PIPs – is categorized by RosettaNet as a Business Operations Map (BOM).

Currently no equivalent of the RosettaNet Business Operations Map has been created by the ICT industry.

This Supplement provides an initial TMF eTOM proposal for such an ICT B2B Business Operations Map. It is expected that this eTOM Public B2B BOM will be adopted by either the TMF on behalf of the ICT industry or by means of some collaboration amongst industry enterprises such as the TMF, RosettaNet, OASIS, and ITU-T SG 4 (Global Telecom Data Dictionary).

Clause 6 describes the proposal for this eTOM Public B2B Business Operations Map.

References to existing functional proposals for Business Transactions based on RosettaNet and other standards such as ITU-T Rec. X.790 are for information purposes. For many of these examples there are presumed transport protocols and information modelling notations, that may or may not be suitable for eTOM B2B purposes, when mainstream e-Business standards are to be used. GB921B discusses in more detail some of the issues around technology choices for B2B.

6 eTOM Public B2B Business Operations Map

6.1 Introduction

This Supplement proposes eTOM Public B2B BOM descriptions to levels 0/1/2, and provides guidance on levels 3 and 4. This Supplement is regarded as indicative rather than definitive at this stage of industry development of telecom B2B standardization.

This breakdown is based on references to existing relevant standards from a range of bodies (see Bibliography). Some of these standards are stable with deployed implementation, and others are simply specifications. The stability of the individual Level 1/2 process proposals can be judged by whether they have been implemented or not.

6.2 Concepts

The main focus of the eTOM Public B2B BOM work [GB921B] is to extend industry B2B Business Operations Map (BOM) to meet the requirements of ICT Value Chains [TR 148].

A few points are worth re-emphasizing:

- The eTOM Public B2B BOM is conceptually a repository that allows trading relationships to be established amongst Trading Partners that may, or may not, be using an internal process model based upon the eTOM Business Process Framework. It follows the RosettaNet Conceptual Model [Rosetta].
- The B2B processes are based upon defining public processes.
- B2B processes synchronize the internal processes of two different enterprises. The method of synchronization is based upon Business Transaction Activities concept from ebXML [GB921B].
- The approach proposed is consistent with the current work in the major e-Commerce activities of the UN/CEFACT ebXML groups, RosettaNet, OAGIS CAM and nascent activities in the ITU-T:
 - Unified Ordering Model;
 - Global Telecommunications Data Dictionary (GTDD); and
 - Telecommunications Markup Language (tML).

6.3 eTOM Public B2B BOM Level 0 process area – Operations

This area of B2B processes is concerned with supporting the Operations vertical process groupings of the eTOM Business Process Framework [GB921 v4.0]. This has historically been the primary focus for automating B2B transactions since these processes are executing frequently and have high costs if they are performed manually. Moreover, automation of these B2B processes typically leads to improvements in service quality.

The proposed breakdown of this process area is based upon the eTOM Business Process Framework vertical process groupings.

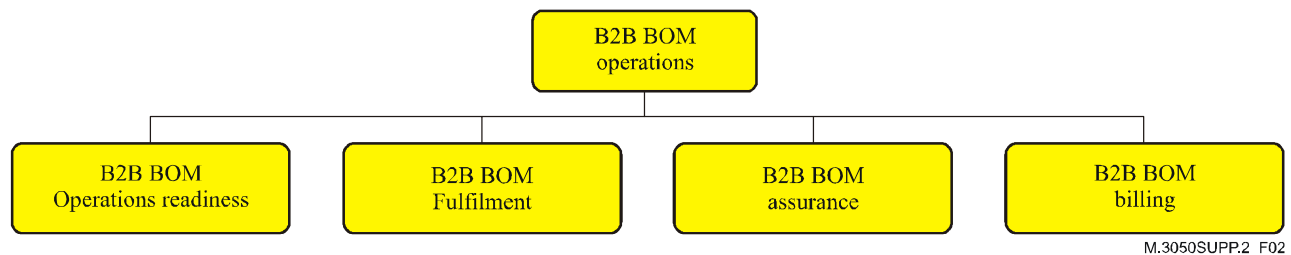


Figure 2 – eTOM Public B2B BOM operations Level 0/1

B2B BOM fulfilment: This process grouping is concerned with all the B2B public process activities that are needed to inquire about a product or service; to order and confirm the product or service delivery; to track the status of the order; to modify the order at the request of the customer; to manage appointments where provisioning requires access to customer facilities; and to complete the ordering process by acceptance of the delivery, or turning up of service.

