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SERIES M: TELECOMMUNICATION MANAGEMENT,
INCLUDING TMN AND NETWORK MAINTENANCE

Telecommunications management network

**Enhanced Telecom Operations Map (eTOM) –
B2B integration: Using B2B inter-enterprise
integration with the eTOM**

ITU-T Recommendation M.3050.4

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ITU-T Recommendation M.3050.4

Enhanced Telecom Operations Map (eTOM) – B2B integration: Using B2B inter-enterprise integration with the eTOM

Summary

ITU-T Recommendation M.3050.x sub-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 analyses 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 Recommendation contains guidance on B2B integration.

Source

ITU-T Recommendation M.3050.4 was approved on 29 March 2007 by ITU-T Study Group 4 (2005-2008) under the ITU-T Recommendation A.8 procedure.

The ITU-T M.3050.x Recommendation sub-series is based on the Enhanced Telecom Operations Map® (eTOM) which has been developed by the TeleManagement Forum (TMF).

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

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.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

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ITU-T Recommendation M.3050.4

Enhanced Telecom Operations Map (eTOM) – B2B integration: Using B2B inter-enterprise integration with the eTOM

1 Scope

The Enhanced Telecom Operations Map® (eTOM) [b-TMF GB921] has been developed by the TeleManagement Forum as a reference framework for categorizing all the business activities that a service provider will use.

This Recommendation is part of a series of ITU-T texts dealing with eTOM (Release 7.0), which have the following structure:

M.3050.0	eTOM – Introduction.
M.3050.1	eTOM – The business process framework. (TMF GB921 ~~v4.0~~ -Release 7.0).
M.3050.2	eTOM – Process decompositions and descriptions. (TMF GB921 Addendum D – Release 7.0).
M.3050.3	eTOM – Representative process flows. (TMF GB921 Addendum F – Release 4.5).
M.3050.4	eTOM – B2B integration: Using B2B inter-enterprise integration with the eTOM. (TMF GB921 Addendum B – Release 6.1).
M.3050 Supplement 1	eTOM – ITIL application note (TMF GB921 Application note V – Release 6.0).
M.3050 Supplement 2	eTOM – Public B2B Business Operations Map (BOM). (TMF GB921 Addendum C – Release 4).
M.3050 Supplement 3	eTOM to M.3400 mapping.
M.3050 Supplement 4	An eTOM primer (TMF GB921 Addendum P – Release 4.5).

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 M.3010] and [ITU-T M.3200] by developing a business process framework.

This Recommendation contains guidance on B2B Integration. It describes an approach to B2B inter-enterprise integration with the eTOM.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T M.3010]	ITU-T Recommendation M.3010 (2000), <i>Principles for a telecommunications management network</i> .
[ITU-T M.3200]	ITU-T Recommendation M.3200 (1997), <i>TMN management services and telecommunications managed areas: overview</i> .

3 Definitions

This Recommendation uses the following term defined elsewhere:

3.1 eTOM: ITU-T Rec. M.3050.0.

4 Abbreviations and acronyms

The following abbreviations and acronyms are additional to those defined in ITU-T Rec. M.3050.1:

CPA	Collaboration Protocol Agreement
CPP	Collaboration Protocol Profile
ePBOM	eTOM Public B2B Business Operations Map
IPDR	Internet Protocol Detailed Records
PO	Purchase Order
SMTP	Simple Mail Transfer Protocol
UBL	Universal Business Library

5 Introduction

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. Examples include the supply chain council, RosettaNet, electronic business XML (ebXML) process frameworks and the balanced scorecard.

This Recommendation is part of a set of Recommendations 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.

The key business problem addressed by this Recommendation is to provide an answer to the question:

'What processes does an organization have to put in place in order to deliver automated business-to-business interfaces with its trading partners?'

The key technical and business issue is:

'How to define the internal processes within an organization's jurisdiction and practically link them to public industry B2B processes defined by industry groups?'

This Recommendation introduces e-business, what it is and the impact that its emergence is having on service providers.

A simple model is presented in clause 6 that helps clarify the main concepts that relate to e-business. Clause 7 introduces some of the standardization-related activities that have emerged in response to this phenomenon. Clause 8 summarizes the main consideration in extending the eTOM business process framework to support inter-enterprise integration using B2B.

