



**Peer Review of Proposed Variation Number 2
to the
Operational Separation Undertakings**

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1 Introduction

On 31 March 2008 Telecom entered into an agreement with the Government, which had the effect of splitting Telecom into three separate business units. In addition the Undertakings require Telecom to:

- supply a specified set of services to others on an equivalence of inputs basis,
- provide an enhanced range of broadband services,
- commit to the progressive deployment of a next generation network and retirement of its existing NEAX telephone exchanges instead of redesigning its legacy public switched telephone network (PSTN) services to comply with the EOI requirement,
- improve the broadband capability of the copper access network through the installation of fibre cable to many cabinets, and
- protect Chorus and Wholesale customer confidential information (CCI) in its shared IT systems.

Clause 9.3(e) of the undertakings defines the obligations Telecom has agreed in relation to staff access to Customer Confidential Information that is held in Telecom's Shared Information Systems.

The undertakings also list a series of enforceable milestones that relate to this commitment.

Telecom has established a "Data Compliance Work Programme" to deliver the outcomes that are required under clause 9.3(e). This programme involves work on 56 shared information systems. Although Telecom has made progress towards meeting their commitments, Telecom has advised the Minister that it cannot complete the CCI Programme on-time and have asked the Minister to agree to a variation to the undertakings that will have the affect of delaying CCI milestones.

The purpose of this paper is to provide a peer review of Telecom's submission. The paper comments on:

- The current status of the Data Compliance work programme.
- Telecom's approach to meeting the conflicting requirements of its work programmes.
- The steps that Telecom plans to take in order to complete the outstanding systems upgrades.

This review is based on an inspection of documentation and interviews with Telecom and EDS staff. At this stage no input has been sought from either access seekers or Telecom's customers.

2 The CCI undertakings

The Undertakings permit Telecom to share assets and systems with any other Telecom Business Unit, provided that the terms on which those assets or systems are shared comply with the requirements of the Undertakings.

Section 9.3(e) of the Undertakings require Telecom to ensure that in respect of access by Employees to information contained in shared information systems (including those

Telecom systems called ICMS, FAIMS, TCDATA, Probe, AXIOSS and TRIAD at the Approval Date) in the ordinary course of business, that:

(i) from 1 July 2008 until 31 December 2009, any ANS Unit or Wholesale Unit Customer Confidential Information so accessed by Employees will not be used or disclosed in a manner that is contrary to these Undertakings;

(ii) by 30 September 2008, it has developed a plan for upgrading or migrating its shared information systems to meet the requirements in clause (iii) that follows, and provided that plan to the Independent Oversight Group (IOG);

(iii) by 31 December 2009, Telecom's shared information systems are upgraded to prevent ANS Unit and Wholesale Unit Customer Confidential Information being accessed by Employees in the ordinary course of business, except as expressly permitted by Undertaking clauses 33, 58, 88.4 and 88.5.

In response to these undertakings Telecom:

- quickly introduced a number of operational measures and small system changes to meet its "access and disclosure" obligations under Section 9.3 (e) (i), and
- established the "Data Compliance Work Programme" to address the shared systems requirements in Section 9.3 (e) (ii) and (iii).

3 Current status of the undertakings

The following table outlines the relevant undertakings and summarises the status of each undertaking.

Undertaking	Date / obligation	Current status
Any ANS Unit or Wholesale Unit Customer Confidential Information accessed by Employees will not be used or disclosed in a manner that is contrary to these Undertakings	31 March 2009 Enforceable milestone	Achieved (See Section 4 for further comment)
Developed a plan for upgrading or migrating its shared information systems to meet its obligations and provided that plan to the Independent Oversight Group	30 September 2008 Tracking milestone	Achieved late (See Section 5 for further comment)
Telecom's shared information systems are upgraded to prevent ANS Unit and Wholesale Unit Customer Confidential Information being accessed by Employees in the ordinary course of business	31 December 2009 Enforceable milestone	Will not be achieved (See Section 6 for further comment)

The following sections of this report discuss and comment on the progress that Telecom has made against each of the above undertakings.