B2B BOM assurance: This process grouping is concerned with all the B2B public process activities that are needed to monitor and maintain service quality. It covers the necessary B2B public processes for problem reporting and status notification/update, performance reporting, jeopardy management, and Service Level Agreement management.

It covers/supports the request and monitoring of remote automated diagnosis and testing between trading partners e.g., line test, alarm check, etc.

It also covers appointment processes for carrying out repair actions on the customer's facilities and confirming the customer's acceptance of the resolution of the problem.

B2B billing: This process grouping is concerned with all the B2B public process activities that are needed to invoice for service, provide service credits, provide call records, monitoring of account information, and settlement processes.

B2B operations readiness: This process grouping is concerned with all the B2B public process activities that are needed to bring in new, or modified, eTOM Public B2B BOM Processes into operational use between trading partners.

6.3.1 eTOM Public B2B BOM – Level 1 fulfilment

The proposal below (Figure 3) is a synthesis of the T1¹ ITU-T SG 4 Unified Ordering Model [UOM] and the published RosettaNet clusters [PIPdirectory].

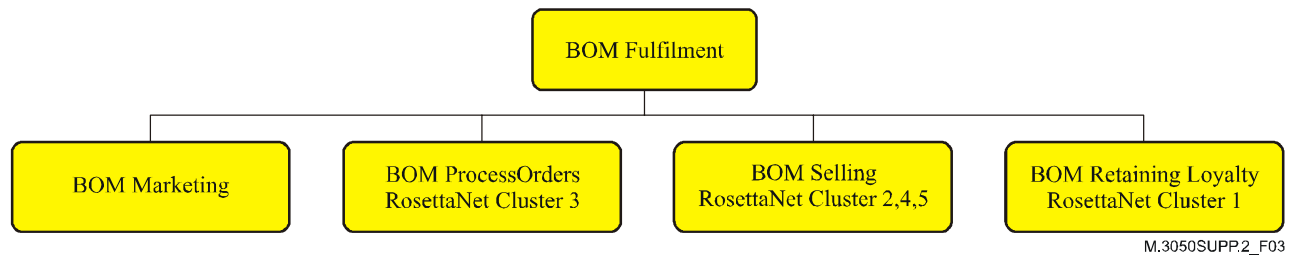


Figure 3 – eTOM Public B2B BOM fulfilment Level 1/2

B2B BOM marketing: This process grouping is concerned with all the B2B public process activities that are needed to support co-marketing and channel partner marketing activities.

B2B BOM selling: This process grouping is concerned with all the B2B public process activities that are needed to support co-selling and exchange of customer sales leads between channel partners. It includes from RosettaNet:

- Cluster 2 Product Information;
- Cluster 4 Inventory Management, Segment 4F Price Protection;
- Cluster 5 Marketing information management:
 - Segment 5A Lead Opportunity Management;
 - Segment 5B Marketing Campaign Management.

B2B BOM process orders: This process grouping is concerned with all the B2B public process activities that are needed to manage Orders from quotation through formal contract, delivery and final acceptance invoice for service. This is modelled as three phases following the UOM model and utilizes material from RosettaNet Cluster 3: Order Management:

- Preorder: This is concerned with all the activities for a customer to establish whether and how they may place an order with a Supplier. It covers inquiries related to locations Service Availability and Connecting Facility Assignment Inquiry (CFAI). The RosettaNet Segment 3A is mostly relevant:
 - Quoting Order: Segment 3A1 Request Quote and Order Entry;
 - Querying Price and Availability: Segment 3A2 Querying Price and Availability.
- Ordering: This is focused on the creation and acceptance of a Firm Order – sometimes referred to as a Service Request:
 - Create Order: Segment 3A4 Manage Purchase Order;
 - Change Order including providing supplementary information: Segment 3A8 Change Purchase Order.
- Post Confirmation:

¹ T1 standards are maintained since November 2003 by ATIS.

- Cancel Order: Segment 3A9 Cancel Purchase Order;
- Query Customer's Services;
- Query Order Status: Segment 3A5 Query Order Status;
- Notify of Order Acceptance: Segment 3A7 Notify of Purchase Order Acceptance;
- Distribute Order Status Segment 3A6 Distribute Order Status;
- Notify of Jeopardy;
- Provide updated design information.

B2B BOM retaining loyalty: This process grouping is concerned with B2B public processes for exchange of information related to retaining customers and channel partners; it includes RosettaNet Cluster 1: Partner Profile Management.

