

# 3G TS 32.140 V0.1.0 (2000-06)

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*Technical Specification*

**3rd Generation Partnership Project;  
Technical Specification Group Services and Systems Aspects;  
3G Service Management Requirements & Framework  
(3G TS 32.140 version 0.1.0 Release 2000)**

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Keywords

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## Foreword

This Technical Specification has been produced by the 3<sup>rd</sup> Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

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## Introduction

*This version is intended simply as a skeleton to solicit feedback and contributions.*

Release 2000 represents a substantial move towards supporting complex services accessed through 3G mobile technologies.

This shift substantially increases the Service Management challenge from purely voice network service concerns to include:

- Multimedia
- Data services
- Value Added Services
- Terminal and host applications
- Subscription Management & provisioning

This Service Management Framework work captures the operational requirements, and provides a framework for the logical design of a Service Management Building Block.

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## 1. Scope

The present document specifies:

- General Requirements
- Business Models for Service Management Actors
- Supply Chain solutions for Mobile Service Management
- 'Use cases' for Service Management Actors

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## 2 References

The following documents contain provisions, which through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

[<seq>]            <doctype> <#>[ ([up to and including]{yyyy[-mm]}V<a[b.c]>)[onwards]]: "<Title>".

[1]                3G TS 25.034: "Example 1, using sequence field".

[2]                3G TR 21 912 (V3.1.0): "Example 2, using fixed text".

---

## 3 Definitions, symbols and abbreviations

*Delete from the above heading those words which are not applicable.*

*Subclause numbering depends on applicability and should be renumbered accordingly.*

### 3.1 Definitions

For the purposes of the present document, the [following] terms and definitions [given in ... and the following] apply.

*Definition format*

*<defined term>: <definition>.*

**example:** text used to clarify abstract rules by applying them literally.

### 3.2 Symbols

For the purposes of the present document, the following symbols apply:

*Symbol format*

<symbol>            <Explanation>

### 3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

#### Abbreviation format

<ACRONYM> <Explanation>

## 4 Service Management Requirements

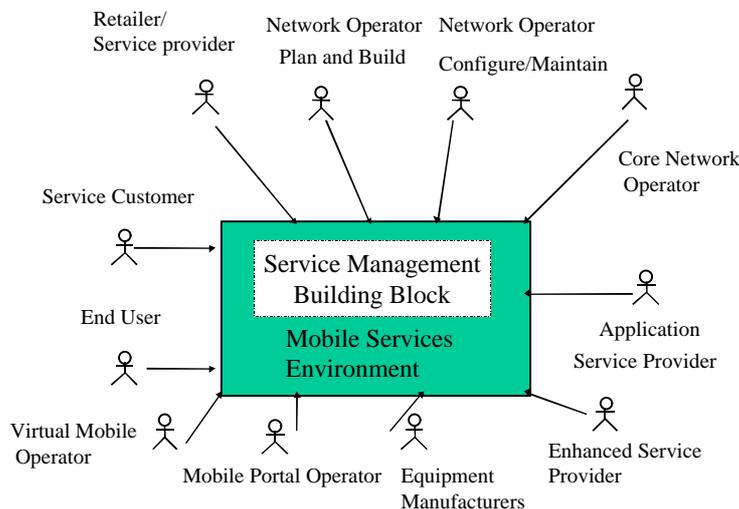
The perspective taken in this document is that Service Management is provided to support the operational needs of operators and their trading partners.

As the services provided over 3G technologies become more data centric, there is a move towards more complex business relationships and 'value chains'. These business models need to be supported by the automation of the supply chain using mainstream IT and e-commerce technologies wherever possible.

The requirements capture is handled in a number of stages. The first stage is to identify the linear single purpose requirements and collate them into a single list. This list is contained in the Annex A. Ultimately these requirements have to be supported by:

- 'Use cases' that describe more precisely the semantics and behaviour required from the Service Management Building Block
- Verification, Validation and Test procedures that are outside the scope of this document.