6 The emergence of e-business within the ICT market

The application of the latest technologies is transforming access to information, which in turn is revolutionizing the ways enterprises can share the information and can use it to interact with their customers and suppliers. This enhanced ability to share information is resetting customer expectations and, as they experience and adapt to this new way of conducting business, with its

improvements in both service and levels of control, they are becoming increasingly intolerant of enterprises that are incapable of delivering to these new standards.

In this new paradigm, success depends on creating new 'product offerings and experiences' in which customers see value. Value is now defined in terms of the whole customer experience including things such as fulfilment and repair times. Customers value one-stop shopping, selection choices, personalization of service and the empowerment gained from self-service. The common denominator is making life easier, simpler and complete for the customer.

To meet and deliver against these new customer expectations, information-centric business designs have to be developed and investment in technology is required to support their implementation. Priorities include the need to integrate and share data with partners and suppliers to give both a better integration of the supply chain, and a unified approach to processes such as order entry, fulfilment delivery, support and billing.

6.1 What is e-business?

e-business is understood as the interaction amongst business partners with the help of information technologies. It refers not only to buying and selling over the Internet (or other computer network), but also to servicing customers and collaborating with business partners.

The term e-business has often been interchanged with the term e-commerce. However, it is becoming increasingly accepted that the use of e-commerce should be restricted to referring to just the subset of web transactions (mainly business-to-consumer) which are used whilst buying and selling services and goods over the Internet.

An e-business enterprise is an enterprise that utilizes Internet and related technologies to compete effectively in its business space. The technologies enable it to act more efficiently and effectively by facilitating better customer interactions, streamlining interfaces with partners and suppliers and, in general, improving the quality and competitiveness of their offerings.

e-business can be characterized as communities of complementary enterprises linked together to create unique virtual business entities that are easy to reconfigure in response to evolving customer needs. The central theme of e-business becomes the delivery of 'value' by creating and utilizing end-to-end value streams that are based on an integrated and customer-centric technological foundation. Communities of complementary enterprises are tied by these streams and form an extended enterprise that is transparent to the customer.

A core focus for e-business is therefore on automating relationships between enterprises¹, in part, because relationships that were previously not possible are now economically and technically feasible; but also because it makes possible the streamlining and automation of the existing value network, resulting in significant productivity gains for all parties.

In this Recommendation, the value network represents the end-to-end set of processes and transactions established between the various suppliers and partners to create, deliver, bill and support the 'product' offered to the customer.

6.2 Implications of e-business for service providers

As new technologies and markets emerge, enterprises have to adapt or die. Technologies affect customer needs, while customer needs influence business designs. As new business designs emerge, they affect processes. In turn, processes influence customer expectation and thus the demands on the next generation of technology.

¹ These methods may also be used to form relationships between entities within an enterprise where distinct business roles are performed, such as occur between retail and wholesale businesses of a regulated service provider.

In response to this new paradigm, it is imperative that enterprises integrate business activities, technology and processes. They must redefine the way in which they operate by using new technology-based business organizational designs and processes, creating new inter-enterprise processes and integrating these with operational processes to support changing customer requirements. A service provider's business management team has to understand what can be enabled by the application of technology to their business processes and then realize a strategy that can underpin the indicated transition. Failure to do so will result in an inability to meet changing customer demands, offerings that lack in quality and perception of value by the customers, and ever increasing costs. Competition from more agile and efficient rivals will lead to the enterprise's demise.

The three principal reasons that service providers must integrate e-business with traditional business processes are, therefore:

- Customer expectations and the need to move to an approach that focuses on the management of customer relationships and the importance of improving customer retention and increasing the value customers attribute to the enterprise;
- Productivity gains and the need to ensure that these can continue to be obtained; and
- Provision of a broader range of products and services to customers – this, for the information and communications technology industry (more than almost any other industry), requires a focus on better collaboration between suppliers and partners and integration of the end-to-end processes.

The capabilities and performance requirements of the end-to-end processes required in an e-business environment are fundamentally different from those in a traditional business environment. An enterprise that is to transition successfully to e-business must determine the processes they implement based on criteria such as:

- their relevance to their customers' needs;
- the contribution they make to providing an integrated and unique identity for the enterprise; and
- how critical they are to the enterprise's operational performance.