6.3.2 eTOM Public B2B BOM – Level 1 assurance

Figure 4 below proposes the breakdown of the B2B assurance Level 1 process into Level 3 process components/BTA.

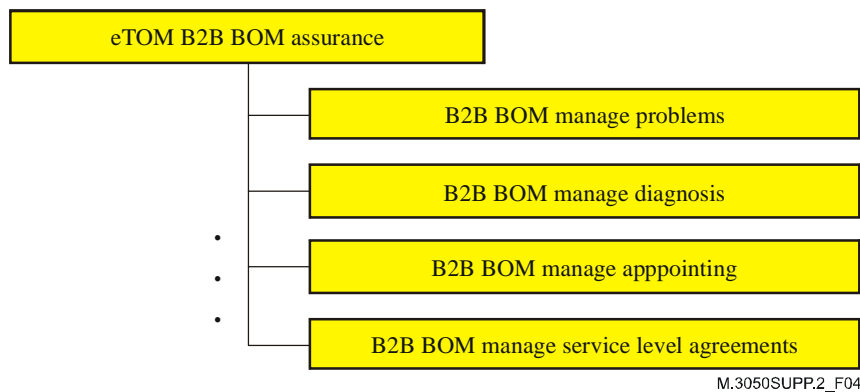


Figure 4 – eTOM Public B2B BOM assurance Level 1/2

In the Assurance Process Grouping, there is little or no previous e-commerce work to guide the structuring of the proposed eTOM Public B2B BOM, unlike fulfilment and billing. The pre-existing work on ITU-T Rec. X.790 is mainly concerned with basic trouble ticket synchronization, and the process aspects have largely been addressed in industry groups such as ATIS/ANSI T1¹, rather than standards groups.

The main Level 3 process groupings that have been identified are:

- Manage Problems.
 - Manage Diagnosis.
 - Manage Appointing that is needed for handling visits to shared facilities or customer facilities to rectify equipment faults.
- NOTE 1 – The Fulfilment processes may also use this Process.
- Manage Service Level Agreements including Jeopardy.

¹ T1 standards are maintained since November 2003 by ATIS.

NOTE 2 – The Fulfilment processes may also use this process.

B2B BOM manage problems: This process grouping is concerned with all the B2B public process steps needed to receive, record progress, clear and confirm problems. It is logically coupled to the concept of Trouble Administration and Trouble Ticketing. This may be carried out after the customer has carried out an initial diagnosis using the Managing Diagnosis processes.

It comprises a number of business transactions loosely based on ITU-T Rec. X.790²:

- Request Trouble Report (8.2.1/X.790, Enter Trouble Report).
- Request Trouble Report Closure (8.12/X.790, Cancel Trouble Report).
- Request Trouble Report Clear (8.14/X.790, Delete Telecommunications Trouble Report).
- Request Trouble Report Change (8.9/X.790, Modify Trouble Administration Information).
- Request Trouble Report Status (8.2.2/X.790).
- Review Trouble History (8.5/X.790).
- Add Trouble Information (8.6/X.790).
- Modify Trouble Administration Information (8.9/X.790).
- Update State and Status (8.17/X.790).
- Notify Trouble Report Change.
- Notify Trouble Report History Status (8.4.1/X.790, Trouble History Event Notification).
- Notify Trouble Report Status/Commitment Time Update (8.7.1/X.790).
- Notify Trouble Administration Configuration Event (8.10/X.790).
- Notify Trouble Report Progress (8.11.1/X.790).
- Notify Trouble Report Closure.
- Notify Trouble Report Clear.
- Refer Telecommunications Trouble Report (8.15/X.790).
- Transfer Telecommunications Trouble Report (8.16/X.790).
- Verify Repair Completion (8.8/X.790).

B2B BOM manage diagnosis: This process grouping is concerned with B2B public processes requesting diagnostic tests between enterprises. For example, this type of capability is needed to support Internet service providers that provide broadband over an incumbent's xDSL Access network. Often they need to initiate tests in the Access Network and get results automatically in order to decide whether repair actions are needed to the DSL access network, or in their own network, in order to clear an end-to-end problem.

It comprises:

- Initiate Test (Simple uncontrolled or one-shot test 7.2.1/X.745 | ISO/IEC 10164-12, Test initiation).
- Initiate Scheduled Test (7.2.2/X.745 | ISO/IEC 10164-12, Test scheduling).

² ITU-T Rec. X.790 has a data model view of trouble reports with use of GET and SET functions. Some judgment is needed for representing X.790 using the e-commerce message based interfaces that use 'action notification' models. This adjustment of the X.790 model needs to take account of the current business rules for using the X.790. This Supplement is an initial proposal.