The approach used to organise and structure requirements is to consider the mobile environment and the set of 'Actors' that need to operationally interact with it. Service Management Requirements are then structured into those that are related to each 'Actor', and those that are general requirements for all actors or general properties desired of the 3G Services Management environment. This is shown conceptually below:



**Figure 1 Relationship between Actors, Mobile Services Environment and Service Management Building Block**

The Service Management Building Block is considered to be one component of the 3G Mobile Service Environment that also includes other 3G Building Blocks.

The Service Management Building Block:

- Will support and co-ordinate Operational Processes for the operator and their trading partners;
- Use capabilities of other 3G Building Blocks where appropriate.

The realisation of the Service Management Building Block may be as many separate interconnected and inter-operating physical systems. Realisation matters are described in Section X.

---

## 5 Business Model

### 6 Overview

*Explains what a business model is and why it is necessary to define one to support the development and specification of a Service Management Building Block.*

### 7 Actors

*This section defines the roles that interact in the business model and the Actors that might perform these roles.*

In the real world, organisations, systems and individuals perform numerous roles (e.g. a Service Customer could also be the End User, or a single individual/system within a Network Operator's organisation could both provision and maintain service). The intention of this section is to identify single role actors. These can then be combined to meet any organisational needs at a later date.

#### Customer

- Service Customer
- End User

#### Retailer/Service Provider

- Service Provision/modification/cessation
- Trouble Management
- Billing

#### 3<sup>rd</sup> generation Network Operator

- Plan and build
- Service provision
- Operate and maintain
- Call management
- Accounting/Billing collection

#### Core Network Operator

- Plan and build

- Service provision
- Operate and maintain
- Call management
- Accounting/Billing collection

### Application Service Provider

- ?????

### Enhanced Service Provider

- 

### Virtual Mobile Operator

- 

### Mobile Portal Operator

- 

### Equipment Manufacturer

- Terminal manufacturers
- Radio equipment manufacturers
- CSN Manufacturers
- PSN manufacturers

## 8 Examples

*Show specific examples of the roles assigned to actors carrying out an example operational process e.g Provision, billing inquiry, customer support inquiry.*

---

## 9 Supply Chain Solutions

*Describes the industry approach to supply chain solutions using e-commerce technologies.*

*Explains the scope of what need to be specified in this 3G documentation and that which should be adopted from mainstream activities such as Commerce One, Rossettanet, ebXML, ...*

*Defines the 3G specific parts of supply chain solutions.*

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## 10 Subscription Management

*Defines the processes that need to be performed amongst actor for Subscription management.*

---

## 11 Use Cases

*'Use cases' organised around actors, and structured according to major processes performed by these actors. Template for Use case provided below. Traceability of requirements in Annex A to 'Use Cases' is required.*

| Use Case Code   | Reference Number.   |
|-----------------|---|
| Use Case Name   | Descriptive name that matches with any 'Use Cases' diagrams used.   |
| Summary         | Short description of 'Use Case' purpose and content.  |
| Parent          | Needed if 'Use Cases' are structure in a hierarchy.   |
| Offspring       | Needed if 'Use Cases' are structure in a hierarchy.   |
| Roles/Actors    | Lists interacting roles/actors involved in the 'Use Case'.  |
| Pre-conditions  | A list of all systems and environmental conditions that must be true before the 'use case' can be triggered.                |
| Begins when     | The name of the single event that triggers the start of the 'Use Case'.   |
| Description     | The various tasks that make up the 'Use Case' . Note necessarily in sequence. May reference or call subsidiary 'Use Cases'. |
| Ends when       | The event(s) that signal that the 'Use Case' has terminated.  |
| Post-conditions | A list of all systems and environmental conditions that must be true if the use case has terminated without internal error. |
| Exceptions      | A summary list of all exception conditions and faults detected by the 'Use Case' during it operation.                       |
| Traceability    | An itemised list of all requirements exposed by this 'Use Case'.  |
| Note            | Anything that needs to included to aid precision and comprehension.   |