Other considerations that should influence process design include:

- exceptions should be handled excellently, i.e., process problems are identified in real time and actions to support the customer are taken in real time;
- business rules should be easily configured and applied automatically; and
- the ability to treat a process as an asset that can be assessed, replaced and outsourced, as appropriate, to improve the operation of the enterprise.

6.3 How can a service provider migrate towards e-business?

There are several alternative approaches to implementing e-business:

- some enterprises are managing e-business (and e-commerce) aspects within separate units;
- some are overlaying e-business on traditional business operations; and
- yet other enterprises are approaching e-business as a replacement to traditional business channels.

The most successful e-business enterprises integrate e-business and traditional business channels where cost, quality and profit can be best rationalized. This requires much more than just throwing together a set of web-pages to front-end an enterprise, although integrating storefront and Web operations is clearly a key part of the model for some enterprises.

The integration of e-business and traditional business channels is the model that is judged most applicable to information and communications service providers. Undertaking such integration is typically a substantial exercise. The use of systematic business process frameworks as a basis for structuring the existing business processes (intra-enterprise integration) can have major benefits as it makes it easier to implement and deploy automated e-business channels for inter-enterprise integration.

6.4 A conceptual model for e-business

e-business involves increasingly complex networks of relationships.

Figure 1 depicts the sets of relationship groupings involved in a value network in the ICT industry. The value network must operate with the efficiency of a self-contained enterprise, which requires managing the value network as an end-to-end process rather than only from the perspective of a single enterprise. The model explicitly shows the use of the eTOM business process framework by the service provider at its core. It is only shown here to simplify the figure and its presence is not intended to imply that its use by the service provider is prescribed, just that the service provider would probably benefit from its use. Likewise, it is not intended to preclude the use of the eTOM business process framework by the other entities shown within the value network. These entities may or may not make use of the eTOM business process framework.

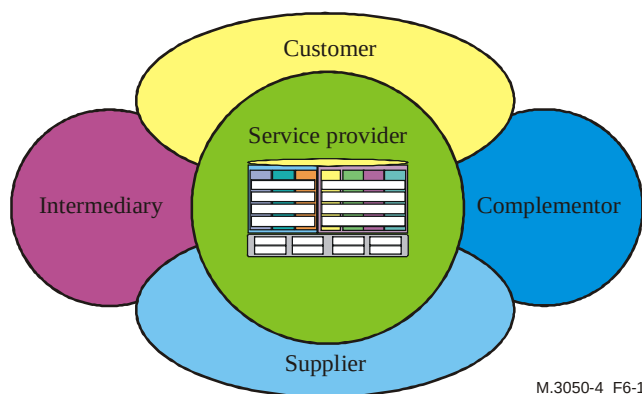


Figure 6-1 – The conceptual model for e-business²

The roles of the entities shown in Figure 6-1 – the conceptual model for e-business – are described below.

6.4.1 Customer

The customer is responsible for ordering, using and (usually) paying for the service provider's products. The customer may represent an end customer, where the product delivered by the value network is consumed, or a wholesale customer that resells the product provided, usually with some added value. Depending on the customer's activities, there may be a further refinement of this role as follows:

- The subscriber role is responsible for concluding contracts for the service provider's products subscribed to and for paying for these products.
- The end user role makes use of the products.

² Based on KEEN (P.), McDONALD (M), *The e-Process Edge: Creating Customer Value and Business Wealth in the Internet*, Osborne/McGraw-Hill, Berkeley, CA 2000.

6.4.2 Service provider

The service provider presents an integrated view of their products to the customer. It is responsible for the contractual interface with the customer to sell products to the customer, provide the customer with contact and support and bill the customer for the products supplied. The service provider can deliver some or all of a product to the customer itself, or it might subcontract out provision of parts, or even all, of the product to other service providers while maintaining the customer-facing role of the one-stop shop. The service provider is responsible for acting on behalf of the value network that it represents in relationships with intermediaries as well as with the customer.

