

I N T E R N A T I O N A L T e l e c o m m u n i c a t i o n U n i o n

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

M.3050

Supplement 4
(02/2007)

SERIES M: TELECOMMUNICATION MANAGEMENT,
INCLUDING TMN AND NETWORK MAINTENANCE

Telecommunications management network

Enhanced Telecom Operations Map (eTOM)

Supplement 4: An eTOM primer

ITU-T Recommendation M.3050 – Supplement 4

ITU-T



ITU-T M-SERIES RECOMMENDATIONS
TELECOMMUNICATION MANAGEMENT, INCLUDING TMN AND NETWORK MAINTENANCE

Introduction and general principles of maintenance and maintenance organization	M.10–M.299
International transmission systems	M.300–M.559
International telephone circuits	M.560–M.759
Common channel signalling systems	M.760–M.799
International telegraph systems and phototelegraph transmission	M.800–M.899
International leased group and supergroup links	M.900–M.999
International leased circuits	M.1000–M.1099
Mobile telecommunication systems and services	M.1100–M.1199
International public telephone network	M.1200–M.1299
International data transmission systems	M.1300–M.1399
Designations and information exchange	M.1400–M.1999
International transport network	M.2000–M.2999
Telecommunications management network	M.3000–M.3599
Integrated services digital networks	M.3600–M.3999
Common channel signalling systems	M.4000–M.4999

For further details, please refer to the list of ITU-T Recommendations.

ITU-T Recommendation M.3050

Enhanced Telecom Operations Map (eTOM)

Supplement 4

An eTOM primer

Summary

ITU-T M.3050.x Recommendation 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 supplement provides an introductory view of some of the concepts, goals and structure of the eTOM work. It should be read in conjunction with the ITU-T M.3050.x Recommendation sub-series and Supplements.

Source

Supplement 4 to ITU-T Recommendation M.3050 was agreed on 14 February 2007 by ITU-T Study Group 4 (2005-2008).

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

Compliance with this publication is voluntary. However, the publication may contain certain mandatory provisions (to ensure e.g. interoperability or applicability) and compliance with the publication is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the publication is required of any party.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this publication may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the publication development process.

As of the date of approval of this publication, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this publication. 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/>.

© ITU 2008

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without the prior written permission of ITU.

CONTENTS

	Page
1 Scope	1
2 References.....	1
3 Definitions	2
4 Abbreviations and acronyms	2
5 Introduction	2
5.1 What is eTOM?	2
5.2 Where did eTOM come from?	3
6 How does eTOM work?.....	4
6.1 Process decompositions.....	4
6.2 Process flows	11
7 Why use eTOM?.....	17
8 When can eTOM help?.....	17
9 Who is using eTOM?.....	17
10 Some ideas on using eTOM.....	19
10.1 Service providers	19
10.2 Vendors.....	19
10.3 Bringing eTOM into your business – Some hints and suggestions.....	20
11 Administrative appendix.....	22
11.1 Acknowledgements	22
11.2 About TeleManagement Forum	22
Bibliography.....	23

ITU-T Recommendation M.3050

Enhanced Telecom Operations Map (eTOM)

Supplement 4

An eTOM primer

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 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 supplement provides a mapping to the IT Infrastructure Library.

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

3 Definitions

This Recommendation uses the following term defined elsewhere:

- 3.1 eTOM:** See 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:

EM	Enterprise Management
eTOM	enhanced Telecom Operations Map
FAB	Fulfilment, Assurance and Billing
ITIL	IT Infrastructure Library
NGOSS	Next Generation Operations Systems and Software
OSR	Operations Support and Readiness
SIP	Strategy, Infrastructure and Product
SP	Service Provider
SMART	Service Management Automation and Re-engineering Team
TM Forum	TeleManagement Forum

5 Introduction

5.1 What is eTOM?

The telecom industry is facing unprecedented churn and the struggle to remain profitable in the face of more competition, higher customer expectations, falling market share and growing price pressures. The industry has a need to clearly define and understand the business processes involved in order to tackle these issues. It also needs to reach a consensus on the common process view for equipment suppliers, applications builders and integrators to build management systems by combining third party and in-house developments.

The enhanced Telecom Operations Map (or eTOM for short) is an ongoing TM Forum initiative to deliver a business process model or framework for use by service providers and others within the telecommunications industry. The goal is to set a vision for the industry to enable it to compete successfully through the implementation of business process-driven approaches to managing the enterprise. This includes ensuring integration among all vital enterprise support systems concerned with service delivery and support.

The focus of the eTOM is on the business processes used by service providers, the linkages between these processes, the identification of interfaces and the use of customer, service, resource, supplier/partner and other information by multiple processes. The TM Forum eTOM business process framework is a reference framework for categorizing all the business activities that a service provider will use in a structured manner that allows these to be addressed at various levels of detail. For such companies, it serves as the blueprint for process direction and provides a neutral reference point for internal process re-engineering needs, partnerships, alliances and general

working agreements with other providers. For suppliers, eTOM outlines potential boundaries of software components to align with the customers' needs and highlights the required functions, inputs and outputs that must be supported by products.

A particular strength of eTOM as a business process framework is that it is part of the TM Forum NGOSS (Next Generation Operations Systems and Software) program and links with other work under way in NGOSS.

So, eTOM defines a telecommunications service provider business process framework. This means that it is oriented to SPs in the telecommunications sector (although it has been found to be useful in other areas also) and it aims to provide a business-oriented view of the SP enterprise. This view is useful for planners, managers, strategists, etc., who need to view the enterprise in business terms without immediate concern for the nature of the way that these business needs are organized or automated within the business. Therefore, eTOM emphasizes issues such as process structure, process components, process interactivity and the business roles and responsibilities to which these relate. In defining these aspects, eTOM also provides a basis for setting requirements for system solutions, technical architectures, technology choices and implementation paths but it is neutral towards the particular way that these requirements are met.

Thus, eTOM can be considered to have two faces: one oriented towards the business, customer, products, etc., and one towards solutions, systems and implementations supporting the business.

It should be recognized that, through the TM Forum work, eTOM represents an industry-consensus on the service provider processes, which has been harmonized across the global scene and is based on member contributions. It is allowable, and indeed expected, that this will mean that eTOM must be tailored and/or extended for use within an individual company. In particular, eTOM does not seek to constrain the way that the processes fit into a specific organization. An advantage of this positioning of eTOM as a framework, rather than a directly-implemented specification, is that differentiation amongst eTOM users is not restricted, which is vital to allow specialization and competition. In addition, as already mentioned, eTOM does not fix upon particular routes to implementation and is thus valid in many different environments with varying levels of automation, technology, etc.

So, eTOM is a framework, not a final implementation specification. It will typically be customized and extended by users for their own business needs but provides a vital common reference that is industry-recognized and represents a *de facto* standard, and now, through ITU-T, an official standard within and between companies on business process definition.

5.2 Where did eTOM come from?

Work on business process modelling by the TeleManagement Forum (formerly the Network Management Forum) began in the early 1990s with the Service Management Automation and Re-engineering Team (SMART) that gathered worldwide service provider views and distilled an initial business process model. This work grew in the Telecom Operations Map (TOM) during the mid-90s, leading to the stabilization and publication of TOM in its final form towards the end of that decade.

The TOM work gained wide industry support but the scope of the TOM model did not cover the whole of the SP enterprise and only focused on the main operations processes embodying the traditional telecoms activities around fulfilment, assurance and billing (FAB). Increasingly, the complexities of interworking in the deregulated, competitive telecoms market required a complete enterprise view, and new business demands triggered by the Internet, and electronic commerce generally, led to a move to expand TOM to address this wider perspective.

Thus, eTOM – for enhanced TOM – was initiated as a work programme led by TM Forum as we entered the new millennium. Initial releases of eTOM were provided to TM Forum members during 2001 and then a TM Forum-approved version of eTOM – GB921 v3.0 – was released in mid-2002.

This was welcomed and adopted widely and so further work to cement agreements, incorporate industry feedback and extend the level of detail described resulted in further intermediate versions and then a new TM Forum-approved version early in 2004. This version – GB921 v4.0 – was also submitted under a liaison agreement to ITU-T, which acts as the premier worldwide body with a remit under the United Nations for setting international Recommendations in the telecommunications sphere. This eTOM version was adopted by ITU-T in *toto* and has been published in parallel as the ITU-T M.3050.x Recommendation sub-series with exact alignment on the content with TM Forum's GB921 v4.0.