---

## 12 Realisation considerations

*Describes some of the consideration in moving from a logical design of a Service Management Building Block to its physical realisation across a number of physical systems.*

*Mainly by reference to other industry work such as the TMG Generic building Block Requirements GB 909 , New Generation OSS Architecture and other sources, JMX, JOSS, ...*

---

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*Annexes are only to be used where appropriate:*

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## Annex A (Normative): Service Management Building Block Requirements

### Annex A 1 General requirements

### Annex A.2 Actor 'xxxxx' Requirements

### Annex A.3 Actor 'yyyyy' Requirements

---

## Annex B (informative): Draft Management Requirements

### From contribution SA5 - 290

The following requirements are numbered to allow for traceability as solutions are developed to meet these requirements. The origin of a requirement is identified in parenthesis.

### **3<sup>rd</sup> Generation Mobile Operator**

#### General

1. Manage equipment from different vendors (3GPP, 3G2)
2. Minimise complexity (3GPP)
3. Minimise cost of managing (3GPP)
4. flexibility to allow for rapid deployment of services (3GPP, 3G2)
5. scaleable (3GPP, 3G2)
6. Management systems should be compatible with and capable of managing 2<sup>nd</sup> Generation equipment (3G2)
7. Reuse existing relevant recommendations (3GPP)
8. Standardise at EM to NM interface (3GPP, 3G2)
9. Support Broker Management and Proxy management models (3G2)
10. Allow interoperability between NO/SPs for exchange of management/charging info (3GPP)

11. Expose info only once (3GPP)
12. Have one naming convention for network resources (3GPP)
13. Support the restoration of an OSS (resynchronisation and atomic transactions (3GPP)
14. Support management of end to end services (3G2)
15. Independent of network architecture (and technology?) (3G2)

---

**Network Planning and build**

16. Add remove and modify Hardware
17. Add remove and modify/update Software

---

**Service provisioning**

18. Allocate unique ID (e.g. E164 or IP address) to customer.
19. Configure network
20. Configure customer profile(s)

---

**Call Management**

21. Collect dynamic and persistent information (TIPHON)

---

**Service Maintenance**

22. Provide info related to integrated fault management that are intended to determine root cause (3G2)
23. Send/receive trouble reports

---

**Network Maintenance**

24. Provide info related to integrated fault management that are intended to determine root cause (3G2)
25. Provide integrated fault management (3GPP)
26. Simplify maintenance management capabilities (3GPP)
27. Exchange trouble reports with others
28. Testing and Diagnosis

---

**Network Performance**

29. to address the assessment of system performance and operation through the use of common measurements etc. (3G2, 3GPP)

30. the performance of OSSs should not impact the performance of the network (3G2)
31. to collect information on the performance of physical systems (e.g. processes, CPU and memory usage) (TIPHON)
32. to collect information on the performance of applications running (e.g. states, notifications) (TIPHON)

#### Billing and Accounting

33. collect information from the network to support billing and charging (new)
34. provide and support flexible billing and accounting admin to support charging across UMTS and non-UMTS systems.
35. Credit Control (pre pay)
36. Transact customer credits/transfer funds

---

#### Security

37. to support key management, access control management, OA&M of security mechanisms, with particular emphasis on new features such as automatic roaming and packet switched services (3GPP, 3G2)
38. fraud management

---

#### Radio System management

39. Manage radio system

---

#### Roaming

40. Roaming agreements?

---

### Customer Location

41. Customer Location information

#### Terminal Management

42. provision,
43. amendment/update/enhancement etc,
44. restriction,
45. cessation,
46. personal data back-up/restoration,

47. security/access control/PIN management,
48. IMEI interrogation,
49. interrogation of terminal type and capabilities,
50. nominated 3rd party service provider access control,
51. credit control (for pre pay),
52. maintenance and fault finding,
53. location determination,
54. service statistics,
55. interrogation of performance parameters (e.g. signal strength),
56. provision of customer information and announcements.