6.4.3 Complementor

The complementary provider extends the product provided by the service provider and offers additional capability that the service provider is not itself offering to the customer, i.e., it complements the product being provided by the service provider and adds value to it, but is not essential for provision of the product itself. It could act, for instance, as a specialist content provider to a service provider that is operating a mobile phone service. The complementary provider is in a partnership with the service provider and can enhance the service provider's product to the customer with its own products, thus making interactions with the service provider more attractive and convenient for the customer. A business relationship between the complementary provider and the customer may exist, depending on the nature of the product being provided and possibly on the business culture of the environment. Frequently, products offered by a complementary provider are co-branded.

6.4.4 Intermediary

The intermediary supplies a service for a fee. For example, a localized selling function in a market of which the service provider has a limited presence and/or understanding, is a typical service provided by an intermediary. The service provided could be an information service enabling customers to locate service providers most appropriate to their specific needs, or the provision of an environment in which providers can make their products known to customers in an electronic marketplace or trading exchange (infomediary).

At a time of Internet globalization, an intermediary can play an important role as it can promote market transparency by overcoming the geographic constraints that used to limit knowledge about the products available. Functional intermediaries provide a specific function such as selling, electronic payment or authentication.

6.4.5 Supplier

The supplier interacts with the service provider in providing hardware and software solutions and services which are assembled by the service provider in order to deliver its solutions or services to the customer. The service provider is bounded by its suppliers' ability to deliver.

Note that individual enterprises can adopt multiple roles in different value networks and also multiple roles within a specific value network, e.g., one role as a retail service provider and another role as a wholesale service provider (often required by the regulator). For example, a service provider may be the customer-facing service provider in one value network and a complementor or intermediary in another. In today's rapidly changing marketplace, these relationships can be very short-lived compared with the more static relationships of the traditional telecommunications market.

7 Main B2B initiatives and concepts

The idea of automating inter-enterprise business processes is not a new concept. The EDI (electronic data interchange) standard, which has its roots in the 1970s, represents the first generation of electronic business collaboration systems. Unfortunately it saw relatively limited adoption due to the complexity and cost of the software required to implement the standard.

Development of the Internet has brought new attempts at establishing e-business standards. One of the most successful is that of the RosettaNet consortium, formed in 1998, which provides open platform e-business standards in XML, allowing trading partners to exchange business information via the Internet. Originally the standard was designed for high-tech industry (IT and electronics), but the developed approach also started to serve as a model for other industries. The RosettaNet standards are being successfully implemented by a number of enterprises, e.g., Intel Corporation has been an early adopter of RosettaNet³.

Another approach for standardizing the e-business world was prepared under the auspices of UN/CEFACT and OASIS and was named ebXML. It provides the technical basis of B2B interfaces. ebXML inherited concepts from both EDI and RosettaNet but so far has achieved only partial support from the industry. Annex A provides a more detailed overview of both RosettaNet and ebXML.

Web services developed by World Wide Web Consortium (W3C) are some of the newest initiatives on e-business. They represent a request/response type of communication with no business process semantics. Analysts did not expect the widespread adoption of this technology before 2005.

There is an ongoing discussion on how ebXML and web services are related. Most experts claim that these technologies are complementary. The main strengths of ebXML are in inter-enterprise business process integration, while the main advantage of web services is in location-independent integration of request/response type message services.

The following clauses present the main concepts and definitions developed by the initiatives mentioned above, which impact the approach that single enterprises using the eTOM business process framework need to consider, when also implementing inter-business processes.

7.1 Shared public process

Work by RosettaNet and ebXML have developed the concept of a shared public process to describe the business process framework developed to support inter-business or multi-business processes.

³ In December 2002, Intel reported it processed about 10% of its purchasing volume (i.e., around five billion US dollars with RosettaNet transactions).