Throughout this history, the eTOM work has benefited from wide involvement from the global telecommunications industry as well as academia, government agencies, etc. As it has evolved, the core has shown it can stand the test of time and it is now regarded as the pre-eminent vehicle for expressing and discussing business processes in and around the service provider domain. The work continues, now with an increasing emphasis that eTOM has established a clear and agreed view of the business process framework itself, on applications of eTOM and guidance to prospective and existing users on how to gain maximum benefit from the eTOM in their own businesses.

6 How does eTOM work?

6.1 Process decompositions

Process decomposition is a structured approach to analysis of a business through consideration of the enterprise's business processes and their internal structure. The basis of the concept is illustrated in Figure 6-1. Here we see a representative process, Process X, which might provide a specific area of capability within an enterprise – handling of customer orders, for example. When analysed, it is decided that the contained functionality, behaviour, etc., associated with that process can/should be sub-divided into three lower-level process elements. Note that typically such a "decomposition" is partly evident from the analysis of the detail captured within the process concerned and partly is the result of design decisions, where judgment is used to make the most appropriate partitioning for the situation under consideration.

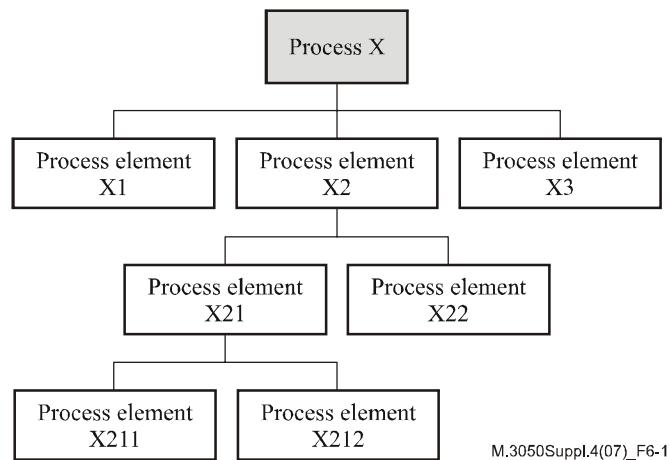


Figure 6-1 – Process decomposition

Each of the decomposed processes, X1, X2 and X3 can be further decomposed – X2 is shown as decomposed into X21 and X22 – and this can be continued – X21 is shown as decomposed into X211 and X212. Note that not all "branches" of the decomposition "tree" necessarily lead to "leaves" (i.e., final process elements) at the same level of decomposition. This will depend on the scope and content of the processes involved.

The process decomposition approach has the following general characteristics:

- It defines components of a process that perform part of that process.
- It provides insight into the structure and content of process areas (or groupings).
- It reveals finer detail at lower levels, as decomposition proceeds.
- It can be continued to as many sub-levels as are needed.
- The aim is to provide a complete analysis of the process under decomposition – i.e., the sum of the components equals the totality of the original process.
- It represents a static perspective of the process.
- It does not mandate any flow relationship between the process elements.

Note that the process elements derived through process decomposition may be applied in various ways within process flows. There may be many process flows (representing, say, enterprise-specific applications) that can be built using the common set of process elements specified within the eTOM framework. There is further discussion on process flows later in this clause, including the process flow diagrams that arise and are used in this work.

The process decomposition for the eTOM business process framework (see Figure 6-2) begins at the enterprise level and defines business processes in a series of groupings. The eTOM framework uses hierarchical decomposition to structure the business processes according to which all of the processes of the enterprise are successively decomposed. Process descriptions, inputs and outputs, as well as other key elements, are defined. The eTOM business process framework represents the whole of a service provider's enterprise environment. The framework is defined as generically as possible so that it is organization-, technology- and service-independent. At the overall conceptual level, eTOM can be viewed as having the following three major process areas:

- **Strategy, infrastructure and product**, covering planning and lifecycle management.
- **Operations**, covering the core of operational management.
- **Enterprise management**, covering corporate or business support management.

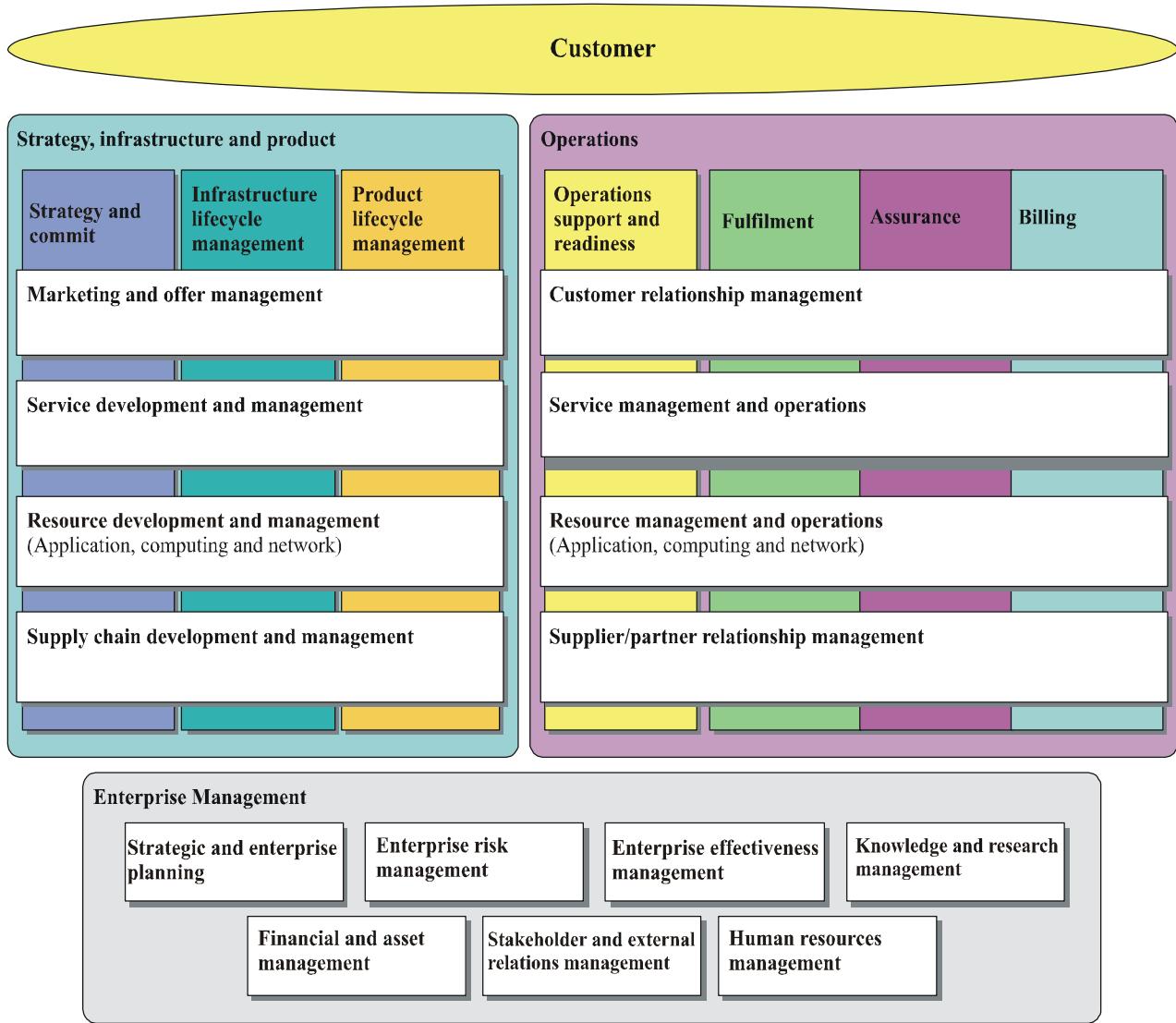


Figure 6-2 – eTOM – The enhanced Telecom Operations Map

The eTOM framework (see Figure 6-2) shows seven end-to-end vertical process groupings that are the end-to-end processes that are required to support customers and to manage the business. Amongst these end-to-end vertical process groupings, the focal point of the eTOM framework is on the core customer operations processes of fulfilment, assurance and billing (FAB). Operations support and readiness (OSR) is differentiated from FAB real-time processes to highlight the focus on enabling support and automation in FAB, i.e., on-line and immediate support of customers, with OSR ensuring that the operational environment is in place to let the FAB processes do their job. Outside of the operations process area – in the strategy, infrastructure and product (SIP) process area – the strategy and commit vertical, as well as the two lifecycle management verticals, are differentiated. These are distinct because, unlike operations, they do not directly support the customer, are intrinsically different from the operations processes and work on different business time cycles.

The framework also includes views of functionality as they span horizontally across an enterprise's internal organizations. The horizontal functional process groupings in Figure 6-2 distinguish functional operations processes and other types of business functional processes, e.g., marketing versus selling, service development versus service configuration, etc. Amongst these horizontal functional process groupings, those on the left (that cross the strategy and commit, infrastructure

lifecycle management and product lifecycle management vertical process groupings) enable, support and direct the work in the operations process area.