4 Use of confidential information undertaking

Telecom has put in place operational measures to protect customer information, and continues to augment these with system-based changes. The measures include:

- Rigorous information-use policies and comprehensive training and monitoring programmes to support them¹;
- Recording and auditing every instance of incidental views by retail of identified ICMS screens which contain CCI; and
- Internal monitoring, and IOG oversight and investigation of over 2500 self-recorded "views" of CCI by retail staff.

Telecom reports that they have clear evidence, from honesty box submissions, IOG investigations and auditing that these measures are being complied with.

The effectiveness of these actions can also be judged by reference to the following survey results where Chorus and Wholesale customers were asked:

"Are you aware of any instances where Chorus / Wholesale is not protecting your customer confidential information in relation to Chorus / Wholesale Relevant services?"

Chorus survey result

Survey period	Yes	No	Don't Know
31 March 2009	2%	82%	16%
31 December 2008	6%	85%	9%
30 September 2008	0%	87	13%

Wholesale survey result

Survey period	Yes	No	Don't Know
31 March 2009	1%	82%	17%
31 December 2008	5.2%	78.1%	16.7%
30 September 2008	4%	62%	34%

5 Undertaking to prepare a plan

As required by the undertakings Telecom produced a document that described the:

- Planned approach for each application/system requiring resolution;
- A description of the methodology used to identify all of the shared information systems in the Telecom environment, the assessment criteria used to determine compliance, and a summary of findings; and
- A strategy for enhancing the protection of both Commercial Information and Customer Confidential Information and meeting the requirements of clause 9.3(e) (iii).

This plan was reviewed by the IOG who found that the plan "currently did not have sufficient information to give comfort that the final 31 December 2009 completion date

¹ Further detail describing the steps that they have taken can be found at Paragraph 10 of their submission.

can be achieved.” The IOG resolved to report to the Telecom Board under clause 79.1 (j) that the lack of detail contained in the plan combined with other factors was an issue of concern.

Subsequently the March 2009 IOG minutes record the following comments.

“9.3 (e) (ii) Requirement to separate shared systems information

The IOG raised an “issue of concern” with the Telecom Board (clause 79.1(j)) on 8 December 2008. Telecom responded and advised they would present an update on current status to the 12 March 2009 IOG meeting. Accordingly Telecom provided a detailed update on the status of this milestone”

A revised version, “The March Plan,” was issued by Telecom on 2nd April 2009.

Although the undertakings do not specify either the nature or content of The Plan it is our view that these plans are incomplete. For example, whilst both plans provide very good descriptions of the programme’s scope, the plans do not cover key content such as:

Sub-project structure	Stakeholder communications
Programme controls	Issue management
High level time line	Risk assessment and risk management plan
Resourcing	Change management process
Dependencies	Financial plan

Given that Telecom had to analyse 1321 systems and specify fixes for 56 systems it is not surprising that the September Plan did not contain resourcing and dependency details. However, we would have expected that the March Plan would have addressed these points and would have highlighted the risks that faced the programme.

In March 2009 Telecom significantly improved its Programme Management processes and satisfactory programme level documentation, processes and controls are now in place.

We therefore consider that this tracking milestone was properly achieved in June 2009.

Notwithstanding the planning deficiencies at a Programme level, sub-project work teams have been established in a timely manner and progress, on system upgrades, has been made as we discuss later in this paper.

6 Undertaking to upgrade systems

In this section we examine Telecom’s approach to upgrading its systems to meet this undertaking from the following perspectives:

- Methodology
- Work sequencing
- Work prioritisation
- Programme level management.

6.1 Methodology

Telecom's approach has been to analyse each system, identifying who the users are, their roles in the new structure, the types of information that the system holds and the system's technical characteristics.

Using this work the team then develops a solution that could involve one or more of the following options:

- Decommissioning;
- Removing access;
- Changing the structure of the system to enable role based access;
- Changing the business process(s).

The teams have analysed 1321 systems and have identified 56 systems that require some form of action. For example with respect to Telecom's Integrated Customer Management System (ICMS) the teams reviewed 3200 screens, (over 300 of these require changes to be made). In addition an additional ICMS 2880 reports and extracts are being reviewed.