- Request Test Suspension (7.2.4/X.745 | ISO/IEC 10164-12, Test suspension and resumption).
- Request Test Resumption (7.2.4/X.745 | ISO/IEC 10164-12, Test suspension and resumption).
- Cancel Test (7.2.5/X.745 | ISO/IEC 10164-12, Test termination).
- Notify Test Results (7.2.3/X.745 | ISO/IEC 10164-12).

B2B BOM manage appointments: This process grouping is concerned with B2B public processes for managing the establishment of a mutual acceptable appointment time between two trading partners. For example, to access customer premises, locked engineering or other facilities, or for joint testing between two enterprises. It includes:

- Request Appointment Availability (returns a set of appointment slots);
- Request Appointment;
- Request Appointment Change;
- Request Appointment Cancel;
- Notify Appointment Required.

B2B BOM manage service level agreements and jeopardy: This process grouping is concerned with B2B public processes for managing Service Level Agreements (SLA) established either as part of the Trading Partner Agreement processes (eTOM Public B2B BOM SIP) or during the Fulfilment processes for the provision of an instance of services. It covers the SLAs that describe the product or service that is provided and jeopardy in the processes providing or repairing an instance of service – sometimes referred to as Key Performance Indicators (KPI). National regulators often require reports on KPIs. It comprises:

- Request SLA/KPI report;
- Set SLA threshold;
- Notify SLA event;
- Notify SLA Violation;
- Notify Jeopardy Status (customer or supplier) [UOM];
- Notify Jeopardy Cleared [UOM].

6.3.3 eTOM Public B2B BOM – Level 1 B2B BOM billing

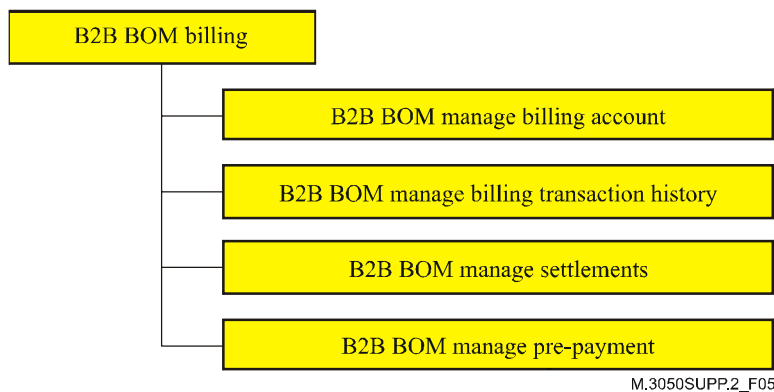


Figure 5 – eTOM Public B2B BOM billing Level 1/2

This process grouping is concerned with exchange of bills, billing and account information, pre-payment accounts, and settlement processes between trading partners. The billing process group covers: Call Detail Records, Service Detail Records. The works of the IPDR group on Detailed Usage Records [IPDR] are relevant entities. In the billing process group, a major technical focus is the proper structuring and representation of billing and accounting records, and the processing rules for this information.

The proposed breakdown is based upon published information from the Parlay Group [Parlay] and the ETSI Open Settlements Processes [TS101321] and the GSM Association Transferred Account Procedures (TAP) [GSM-TAP].

B2B BOM manage billing account: This process grouping is concerned with B2B processes for managing bill accounts. It covers the creation, modification and archiving of bill accounts.

B2B BOM manage billing transaction history: This process grouping is concerned with B2B processes for managing transaction history. It involves receiving and process queries about transactions and creating report on accounts including balance queries. This process grouping may also be used to support internal fraud management processes. Because billing transactions may be voluminous, it is common to provide file mechanisms to transfer the information, and to notify when the file information is available. It includes:

- Request Transaction History;
- Provide Periodic Transaction Histories;
- Notify Transaction History.

B2B BOM manage pre-payment: This process grouping is concerned with the B2B processes for supporting pre-payment billing. Functions that need to be supported (based upon Parlay v4 [ParlayX] and the ETSI Open Settlements Protocol [OSP]) include:

- Get Account Balance: This provides the account balance indicated by the end user identifier and associated end user PIN.
- Get Credit Expiry Date: This provides the expiration date of the credit indicated by the end user identifier and associated end user PIN.
- Recharge Account Balance: This process directly recharges the account indicated by the end user identifier and optional associated end user PIN.
- Update Voucher: This process directly recharges the account indicated by the end user identifier and optional associated end user PIN. It uses a voucher identifier that indirectly specifies the charge. An optional voucher PIN code may be used to verify the voucher.
- Get Account History: Results in return of the transaction history of the account indicated by the end user identifier and associated end user PIN.