Overall, eTOM is comprised of the business process framework and the model. The eTOM model graphically illustrates the business processes required for operating service provider enterprises. It lays out these processes first from a high-level perspective, and then drills down to increasingly detailed levels of understanding. The eTOM business process framework describes in text what the model describes graphically.

So, eTOM is structured in three main areas (known as level 0 processes): operations (OPS), strategy infrastructure and product (SIP) and enterprise management (EM). Each contains more detailed process components at level 1, level 2, etc., as the processes are decomposed. This hierarchical decomposition enables detail to be defined in a structured way and also allows the eTOM framework to be adopted at varying levels and/or for different processes. The level number is an indication of the degree of detail revealed at that level – the higher the number, the more detailed are the process elements described there.

Operations (OPS – see Figure 6-3) is the heart of eTOM and much of the original TOM work has carried through into OPS (the GB921 documentation contains an explanation of the mapping from TOM to eTOM). The "FAB" processes (fulfilment, assurance and billing) provide the core of the operations area. The vertical level 1 processes in FAB represent a view of flow-through of activity, whereas the horizontal level 1 processes (CRM, SM&O, RM&O, S/PRM) represent functionally-related activity. Both views are valid and the model supports both to accommodate different uses made of the processes. As a separate issue, OSR (operations support and readiness) has been separated from FAB to reflect the separation between "front-office" real-time operations (in FAB) from "back-office" near real-time or even off-line support processes. This split may not apply in all organizations (in which case, the OSR and FAB processes can be merged) but is necessary to allow for the important situation where they are handled separately.

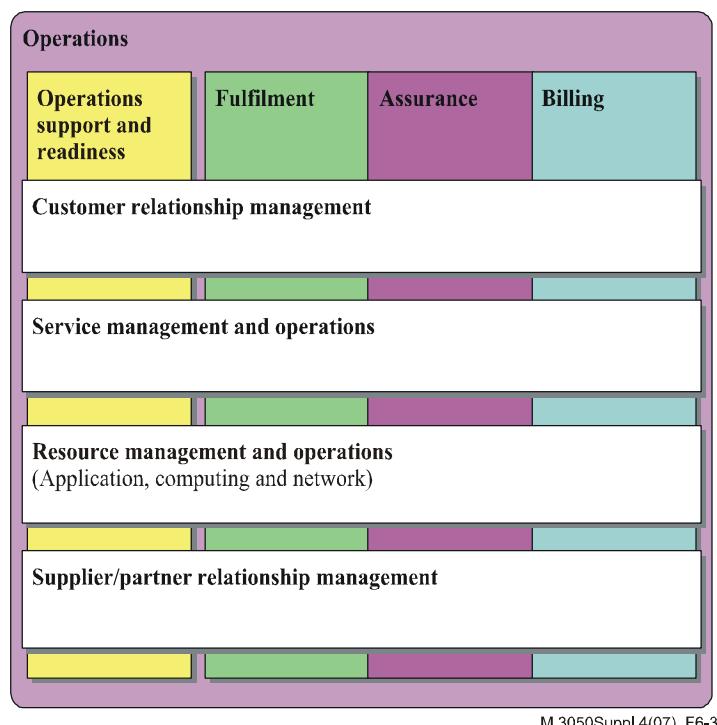


Figure 6-3 – The eTOM Operations (OPS) Processes

In Figure 6-4, the OPS area is shown with level 2 processes visible. Note that, in general, a level 2 process is part of a vertical and also a horizontal level 1 process. Hence, level 2 processes can be reached in the process hierarchy by either path (to reflect the different interests and concerns of users). However, whichever path is used, as shown here, there is a single common set of level 2 processes. In some cases, a level 2 process is "stretched" across several vertical level 1s (e.g., resource data collection and processing in RM&O). This is because the process concerned is needed in several vertical level 1s (e.g., for resource data collection and processing, the data collected from the network (say) can represent usage data for billing but can also support fault handling or performance assessment in assurance).

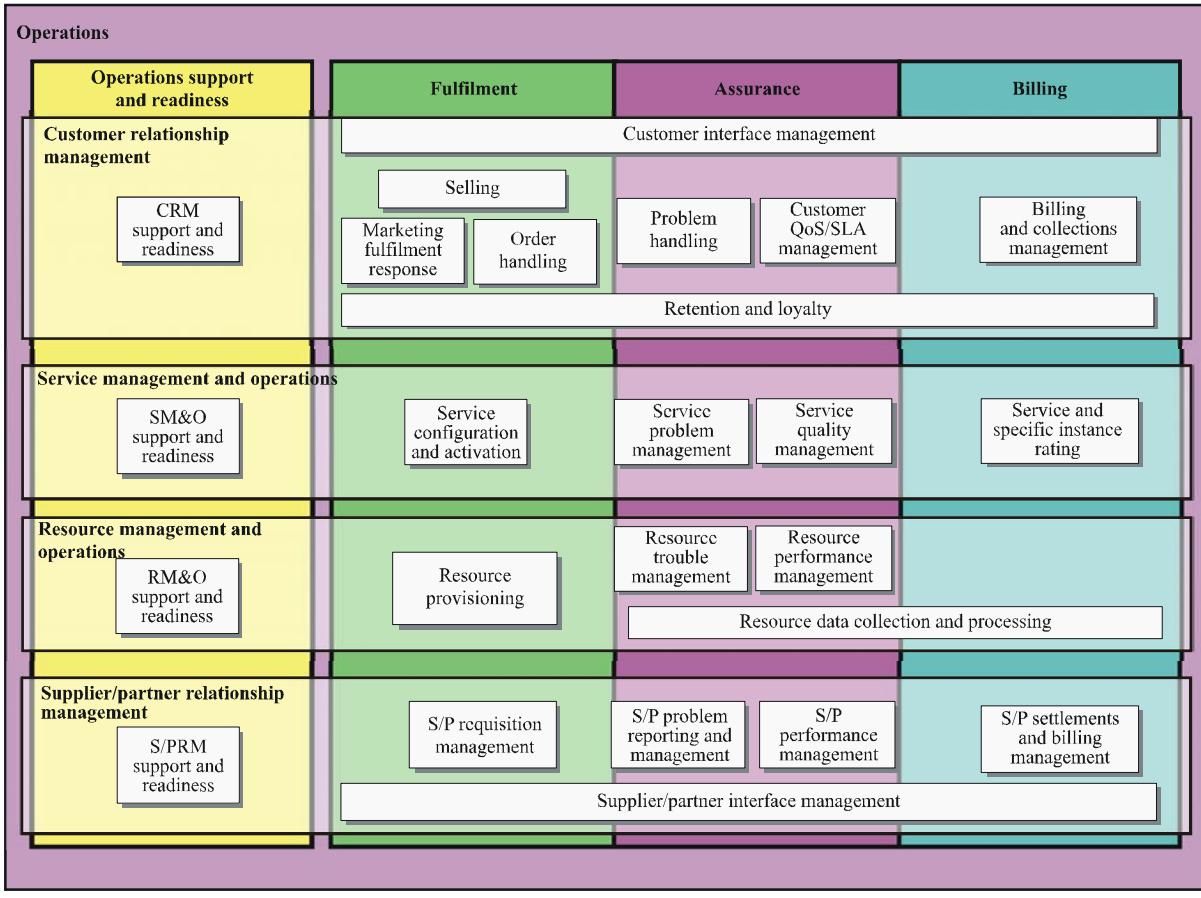
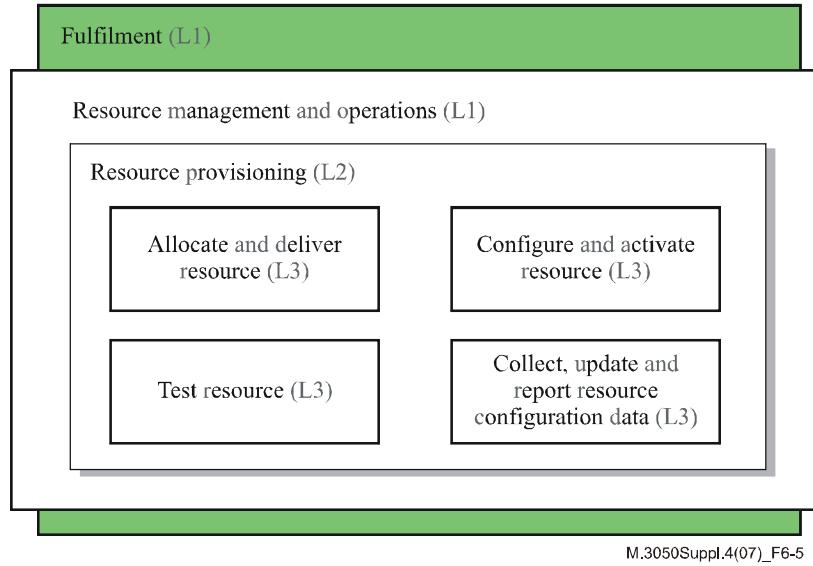


Figure 6-4 – Level 2 operations (OPS) processes

This mechanism of decomposition can be extended as required. In Figure 6-5, we see an example of the level 3 process elements within a single level 2 process element – resource provisioning. Full descriptions of decompositions to level 3 for this and other processes are included in the GB921 documentation.