This work has largely been done "by hand" although we do note that Telecom proposes to use an impersonation tool to discover the complete user population for FAIMS². Neither Telecom nor EDS (its prime contractor) appears to have taken the opportunity to use software tools such as X-Analysis³ that can (for ICMS):

- document business level logic, data structures and provide system-level data models, and
- assist analysts to trace the impact of proposed data and logic changes.

Although these tools introduce complexity and overhead when they are deployed, in the longer term they will usually:

- reduce the workload that this type of programme places on key experts
- improve the accuracy of specifications, and
- reduce unit and integration testing.

On balance we are of the view that Telecom could have reduced some of the ICMS effort and complexity had it taken an early decision to use a software tool such as X-Analysis.

It is unlikely that similar tools would have yielded significant benefits for any of the shared system upgrades.

6.2 Work Prioritisation

Telecom has prioritised the systems fixes as follows:

First priority (For completion by 31 December 2009)

Decision support systems, such as PROBE, that can be used to "mine" and aggregate data.

² FAIMS is a system that process maintenance information from legacy service platforms

³ This is a tool that has been specifically developed for the ICMS environment.

Second priority

Transactional systems that allow access to one record at a time.

Within this second group Telecom has given priority to fixes for high-use and high-risk screens – including winback screens. This means that by 31 December 2009 fixes will be in place that address some 75% of Telecom’s ICMS high usage screens. This means that data related to most standard residential transactions will be protected, however some exposure will remain with respect to complex business services.

Five further software releases are scheduled to be completed by May 2010. These will address the balance of the ICMS issues and enable the up and downstream systems to be upgraded in an orderly manner.

6.3 Transaction system work sequencing

Since the late 1980s, Telecom has developed a complex structure of systems to support the various elements of its network. While there are a myriad of systems aimed at supporting specific services or equipment, the backbone of Telecom’s OSS is composed of four key systems clusters:

- The Integrated Customer Management Systems (ICMS);
- The National Faults and Work Management System / Field Access Server / National Testing System (NFWMS / FAS / NTS);
- The Network Records / Mapping System Cluster (NETREC / NETMAP / NETSOC);
- The Network Management and Surveillance system cluster.

The following diagram provides a very simplified overview of the overall operating support system (OSS) landscape.