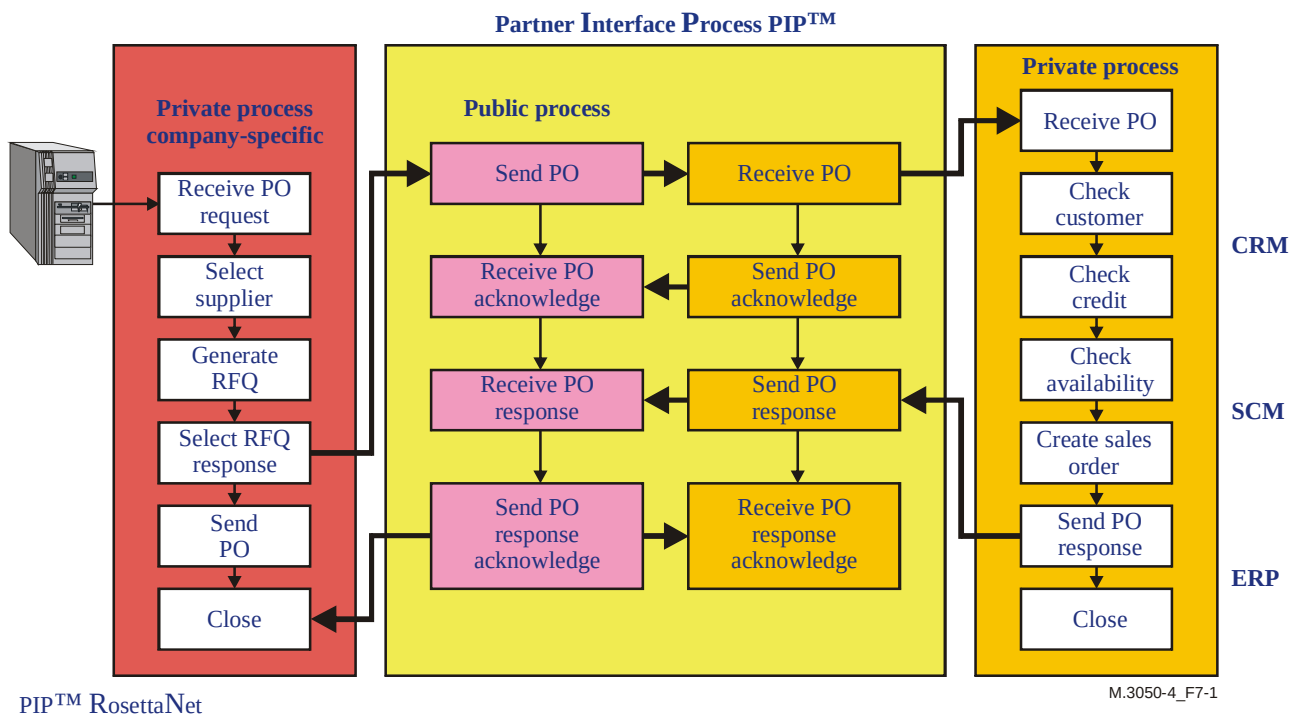


Figure 7-1 – Concept of a public process

Figure 7-1 shows an example of a purchasing process. On the left side is a buyer that runs a set of private procurement processes and on the right side is a seller that runs a set of private supply processes. In this definition, private is used in the context of processes operating within a single enterprise and not made visible to other enterprises.

The buyer is concerned with selecting a supplier and prices, and the seller is concerned with selling and manufacturing products for supply (e.g., supply chain management, enterprise interface planning).

The public process comprises a set of standardized, published steps, known as Partner Interface Processes (PIP™ RosettaNet), which both buyer and seller support. A specific collaborative agreement between a buyer and seller will specify the PIPs to be used (from amongst a large number circa 120 currently in the RosettaNet business operations map) and the rules for sequencing them, sometimes known as choreography.

In this approach, what are standardized are these small atomic process steps, not the end-to-end process. The set of small process steps and their amalgamation to create an agreed end-to-end business process between a specific pair of trading parties are captured as part of a collaboration protocol agreement between the two parties. The concept can be extended to multiple parties.

7.2 'Regulated' versus 'unregulated' B2B

An alternative approach to the shared process, which is sometimes referred to the 'regulated approach', is the 'unregulated approach'. This approach is characterized by the nascent work on web services. The 'unregulated approach' focuses on very loose collaborations of individuals and enterprises where only weak agreements between trading parties are established. There is clearly going to be convergence in the technology of these two approaches.

7.2.1 B2B using webpages

In the B2B world, those solutions that are based on webpages also fall into the category of unregulated processes. The supplying party creates the webpage structure and input definitions, and