M.3050Suppl.4(07)_F6-5

Figure 6-5 – An example of level 3 operations (OPS) processes

Strategy, infrastructure and product (SIP – see Figure 6-6) has a similar structure to OPS with corresponding vertical and horizontal level 1 processes. In the verticals, strategy and commit covers the processes involved in forming and deciding company strategy and gaining commitment from the business for this. Infrastructure lifecycle management covers control of the infrastructures used in the business – the network is the most obvious, but also IT infrastructure and even the human resources of the company. Product lifecycle management covers the products themselves – note that eTOM distinguishes product (as sold to customers) from service (used internally to represent the "technical" part of the product, i.e., excluding commercial aspects such as tariffing, T&Cs, support, etc.) and resource (physical and non-physical components used to support service).



M.3050Suppl.4(07)_F6-6

Figure 6-6 – The eTOM strategy, infrastructure and product (SIP) processes

The horizontal functional groupings in SIP are aligned with those in OPS so that, if desired, the processes included can be considered to link across smoothly from the SIP domain to the OPS domain if this is relevant to some aspects of business behaviour in enterprises.

In Figure 6-7, the SIP area is shown with level 2 processes visible. As with OPS, a level 2 process is part of a vertical and also a horizontal level 1 process (but note that all SIP processes fit this pattern and there are no exceptions as in OPS).

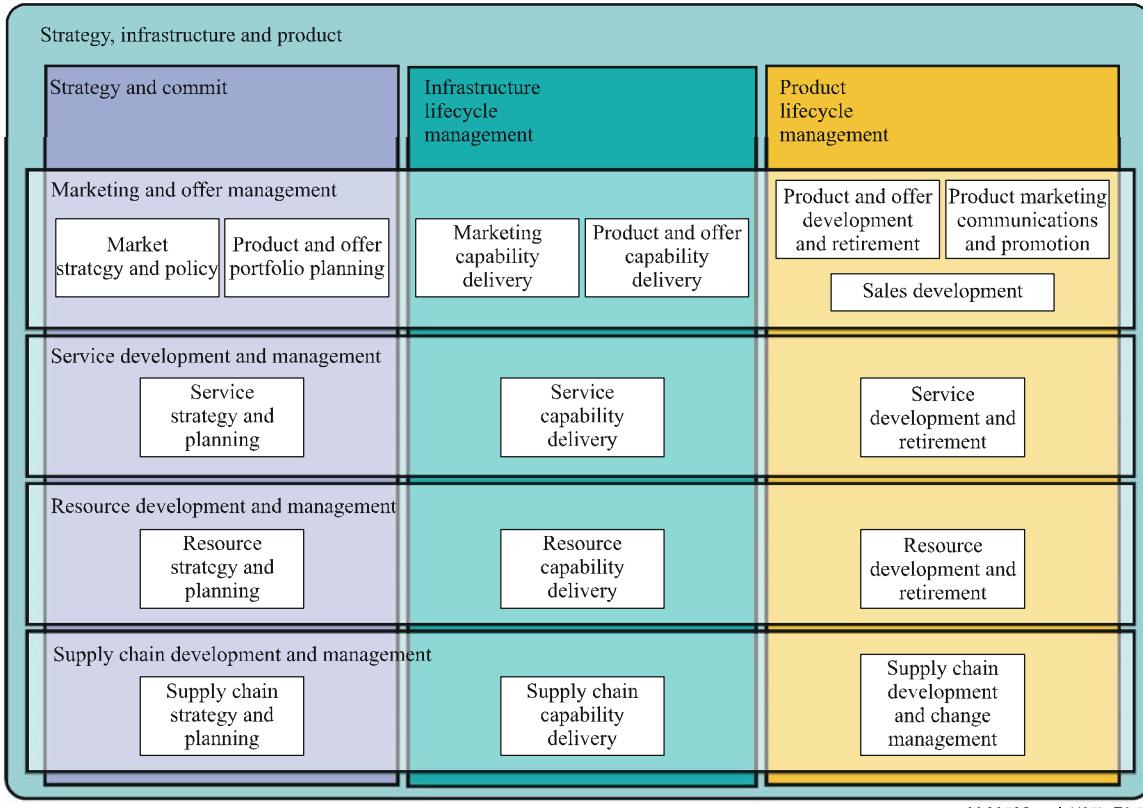


Figure 6-7 – Level 2 strategy, infrastructure and product (SIP) processes

Enterprise Management (EM – see Figure 6-8) is shown in a different view – this is a typical hierarchy diagram as provided from process analysis and modelling tools used for eTOM. The top box is EM itself (level 0), the next horizontal row shows the level 1 processes in EM and the columns below each level 1 box show level 2 processes within that level 1 process.

Now, with this overall view of the process structure to level 2 (descriptions for all these process elements, as well as for level 3 process elements, are in the GB921 documentation), it is important, however, to note that this view of the processes provides very little insight into how the processes interact. To gain this valuable additional perspective, we must look to process flows.

