Transport for London

Revenue Collection Services

Schedule 2 – Revenue Collection Overview

Contents

1 Introduction

1.1 Scope and Purpose

1.1.1 This Schedule provides an introduction to and an overview of the Contract documentation and the concepts behind both its structure and the approach and language adopted within the Contract and, in particular, the Schedules.

1.1.2 This overview is intended to introduce and expand on the information provided elsewhere within the Contract to ensure that the concepts and approach underlying the main provisions are easily and properly understood. It is not intended to contain specific obligations on either Party.

1.1.3 The overviews, diagrams and tables within this Schedule are intended to provide a high level picture only and should not be interpreted as being complete or comprehensive. In the event of any inconsistency or conflict between the contents of this Schedule and any other part of the Contract, that other part of the Contract shall take precedence.

1.2 Service Continuity

1.2.1 TTL has developed a reputation for delivering a high quality, reliable and consistent service to its customers (including Customers) through the IRC System. It is essential that this continues.

1.2.2 The Contractor will be acting as the System Integrator for the entire IRC System with the objective of ensuring the continuing integrity of the IRC System and the continuity of the Services delivered through it through the effective management of Incidents and Changes.

1.3 Assurance

1.3.1 TTL has engaged the Contractor on the basis of the Contractor's experience, expertise and proposed solution to the delivery of the Services and other obligations under the Contract. TTL wishes to give the Contractor latitude to manage its operations effectively; however, the operation of the IRC System is critical to TTL's business operations and consequently the Contractor needs to demonstrate to TTL that it is complying with the principles and specific requirements and obligations set out in the Contract. This process is called Assurance and is principally set out in Schedule 10.5 (Assurance).

1.3.2 Assurance is an activity performed by the Contractor to demonstrate compliance to TTL and includes, but is not limited to, the submission of documents, responding to questions and comments, and witness testing. Assurance is frequently an incremental process that provides confidence to both parties of successful delivery. It should not, however, be confused with approval from TTL and does not relieve the Contractor of its responsibilities or liability under the Contract.

2 Document Architecture

2.1 Basic Contract Structure

2.1.1 The Contract is constructed from three mutually supporting elements:

(a) **Main Terms & Conditions** – this contains the main rights and obligations of the Parties expressed in **Clauses**;

(b) **Schedules** – these contain further obligations, the System Specifications, Service Levels and contract processes expressed in **paragraphs**, or in the case of the System Specifications and the standard forms, **sections**; and

(c) **Supporting Documents** – these are documents which are incorporated into the Contract by reference.

2.1.2 The Contract Clause and Schedule structure has been constructed using the following underlying structure to aid with Contract administration:

2.1.3 This structure is intended to group the provisions together logically to reflect the broad phases of the Term:

(a) **Entry** – the entry into the Contract and conditions to its commmencement;

(b) **Operations** – the elements relating to the routine operation of the Contract for the majority of the Term;

(c) **Exit** – the elements associated with the termination of the Contract and handback of the System and the Services;

(d) **General Terms** – the elements which are generally applicable throughout the Term; and

(e) **Miscellaneous Provisions** – the more administrative and standard terms, processes and forms also applicable throughout the Term.

2.1.4   This approach is intended to help simplify Contract administration by grouping together those elements which are only required once (e.g. transition) and those which are relevant to the day to day operations.

2.2   Structure of the Schedules

2.2.1   Within the structure outlined above, the Schedules themselves have been grouped to bring together broad themes and organisational groupings:

Entry	Operations	Exit
None	Sch 4 (The Services)	Sch 18 (Payments on Termination)
	Sch 5 (Front Office Specifications)	Sch 19 (Handback of Services)
	Sch 6 (Back Office Specifications)	Sch 20 (TUPE and Employees)
	Sch 7 (Systems Integration)	
	Sch 8 (Service Operations)	
	Sch 9 (Technical System Management)	
	Sch 10 (Change and Assurance)	
	Sch 11 (Business Management)	

General Terms	
Sch 1 (Definitions)	Sch 15 (Dispute Resolution Procedure)
Sch 12 (Commercial Management)	Sch 16 (Loss of Revenue from List Management)
Sch 13 (Financial Distress)	Sch 17 (Insurance Requirements)
Sch 14 (IPR Management and Licences)	

Miscellaneous Provisions
Sch 21 (Standard Forms)

3 The IRC System

3.1 Overview

3.1.1   The IRC System comprises the logical architecture and physical infrastructure which enables Transport for London (TfL) to retail Travel Products, collect the associated revenue, apportion that revenue between TTL, Interfacing Parties and Third Parties and to provide management information for TTL's business.