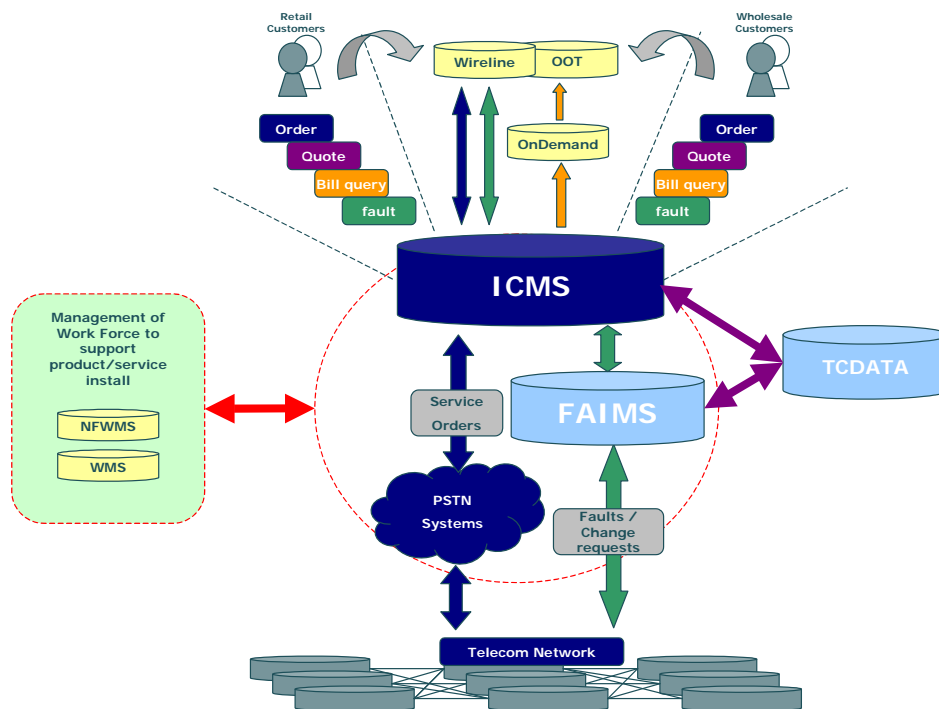


Figure 1 Simplified overview of Telecom’s Support Systems

Because ICMS is either the destination system for a number of front-end input systems such as OOT and Wireline⁴ or the source of data for systems such as NFWMS and FAIMS⁵, Telecom has decided that it will “fix” ICMS before it “fixes” either the upstream or downstream transaction systems. This approach reduces complexity and risk because it provides developers with a relatively stable ICMS target to work to. However it does mean that some systems will not be upgraded until the major ICMS releases have occurred.

6.4 Programme level management

In addition to the Data Compliance work programme, Telecom has established five other Operational Separation related work programmes that are contending for resources and impact on Telecom’s shared systems. These work programmes are:

1. (Network element) Inventory Management EOI building block.
2. Primary line voice programme.
3. Chorus 2009 equivalence requirements.
4. Wholesale 2009 equivalence requirements.
5. New Retail broadband service consuming EUBA / BUBA.

The combined impact of these works programmes and Telecom’s business as usual initiatives mean that Telecom has the following work pipeline that must be delivered between July 2009 and 31 March 2010.

175 projects

340 deliverables

50+ IT environments / systems.

These projects have a major impact on 6 key IT systems, a significant impact on 18 other IT systems and less significant affects on many other IT systems and business processes.

Telecom has advised that they have issues that relate to congestion and complexity. These issues come from the volume of work and timeframes converging on the same people and IT systems (congestion) and the interdependency of the work (complexity).

Faced with this situation Telecom has followed a standard portfolio management discipline and has carefully examined the content and nature of the competing work programmes.

The objective of this exercise was to identify tactics that could:

- reduce complexity and congestion,
- reduce operational risk (i.e. reduce the risks of affecting day to day customer services),
- minimise any impact on high-priority Operational Separation activities, and
- limit knock-on or consequential impacts of any changes.

The outcome of this exercise is that Telecom has decided to:

- delay a number of non-regulatory business as usual projects,

⁴ OOT and Wireline are systems used by Wholesale to input data into ICMS.

⁵ NFWMS and FAIMS are systems that are used to support network operations and maintenance activities.

- ask the Minister to agree to a variation of the Undertakings that will permit Telecom to delay aspects of the Data Compliance Work Programme, and
- defer aspects of the development of the retail primary line voice service (that do not impact the relevant enforceable milestone).

7 Telecom's Proposed Variation

7.1 Introduction

Telecom seeks the Minister's approval to vary the Undertakings that will have the affect of:

- deeming that a defined set of legacy PSTN back-office are compliant as long as Telecom puts in place a specified set of controls and restrictions,
- allowing Telecom additional time to devise a solution for FAIMS, and
- permitting Telecom to shift completion of the CCI programme from 31 December 2009 until 31 December 2010.

Telecom proposes to add a number of tracking milestones to assist in ensuring that the variation to the enforceable milestones will be on track.

7.2 Legacy PSTN Back Office Systems

Telecom proposes that the following systems be effectively removed from the data separation requirements in the undertakings and be replaced by a set of operational controls and restrictions.

PSTN System Name	Information within system
NetEvents	Used for recording pre-plans and customers impacted by the faults.
SED	Used in conjunction with NetEvents.
NetRec	Allows for configuration of the PSTN and provides off-line records for some network elements.
NetConfig	Part of a suite of applications holding network configuration data.
NetBuild	Part of a suite of applications holding network configuration data.
Spanlines/Transman	Contains a record of copper based 2Mbps connections
NetSOC	Holds a list of the network objects in the network and provides information on state of network performance.
WMS	Field force management tool, which hands work, requests to service companies.
TLRD	Shows the logical configuration of the transport network, provide outage impact reports for bearer outages and work orders to maintenance staff involved in installing bearers.
NetReport	Reports on performance and configuration of

	the network
BORG	Contains network performance and availability information for a range of network services.
NTS	Enables remote testing of the copper network
NFWMS	Allows field force personnel/service companies to complete line tests
OTIS	Used to configure the PSTN

The approach is proposed because these systems:

- are old and difficult to upgrade,
- are primarily used by a relatively small group of Network Management personnel,
- will be progressively replaced, by compliant systems, as legacy transmission and switching equipment is replaced, and
- do not contain information that could provide competitive advantage.