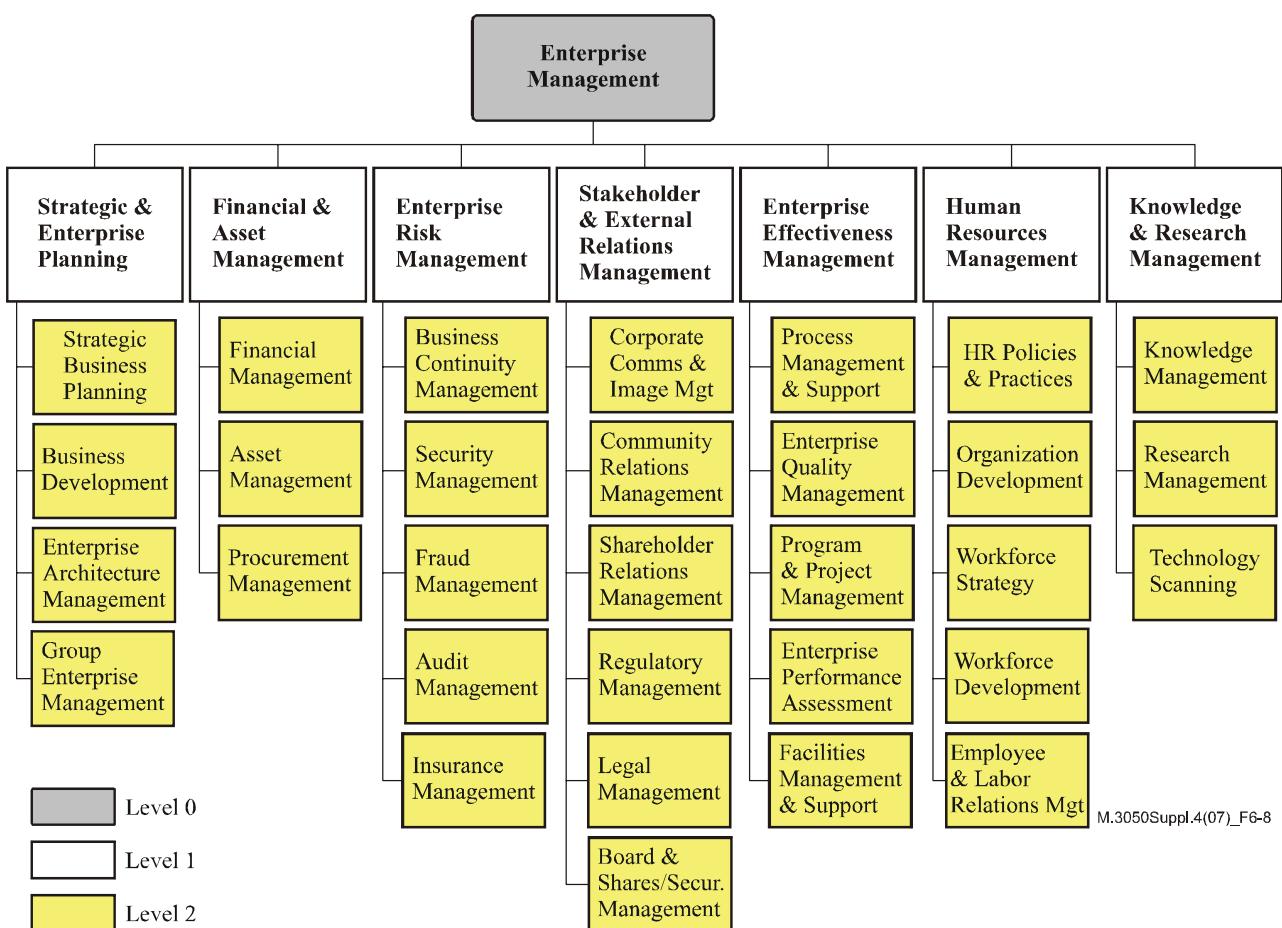


Figure 6-8 – The eTOM enterprise management (EM) processes

6.2 Process flows

Process decompositions provide an essential insight into the process definition and content. To understand further how the processes behave, process flows can be developed that examine how some or all of the processes support some larger, "end-to-end" or "through" process view across the enterprise. Such process flows are not constrained to bridge across the entire enterprise – they can have any scope that is considered meaningful and helpful to analyse – but typically such process flows involve a broad area of the enterprise processes and thus of the eTOM framework. Thus, process flows examine some specific scenario in which the processes achieve an overall business purpose.

To begin with, though, Figure 6-9 shows only a fragment of a process flow, where several eTOM level 2 OPS processes can be recognized, and labelled linkages between these indicate the nature of the transfer that arises in operation. In this case, we can see that part of handling a customer order is shown.

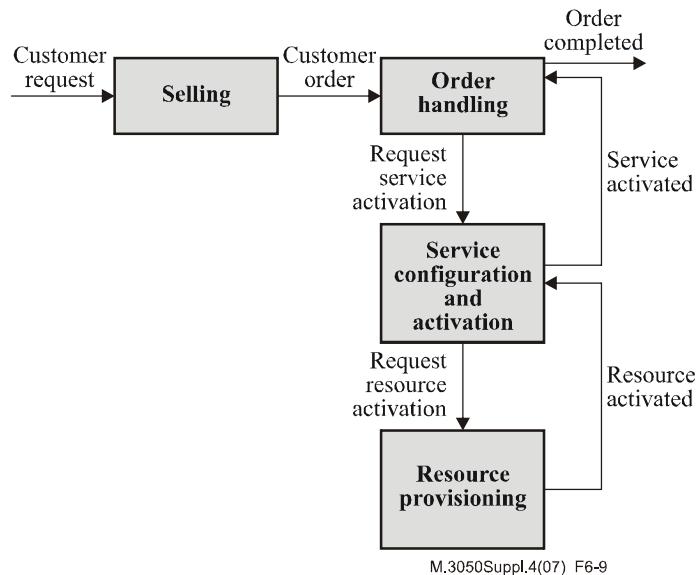


Figure 6-9 – Process flow (partial example only)

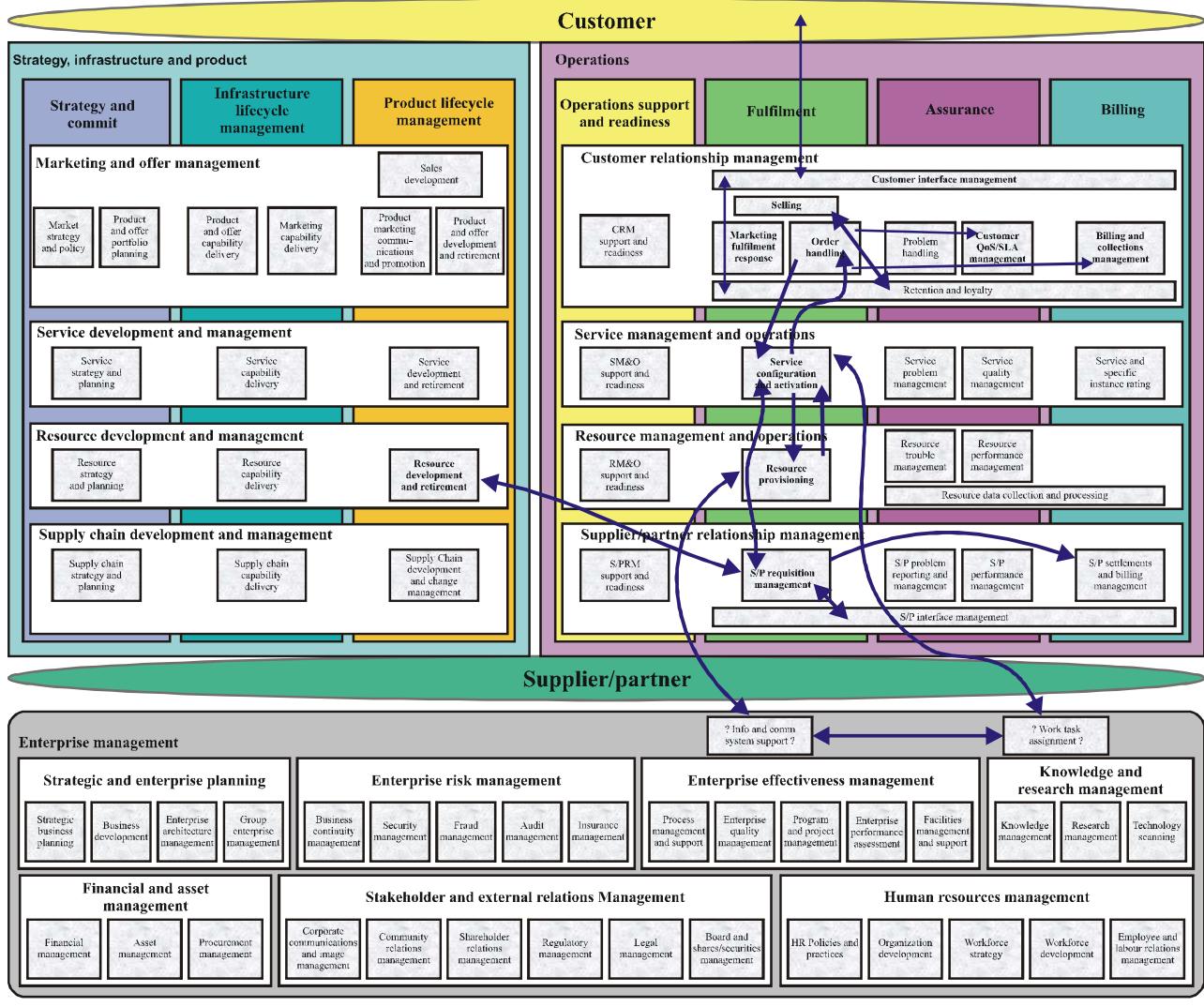
The process flow approach has these general characteristics:

- It analyses a typical (specific) scenario.
- It provides insight into the behaviour and interaction amongst processes.
- It chooses to model the flow at an appropriate level of process detail.
- It can use process decompositions (and vice versa) to enhance/refine detail.
- The aim is to provide only an example of the process flows, i.e., only some of the possible interactions are described in each scenario.
- Thus, it typically provides a partial view of process behaviour (because flows are based on specific scenarios).
- It represents a dynamic perspective of process.

In applying this approach for eTOM process flows, it has been found that a number of different flow-related diagram types have proved useful, considering the variety of interests (business and technical, high level and detailed design) that need to be addressed.

First is a general positioning type of diagram that provides only limited insight into the flow but helps focus attention on the general area of eTOM involved.

Figure 6-10 shows an example of this diagram – a general process interaction diagram – for a scenario based around DSL fulfilment that is covered in the GB921 documentation. This shows some of the process interactions that arise for this scenario but does not give any detailed insight, at this level, into the behaviour. It is still useful for a high-level view, though.



M.3050Suppl.4(07)_F6-10

Figure 6-10 – General process interaction diagram for DSL fulfilment

The next diagram type, shown in Figure 6-11, is developed directly from a process analysis and modelling tool (rather than general drawing software). Here we are working with level 2 process elements but other levels can be used depending on the detail required. This diagram type positions the eTOM processes in relatively the same way that they can be seen on the eTOM model diagrams (see, for example, Figure 6-4 earlier), which assists with recognition and avoids confusion. Each process only appears once and so sequencing of the interactions is not explicit in this diagram (it is on the process dynamics diagrams later).