3.1.2   The IRC System comprises the System and the Related Systems as outlined in paragraph 3.1.4. The Contractor is the System Integrator for the entire IRC System (as set out in Schedule 7 (Systems Integration)) and is directly responsible for the management, maintenance and operation of the System. The Related Contractors are responsible for the management, maintenance and operation of the Related Systems.

3.1.3   The IRC System is connected to the Interfacing Systems which are to varying degrees dependent on the proper operation of the IRC System in order to perform their intended functions. The Interfacing Parties are responsible for the management, maintenance and operation of the Interfacing Systems.

3.1.4   The diagram below gives a high level overview of these systems but is not comprehensive (particularly in respect of the Interfacing Systems):

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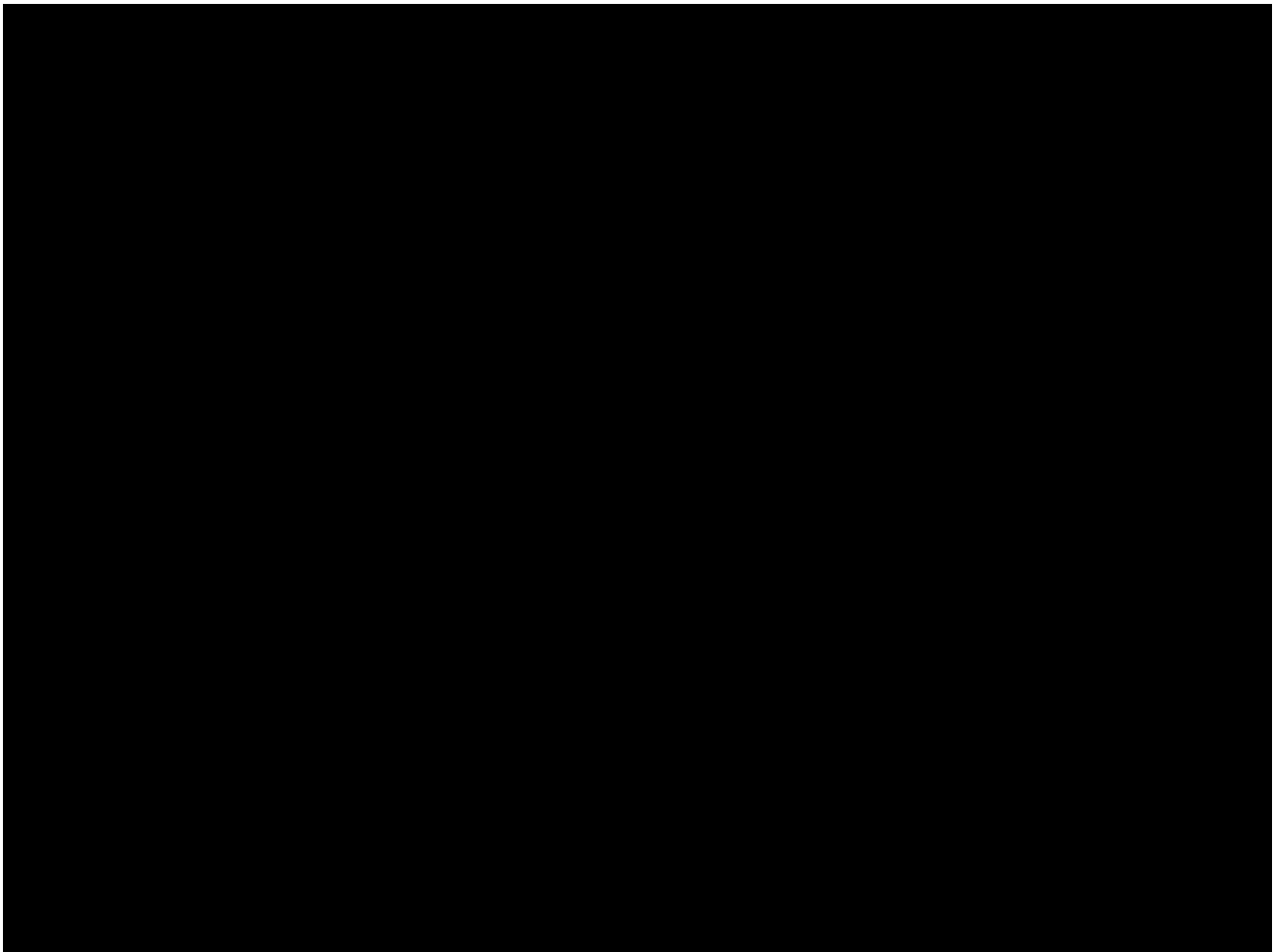
3.2 Logical Architecture