Given the very low level of possible impact on relevant services EOI requirements, these proposed changes are supported.

7.3 Fault Alarm and Information Management Systems (FAIMS)

FAIMS is a management system built to manage the installation of legacy Time Division Multiplex (TDM) data services and faults from legacy business telephone services. FAIMS provides a system for logging/tracking and reporting of business customer reported faults for enhanced services and business customer requested move/add and changes for enhanced business legacy data and telephone services.

FAIMS also processes faults for legacy data network equipment earth contact alarms from the legacy Digital Services Transport Network (DSTN) customer management system and processes equipment alarms for the ATM platform.

FAIMS maintains a Port Inventory and supports Port reservation and allocation for:

- Digital cross connects, ATM ports, old DSLAM and GDC Flex-mux ports
- Juniper (NGN Services)
- IP address reservation and allocation for the IP core
- International VPN
- VOIP
- Remote office
- MSSA management
- Ethernet access platform
- Media converter racks.

FAIMS is a FoxPro application that has organically grown over the last 15 years. It has very limited documentation and Telecom has indicated that they cannot provide an upgrade plan until 31 December 2009.

7.4 Delayed completion

Telecom's request for delayed completion is the result of an extensive review of the congestion and complexity issues that they face.

Although it is clear that Telecom's CCI September and March Programme Plans were inadequate and it is arguable that their prime contractor, EDS, could have used automated tools to reduce the ICMS workload and risk profile, it is clear that the total work volume would still exceed their capacity to complete it in a manner that does not jeopardise operational integrity.

In the normal course of events companies have three choices when work programmes come under pressure, namely:

- apply additional resources,
- defer components, or
- reduce scope.

Whilst additional resources may address the workload issue, in this case they cannot address the complexity issue. In view of this Telecom has therefore chosen to:

- defer work on some business as usual projects,
- defer work on the primary line voice service and therefore miss a tracking milestone,
- defer aspects of the CCI programme, and
- reduce the scope of the CCI programme through the deletion of some legacy systems from the list.

This raises the question, "could Telecom have deferred another Operational Separation programme?"

The simple answer is yes, but delay to any of other separation work programmes has a significant knock-on to other separation work. In practice Telecom has chosen a strategy that minimises downstream impact.

7.5 Proposed new milestones

Telecom proposes that the Minister agree to a new set of tracking milestones and a revised enforceable milestone of 30 September 2010.

In general the new tracking milestones fairly reflect Telecom's revised work plan. Given that Telecom proposes to deliver a substantial fix by 31 December 2009 there is a case for making this event an enforceable milestone. Doing so would provide access seekers with greater certainty and ensure that Telecom applies its best efforts to complete the work as proposed.

However, design and coding work has been substantially completed and testing is underway. Telecom needs to remain on track with this work in order to complete other parts of the programme. Therefore it is not considered necessary to make this event an enforceable milestone.

7.6 Requirement for additional reporting

Given that Telecom is clearly under pressure to complete the Separation Work Programmes, it is recommended that consideration be given to asking Telecom to agree⁶ to a new undertaking that requires that the IOG provide to the Commission a comprehensive bi monthly progress report to better track Telecom's progress in implementing the key aspects of the Undertakings.

Such a report would cover at least the following topics:

⁶ By amending Clause 79.1(k) of the Separation Undertakings

- The status of each of the work programmes and where relevant it should examine the progress of relevant sub-projects.
- An analysis of the risk profile of each work programme.
- A review of any significant decisions that have an impact on scheduling or the likely success of the work programmes.

Such a requirement should be focused on:

1. Quickly highlighting any new issues that may arise in what is a very large and complex portfolio of work programmes.
2. Provide the wider industry with a more visible assurance that Telecom's programme level decisions are both fair (to the industry and end-customers) and are in keeping with the undertakings.