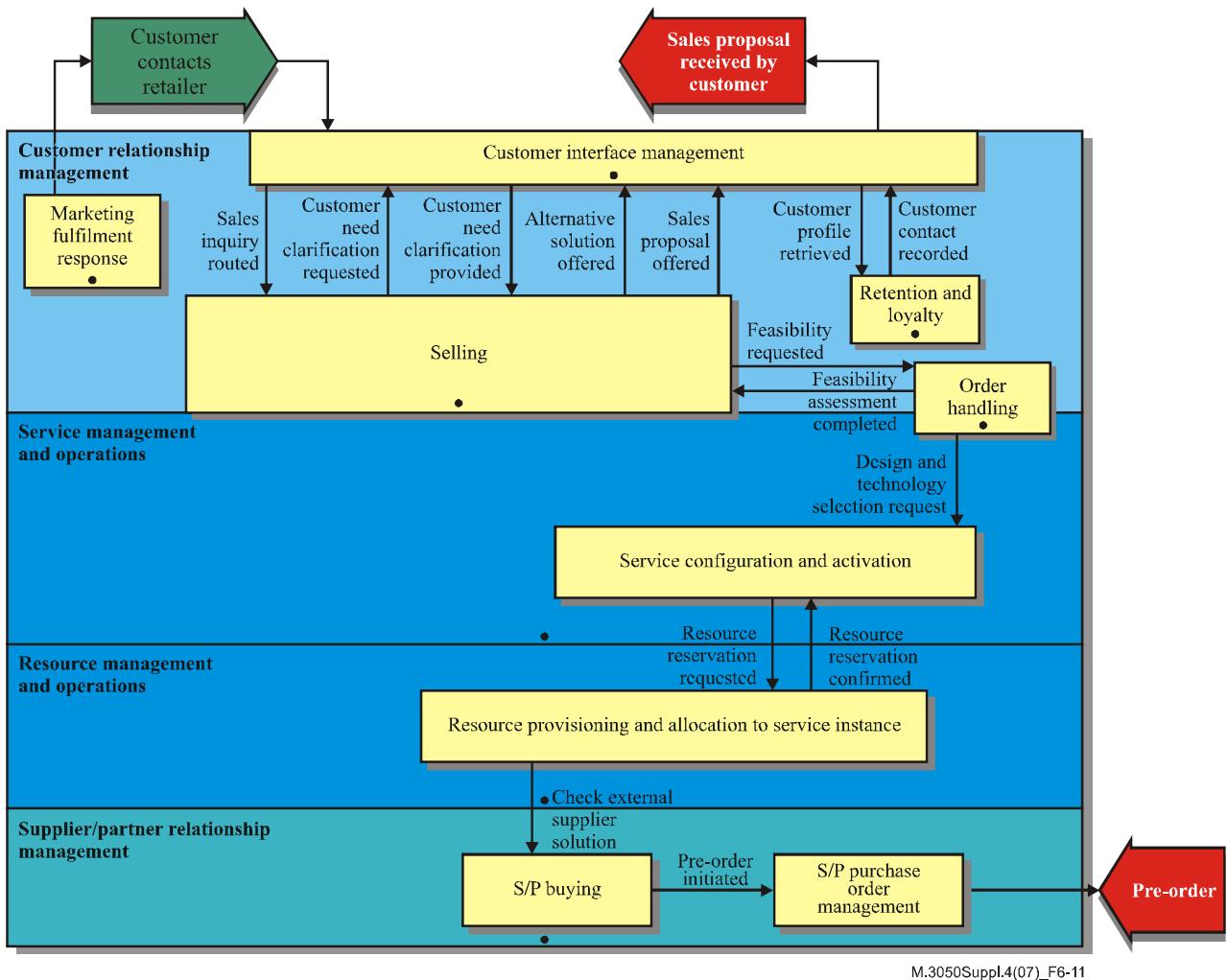


Figure 6-11 – Process interaction flow diagram for DSL fulfilment (pre-sales)

An important element in flow diagrams of this kind is that of "swimlanes". These are areas in the process flow diagram, containing typically several process elements that contribute to the overall process flow, which scope a useful area of attention to assist the user. In this example, the swimlanes have been drawn to represent the four horizontal functional process groupings of the operations area of the eTOM framework since the scenario involved is focused in the operations domain. In this arrangement, all the process elements in a specific swimlane in the diagram (e.g., in the lowest swimlane for supplier/partner relationship management) are components of that horizontal functional process grouping. It should be noted that swimlanes (despite their name) need not be only horizontal, although this is a common choice for clarity, and is the approach used in eTOM process flow diagrams.

The process flow in Figure 6-11 addresses the pre-sales stage of fulfilment (other phases are documented in separate diagrams, for convenience). It kicks off from the marketing fulfilment response process stimulating a customer to make a service enquiry (in fact, in eTOM terms, the customer buys a product, as service is reserved for the internal technical capability that supports a product). The customer then contacts the retailer (external event) and the enquiry is routed through customer interface management to selling (sales enquiry routed). Note that interactions between processes (like sales enquiry routed) are events and are not intrinsically information transfers. Thus, they can be considered to represent transfer of control.

After any necessary clarification with the customer, selling requests order handling to check on the feasibility of satisfying the product request and this leads to a design being developed for the product instance required, and checks through service configuration and activation, and then resource provisioning and allocation to service instance, that this can be done. This may also involve interaction with a supplier via S/P requisition management, etc. Eventually, if all is well, a sales proposal or an alternative solution is offered.

Figure 6-12 is also another example of this diagram type for the main ordering phase of fulfilment. It kicks off with the customer placing an order and then tracks through selling, order handling and the service and resource layer processes that actually configure the product instance. As the product instance is brought into service, there are external interactions with billing to set up charging for this.

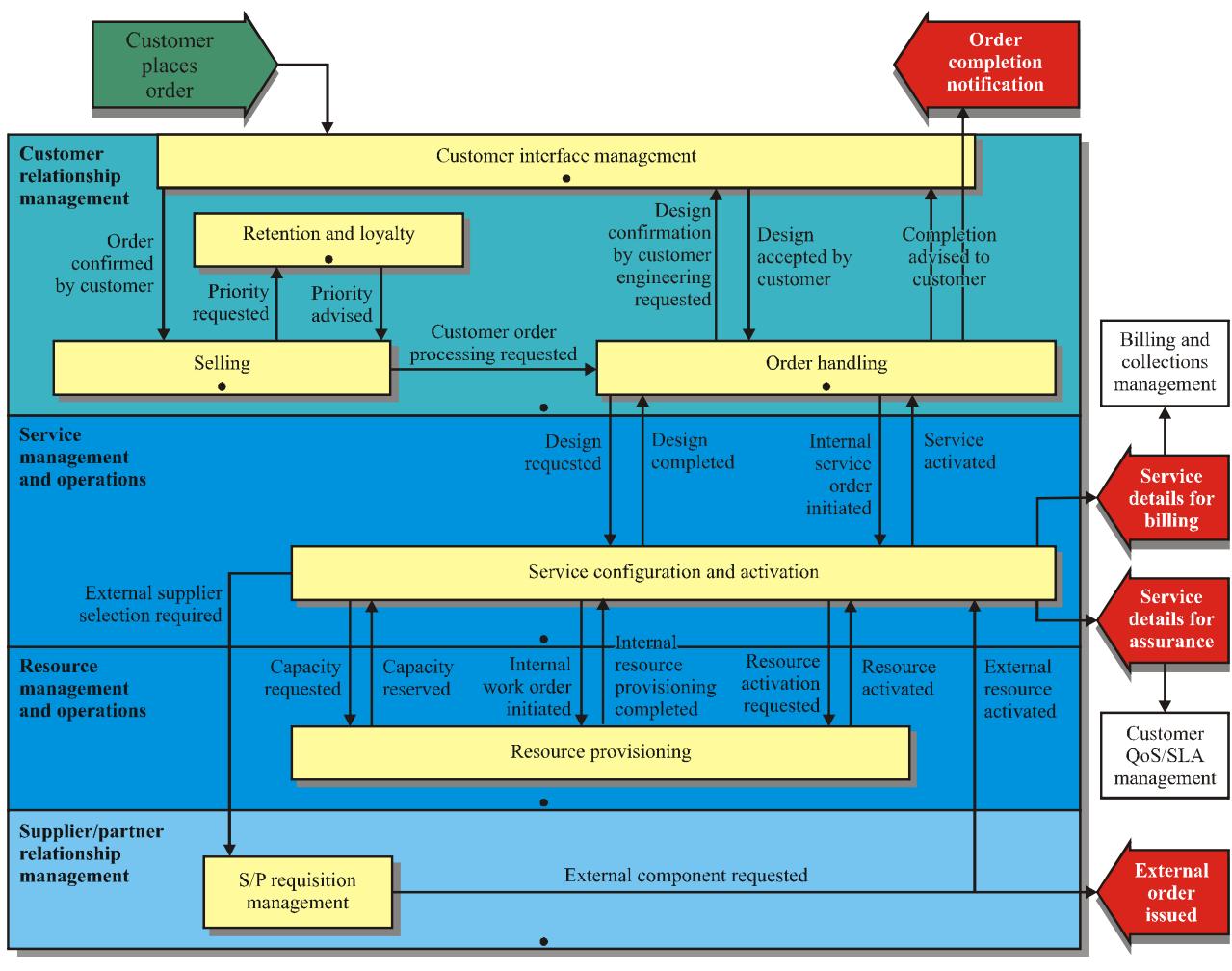


Figure 6-12 – Process interaction flow diagram for DSL fulfilment (ordering)

However, even though interactions are labelled in these diagrams, sequencing and dependencies in the flow are still not explicit. For this, we need to generate another kind of diagram.