3.2.1 In order to describe and manage these and other systems (which do not interface with the IRC System), TTL has developed a System architecture classification language which may be summarised as follows (with examples from the IRC System where relevant):

(a) **TTL Systems Portfolio** – the group of systems which TTL, other parts of the TTL Group and their contractors manage, maintain and operate (which includes the IRC System);

(b) **System** – a network of functionally dependent modules designed to operate together to deliver a defined series of outputs (e.g. the System, each Related System and Interfacing System);

(c) **Domain** – a logical group of modules or systems principally used for managing Changes and releases (e.g. Front Office Module infrastructure – Rail);

(d) **Module Group** – a group of modules with strong functional or operational interdependencies (e.g. the FTP Back Office Modules);

(e) **Module** – a functional part of a system capable of being unambiguously defined by reference to its inputs, outputs and interfaces (e.g. the Fares and Aggregation Engine (FAE));

(f) **Component** – a functional part of a complex module (e.g. FAE Engine Controller); and

(g) **Interfaces** – the connections between individual modules or systems. These can be divided into internal interfaces (e.g. those within the System) and external interfaces (e.g. those between the IRC System and Interfacing Systems).

3.2.2 As set out in Schedule 1 (Definitions), language consistent with this classification approach has been adopted, wherever possible, within this Contract to improve communication and understanding between the Parties.

3.2.3 The various aspects of the logical architecture and classification of the IRC System are set out in a number of documents including:

(a) **Module Breakdown Structure** (MBS) – this is set out in Schedule 14 (IPR Management and Licences) and provides a unique identifier for every Component of the System and this reference is used throughout the documentation for consistency of referencing;

(b) **Domain Component Map** (DCM) – this is set out in Schedule 9.1 (Technical Authority) and provides a view of Modules at different levels of abstraction so the systems can be understood at increasing levels of detail;

(c) **System Architecture Diagram** (SAD) – this is set out in Schedule 9.1 (Technical Authority) and shows the individual functional Components and their physical connectivity in one diagram; and

(d) **System Data Flow** (SDF) – this is set out in Schedule 9.1 (Technical Authority) and shows the individual Modules and Components of the System and identifies the Data that flows in each direction between the Modules and Components.

3.2.4 Some Modules within the System were designed and implemented by TTL (the TTL Modules); however, the Contractor's obligations with regard to these Modules are the same as for all other Modules with the sole exception of the provision of Level 3 Support.

3.3 Physical Architecture

3.3.1 The System is physically divided into those parts which reside in the Data Centres (the Back Office Modules) and those which reside elsewhere typically with the end user (the Front Office Modules).

3.3.2 Whilst the logical architecture description of the System is useful from a technical management perspective this does not fully describe the physical System, particularly in respect of the Back Office Modules where Modules exist across several physical Devices.

3.3.3 In order to describe and manage the tangible components of the System TTL has developed an asset classification language which may be summarised as follows (with examples from the System where relevant):

(a) **Asset** – this classification encompasses every physical element of the System and is the general term used when seeking to capture any and all levels of assets within the System and it is this level which is captured on the Asset Register (as required by Schedule 8.2 (Asset Management & Maintenance));

(b) **Device** – frequently synonymous with Modules, particularly in relation to the Front Office Modules, this is a self-contained piece of equipment designed to deliver a defined range of functionality to an end user (e.g. Multi Fare Machine) and it is this level which is captured on a Device template (as required by Schedule 8.2 (Asset Management & Maintenance));

(c) **Component** – a module within a Device which is usually capable of being repaired (rather than always having to be replaced) when it has a System Fault, which is also individually traceable and can be replaced on Site by an individual engineer (e.g. a ticket handling unit, paddle mechanism, Gate motor assembly); and

(d) **Parts** – a part of a Device which is not usually capable of being repaired and is not individually traceable (e.g. drive belt, printed circuit board component).