B2B BOM manage settlements: This process grouping is concerned with B2B processes for managing settlements processes amongst trading partners. The breakdown proposed is loosely based upon the activities of the GSM Association and the business concepts of the TAP protocol. It includes:

- Establishing and modifying trading arrangements and credentials;
- Agree process for netted-off settlements;
- Exchange and confirmation of settlement payments;
- Notification.

Settlement processes of their very nature imply the use of some form of intermediary and are therefore a little more complex than the normal two party B2B processes.

6.3.4 eTOM Public B2B BOM – Level 0 strategy infrastructure and product

This process grouping is concerned with the joint development of strategy product and infrastructure amongst trading partners. Given the modest development of B2B in the ICT industry, this area is quite immature compared to manufacturing where supply chain management is more extensively developed.

It also includes the formation of Trading Partner Agreements amongst trading partners. This is referred to as Collaboration Protocol Agreements (CPA) in ebXML.

Examples of SIP processes in the ICT industry are in the development and specification of interconnect products between network operators. This is a largely manual process conducted in national groups in response to national or regional, e.g., European regulation.

For Infrastructure build, there are examples where operators exchange on a rolling basis forecasts for interconnect services by interconnection point, type and volume. For example, interconnect traffic for traffic between operators in the UK is forecast up to 18 months ahead and takes account of changes to the number and location of interconnection points, changes in numbering plans and switching centres. Usually, these forecasts are commercially 'locked down' about 90 days ahead. The longer-term forecasts are essential to driving the SIP planning processes.

There are also similar planning and provision processes used between service providers and their suppliers for network infrastructure build.

RosettaNet Cluster 4 (Inventory management) has functions similar to those described above. Cluster 7 (Manufacturing) where design information is exchanged also has some similarity with the ICT SIP processes for joint design of products.

6.3.5 eTOM Public B2B BOM – Level 0 enterprise management

This process area will support automated B2B processes amongst enterprises.

Possible candidates might include:

- The electronic exchange of financial information between an enterprise and its bank.
- B2B Security: It is expected that a security grouping will be needed to be added that is concerned with the B2B public processes to maintain trust, identity management and authorization status for trading parties and their customers. Whilst security is a generic process, there are specific processes needed to be agreed between Trading Partners to permit trading requests to be commercially processed.

These processes are unlikely to be specific to the ICT industry, and as yet are not a priority for investigation.

6.3.6 eTOM Public B2B BOM – Level 2/3 decomposition

The Level 1/2 descriptions have provided pointers to a number of B2B public process definitions that could be used in the ICT industry. These effectively reach down to the process groupings at Level 2, and provide guidance on atomic process components Levels 2 or 3. At this stage, it is felt that extension to Levels 3 and 4 processes should be carried out after industry groups have reviewed these Level 2 proposals in this Supplement more widely.

Moreover, work in the ITU-T and elsewhere is maturing and should be factored into this level of analysis in a later release.

6.4 Summary

This Supplement has provided the first analysis of the process groupings appropriate to support the eTOM Public B2B Business Operations Map. Because the work links into industry activities such as ebXML, RosettaNet and other groups, many of the proposed public process decompositions provide pointers to Level 3 and Level 4 process component definitions available in the industry.

This level of analysis is sufficient to allow practical definition of example end-to-end supply chain processes amongst trading partners, some using the definition contained in the eTOM Business Process Framework as a starting point for modelling, and some using proprietary, or other internal process models.

The specifications in the B2B industry are evolving and this work is based on information available as of May 2003.

A specific issue that needs some care, is that, whilst RosettaNet is the most comprehensive set of specifications that bundle specific choices of technical solutions, e.g., RosettaNet Implementation Framework (RNIF) and specific document types, those technology choices may not be appropriate to the ICT industry.

The modelling of information for the ICT is a major challenge and this is likely to lead to an evolution from the RosettaNet mechanisms for capturing data dictionaries and different ways of structuring the business documents that are exchanged. RosettaNet itself is one of the leading partners for the evolution of these standards. The most notable is ebXML OASIS Content Assembly Mechanism (CAM) which will lead to more systematic ways of defining Business Documents that support change management more efficiently.

Readers are strongly advised to track the most update materials from ebXML, RosettaNet, ITU-T SG 4 and OASIS.

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