Figure 6-13 represents a process dynamics flow diagram showing the process dynamics explicitly. Each process typically appears several times, on each occasion providing a specific step in the process flow sequence. As there is therefore typically different functionality employed on each appearance, this diagram can provide insight into the decomposition of the level 2 process into level 3 processes. It shows equivalent information to the ordering process interaction diagram of Figure 6-12, but is more technically complete and is a better basis for further design.

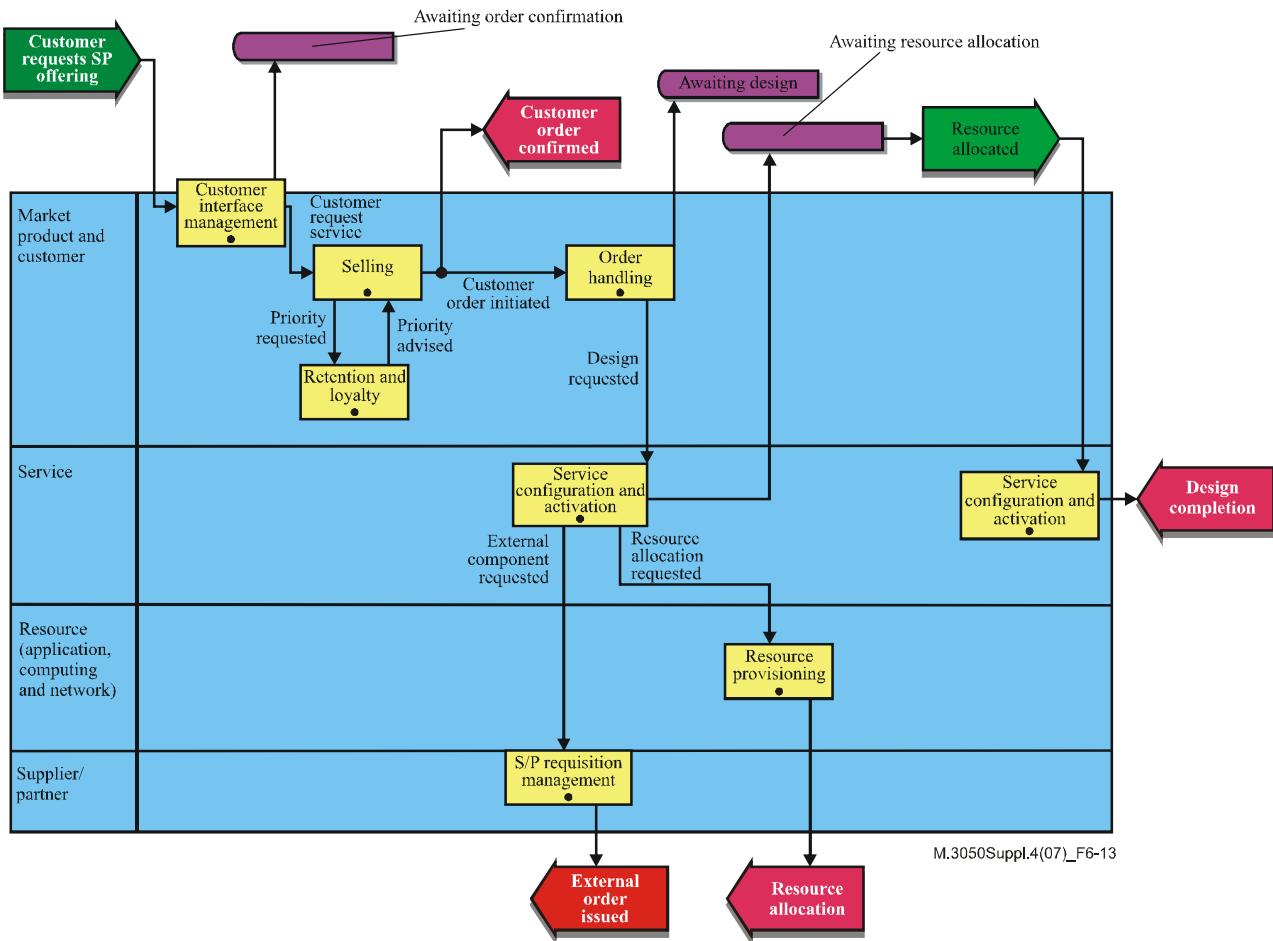


Figure 6-13 – Process dynamics flow diagram for DSL fulfilment (ordering)

Developing process flows in this way is a valuable source of insight and additional detail to validate process decompositions, and to address specific areas of business priority for eTOM application.

7 Why use eTOM?

eTOM makes available a standard structure, terminology and classification scheme for describing business processes and their constituent building blocks.

eTOM supplies a foundation for applying enterprise-wide discipline to the development of business processes.

eTOM provides a basis for understanding and managing portfolios of IT applications in terms of business process requirements.

eTOM enables creation of consistent and high-quality end-to-end process flows, with opportunities for cost and performance improvement, and for re-use of existing processes and systems.

eTOM use across the industry will increase the likelihood that off-the-shelf applications will be readily integrated into the enterprise, at a lower cost than custom-built applications.

8 When can eTOM help?

The eTOM business process framework can be used as a tool for analysing your organization's existing processes and for developing new processes. Different processes delivering the same business functionality can be identified, duplication eliminated, gaps revealed, new process design speeded up and variance reduced. Using eTOM, you can assess the value, cost and performance of individual processes within your organization.

You can facilitate your relationships with suppliers and partners by identifying and categorizing the processes you use in interactions with them. In a similar manner, you can identify the all-important customer relationship processes and evaluate whether they are functioning as required to meet your customers' expectations.

9 Who is using eTOM?

A natural question that arises is to be aware of where eTOM is being used in the industry and how it is benefiting those involved. This is a difficult issue to address due to commercial confidentiality and sensitivity on strategic information about company directions. However, a number of organizations have declared a position on this publicly, and the general interest and support for eTOM is now very high and so we would hope to see increasing public information available on this. The two main groups of eTOM users are (1) service providers and (2) vendors, system integrators, etc. It is worth noting that there is private information on a much larger number of organizations applying eTOM in their businesses and a much larger number again of organizations that are using eTOM but who have not yet made contact with TM Forum about this (and which are therefore discovered by chance).

One important source of information is the conference event associated with TeleManagement World. Figures 9-1 and 9-2 below show information on SPs and others who have reported there on their eTOM usage.



eTom is a reference guideline in the definition of the Vodafone worldwide IT Enterprise Architecture.



eTOM is used to map functionality of existing systems and discover redundancies.



Telstra enhanced the core eTOM Framework to create a framework for all process elements in Telstra down to level 4.



eTOM is referenced in the design and implementation of the New Broadband Services Management Architecture.



eTOM is used in the definition and implementation of the business process framework for the merged Telia and Sonera companies.

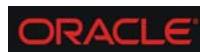


eTOM is used to provide the basic framework for describing the process scope, and positions the process capabilities of current/future systems. It also provides a neutral reference model with an associated lexicon for the processes to be addressed.

Figure 9-1 – Recent reports on eTOM adoptions (SPs)



Reorganized existing BPM and best practices around eTOM, with strategic decision to increase participation in eTOM team work. Introduced internal eTOM training, with eTOM as a common language and reference throughout the company. Mapped Amdocs products to eTOM, and used as sales tool.



Used eTOM to map existing industry processes, analyse business drivers and pains, and guide the design of new processes. Also, as a framework for ISV and SI partnerships.



Have developed telecom reference business model based on eTOM (levels 1, 2 and 3), and extended to levels 5 and 6 for business scenario investigation, legacy system gap analysis, new OSS/BSS specification, consultancy support, etc.