### **3<sup>rd</sup> Generation Mobile Customer**

---

#### **Service provisioning**

57. Request service
  58. Agree SLA
  59. Configure service
- 

#### **Maintenance**

60. Make trouble reports
  61. Receive trouble information
- 

#### **Performance**

62. Receive performance info (if in SLA)

#### **Billing and Accounting**

63. Receive Bills
64. Pay Bills
65. Pre Pay
66. Query credit
67. Transfer funds (per pay)

---

## Security

68. Change PINs
- 

## Roaming

69. Request roaming

## Terminal Management

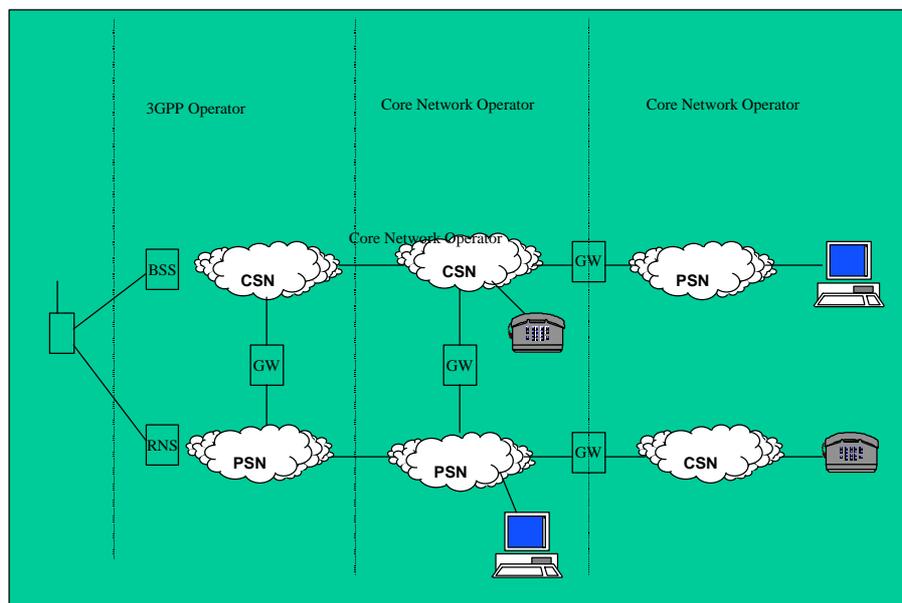
70. Configure (local and download)  
 71. Enter personal data  
 72. Diagnostics and query

Note terminal management should not impact battery life, call latency, call quality etc.

## Core Network Operator (TIPHON)

Except for Radio specific Requirements, these should be as for 3<sup>rd</sup> Generation mobile operators.

## Architecture



This figure integrates the 3GPP and TIPHON architecture.

---

## B.1 Heading levels in an annex

Heading levels within an annex are used as in the main document, but for Heading level selection, the "A.", "B.", etc. are ignored. e.g. **B.1.2** is formatted using *Heading 2* style.



*Bibliography*

*The Bibliography is optional. If it exists, it shall follow the last annex in the document.*

The following material, though not specifically referenced in the body of the present document (or not publicly available), gives supporting information.

*Bibliography format*

- <Publication>: "<Title>".

OR

<Publication>: "<Title>".

## History

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## Annex <X> (informative): Change history

*It is usual to include an annex (usually the final annex of the document) for specifications under TSG change control which details the change history of the specification using a table as follows:*

| Change history |       |          |    |     |                 |     |     |
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| Date           | TSG # | TSG Doc. | CR | Rev | Subject/Comment | Old | New |
|                |       |          |    |     |                 |     |     |
|                |       |          |    |     |                 |     |     |
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