Used eTOM for internal product training, product features cross-referencing and functional gap analysis, marketing analysis (competitors/partners), customer communication (including RFI/RFP), workflow "seed" processes.



Used eTOM for mapping Motorola products and managed services, for gap analysis of solution portfolio and for partnership communications.

Figure 9-2 – Recent reports on eTOM adoptions (vendors, SIs, etc.)

Another aspect of eTOM usage is through other industry bodies that are operating in, or have influence on, the area. Figure 9-3 shows some of the industry links that are active concerning eTOM and the rest of the TM Forum work. In particular, the recent endorsement of the eTOM by ITU-T has been a major achievement and establishes eTOM, which has grown already to become a *de facto* standard, now to be available as a formal standard through ITU-T with its mandate under the United Nations.



OSS THROUGH JAVA
INITIATIVE

ROSETTANET
Lingua franca for eBusiness

eTOM has been formally approved as an ITU-T Recommendation (M.3050): "M.3050 aims to improve efficiency of the business processes at the heart of any service provider's operation. The new framework will be used by industry to more efficiently implement operations and business support systems (OSS/BSS) and by ITU in the continued production of OSS/BSS specifications".

OSS/J (enabling marketplace of interchangeable, interoperable components that can be rapidly and cost-effectively assembled into end-to-end telecommunications solutions) and TMF have established a formal partnership. OSS/J is the first and only technology-specific realization of TMF's NGOSS. eTOM has been used as the base for the OSS/J Roadmap since 2001.

RosettaNet (enabling supply chain optimization for the high technology sector) and TMF have established a formal partnership. eTOM business processes will be mapped to RosettaNet processes.

Figure 9-3 – Examples of important industry links

10 Some ideas on using eTOM

10.1 Service providers

- 1) Assign your technical personnel to review the eTOM framework (GB921) and model, and to present recommendations on it for your enterprise (see www.tmforum.org for download advice).
- 2) Encourage your vendors to understand the eTOM and to describe their software applications in relation to the eTOM.
- 3) If you want your company's view incorporated in future versions of the eTOM, send a representative to participate actively in its ongoing development.

10.2 Vendors

- 1) Provide materials on your software products for customers using the eTOM structure and concepts.
- 2) Assist your customers' understanding of your software products by explaining your software products in relation to the eTOM framework.
- 3) Use eTOM as a guide to help generate product gap analysis, market analysis, competitive analysis, etc.
- 4) Establish and build partnerships to produce more complete solutions for service providers.
- 5) To ensure eTOM accurately reflects how the telecom business operates, send a representative to participate in its ongoing development.

NOTE – Vendors, system integrators and related companies are generally comprised of common roles. The common roles are shown below with a brief description of each role. These common roles are not prescriptive. Rather, they are provided to illustrate the breadth of eTOM impact on vendor and system integrator organizational roles.

- Senior management:
 - Mission and strategy.
- Business:
 - Customer, market needs and issues.
 - Portfolio generation and management.
 - Value proposition.
 - Business case development.
 - Partnerships.

- Marketing:
 - Market and competitive analysis.
 - Branding, advertising, promotions, etc.
 - Public relations.
- Sales:
 - RFQs, RFIs, RFPs, contracts, etc.
- Finance:
 - Revenue and cost forecasting.
 - Order to cash, billing, etc.
- Systems engineering:
 - Research and design.
 - System design: architecture, interfaces, etc.
 - Technology, etc., roadmaps.
- Development engineering:
 - Hardware, software, services, products and solutions.
- Test:
 - System, product, field, compliance, "X-ility" (availability, operability, etc.), testing and certification.
- Manufacturing:
 - Supply chain (in).
 - Warranty, etc.
- Deployment:
 - Supply chain (out).
 - Delivery and installation.
 - Acceptance test.
 - Field trials, field problem resolution, MOL.

10.3 Bringing eTOM into your business – Some hints and suggestions

To begin to evaluate and use eTOM for your own business, it is essential that the ground is prepared so that the goals are clear and it is possible to assess the impact of this.

As a first step, it is important to gain internal commitment to the introduction of eTOM, since the sort of business process analysis, and possible changes that will result, need buy-in and active participation from those affected. From experience, a vital element in success is to obtain senior management recognition and support.

It is also critical to identify and assess the area where eTOM may bring benefit, and to define success criteria for any trial or application of eTOM so that results can be used to build confidence and then to justify further work.

In using eTOM, it is important to recognize that it provides a ready-made, generic business process framework, which may need adjustment for your business, and that it is being further developed to lower-level detail.

So, eTOM can be used directly:

- to assist your business partitioning (eTOM process groupings and definitions to define roles and responsibilities within your organization);
- to seek supply of systems and solutions from vendors that identify which processes within the eTOM framework are being automated, so as to:
 - bring economies of scale across industry;
 - accelerate availability of products;
 - allow customization and extension.

In addition, eTOM can be adapted and extended to accommodate specific needs in your own area:

- Use eTOM framework as a baseline.
- Define additional detail and modifications in areas specific to your business.
- Extend eTOM for use within your company.
- Influence ongoing eTOM development through direct participation:
 - Share ideas and gain insight.
 - Ensure eTOM evolves in line with your needs.
 - Maximize the relevance of industry products.

In extending and customizing eTOM, a number of strategies can be used:

- Bottom up:
 - Start with your enterprise's existing business process definitions.
 - Map existing business process flows back to eTOM.
 - Construct your own decomposition of eTOM – published business processes.
- Top down:
 - Decompose eTOM processes into component processes to expose more detail.
 - Define process flows to link processes together.
 - Combine decompositions and flows to describe fully the behaviour of each process area.

Continue (as required) to lower levels of detail

The approach used can be adjusted as convenient in each case. Experience shows there is value in firming up agreement at a given level of decomposition and analysis before proceeding to develop fully the next level of detail (of course, it may be helpful to "look ahead" a little to ensure that the current level of detail is resilient).

An important message is:

Stop when you wish!

When you have reached an end-point when you have sufficient detail to use within your business, or when you consider the added value gained of developing further detail is not in proportion to the extra work needed.

11 Administrative appendix

11.1 Acknowledgements

This Recommendation is based on material accumulated in the course of the ongoing work on eTOM in the TeleManagement Forum, including material provided by a range of members, and used in presentations, etc., on this topic. Thank you to all those who have been involved and who have contributed along the way on this. For the current release, thank you also to Frank Korinek of Motorola and Viviane Cohen of Amdocs for valuable comments and suggestions, and to Mike Kelly of TeleManagement Forum who handled editing of this Recommendation, and integrated comments and suggestions into the final form showed here.

See main document (GB921 v4.5) for other acknowledgements.

11.2 About TeleManagement Forum

TeleManagement Forum is an international consortium of communications service providers and their suppliers. Its mission is to help service providers and network operators automate their business processes in a cost- and time-effective way. Specifically, the work of the TM Forum includes:

- Establishing operational guidance on the shape of business processes.
- Agreeing on information that needs to flow from one process activity to another.
- Identifying a realistic systems environment to support the interconnection of operational support systems.
- Enabling the development of a market and real products for integrating and automating telecom operations processes.

The members of TM Forum include service providers, network operators and suppliers of equipment and software to the communications industry. With that combination of buyers and suppliers of operational support systems, TM Forum is able to achieve results in a pragmatic way that leads to product offerings (from member companies) as well as written specifications.

Bibliography

- [b-TMF GB921] TMF GB921 Release 7.0 – *Enhanced Telecom Operations Map® (eTOM) – The business process framework for the information and communications services industry.*

SERIES OF ITU-T RECOMMENDATIONS

- Series A Organization of the work of ITU-T
- Series D General tariff principles
- Series E Overall network operation, telephone service, service operation and human factors
- Series F Non-telephone telecommunication services
- Series G Transmission systems and media, digital systems and networks
- Series H Audiovisual and multimedia systems
- Series I Integrated services digital network
- Series J Cable networks and transmission of television, sound programme and other multimedia signals
- Series K Protection against interference
- Series L Construction, installation and protection of cables and other elements of outside plant
- Series M Telecommunication management, including TMN and network maintenance**
- Series N Maintenance: international sound programme and television transmission circuits
- Series O Specifications of measuring equipment
- Series P Telephone transmission quality, telephone installations, local line networks
- Series Q Switching and signalling
- Series R Telegraph transmission
- Series S Telegraph services terminal equipment
- Series T Terminals for telematic services
- Series U Telegraph switching
- Series V Data communication over the telephone network
- Series X Data networks, open system communications and security
- Series Y Global information infrastructure, Internet protocol aspects and next-generation networks
- Series Z Languages and general software aspects for telecommunication systems