3.3.4 TTL will continue to own the System and all its Assets for the entirety of the Term.

3.4 Functional Requirements

3.4.1 The functional requirements for all the Modules within the System are set out in Schedule 5 (Front Office Specifications) and Schedule 6 (Back Office Specifications). Each of these Schedules has been sub-divided in order to group Modules logically and also to facilitate Changes to the System during the Term.

3.4.2   Unless otherwise stated in those Schedules, at the Service Commencement Date the System delivers the functionality described. Subject to the relevant provisions of the Contract, the Contractor may alter the technical specifications of Modules but such alterations must not adversely affect the functionality required.

3.5   Technical System Management

3.5.1   TTL depends on the architecture of the System in order to deliver services through Interfacing Systems and to add New Services and New Technologies in the future. Accordingly, TTL wishes to retain a level of control relating to the key aspects of the System architecture.

3.5.2   This is achieved through the Technical Authority as set out in Schedule 9.1 (Technical Authority) who will act as the custodian of the IRC System Architecture. The Contractor retains a level of flexibility within the framework established by the System Design & Operating Principles which are set out in Schedule 9.2 (System Design & Operating Principles).

3.6   Asset Management

3.6.1   Whilst the Assets are owned by TTL, the Contractor is responsible for monitoring and maintaining them.

3.6.2   The Contractor is required to monitor, report on and forecast the condition of the Assets such that TTL and the Contractor can engage to establish the appropriate strategy for Performance Assurance associated with the Asset lifecycle, obsolescence and capacity. The requirements and processes to support this approach are set out in Schedule 8.2 (Asset Management & Maintenance).

4 The Services

4.1   Overview

4.1.1   The Services to be delivered by the Contractor are set out in Clause 8 (Service Specifications and Delivery) and further defined along with the Service Levels in Schedule 4 (The Services).

4.1.2   The Service Levels and requirements set out in Schedule 4 (The Services) have been developed from the following key metrics which underpin the TTL approach to Service management:

(a)   **Event Management** - where possible all parts of the IRC System, Service metrics and deliverables will be proactively monitored by the OSS to provide a central command and control function across all service suppliers in the IRC System;

(b)   **High Availability** - the Modules and Devices, particularly the Customer touch-points must be fully functional and available for use during relevant operating hours. This should be enabled through high, but achievable performance regimes combining reliability, resilience, proactive fault identification and resolution;

(c)   **Data Completeness** - it is essential to revenue security and a quality Customer experience that no Data is lost. Accordingly all Data is properly

captured and transmitted using robust and resilient processes and protocols; and

(d) **Low Latency** - delayed Data transmission adversely affects the Customer experience and may lead to increased settlement charges or actual revenue loss. Accordingly, Data must be transmitted with the minimum of delay both to and from the Customer touch-points.

4.1.3 Schedule 4 (The Services) is sub-divided into a number of Schedules which bring together the common performance regimes and end users of the Services. Schedule 4.1 (Service Delivery) spans the entire scope of the Services as its primary end user is TTL Service Operations. Schedule 4 (The Services) is formed of four main groups:

(a) Service Management and IRC System wide Services:

(i) Schedule 4.1 (Service Delivery) – Services applicable across the entire IRC System, Service management, monitoring and reporting;

(b) Front Office Module centric Services:

(i) Schedule 4.2 (Surface Transport Services);

(ii) Schedule 4.3 (LU Services);

(iii) Schedule 4.4 (Rail Services); and

(iv) Schedule 4.5 (Support Services);

(c) Back Office Module centric Services:

(i) Schedule 4.6 (FTP Back Office Services);

(ii) Schedule 4.7 (ITSO Services); and

(iii) Schedule 4.8 (Prestige Back Office Services); and

(d) Retail and Consumables Management:

(i) Schedule 4.9 (Retail Management Services); and

(ii) Schedule 4.10 (Sales & Consumables).

4.2 Service Management

4.2.1 In order to standardise its approach, TTL has chosen to adopt elements of the Information Technology Infrastructure Library (ITIL) into its operations and this is reflected in the Contract. The System combines standard IT and electro-mechanical elements along with bespoke Services and therefore complete adoption of ITIL was not considered appropriate.

4.3 Service Design

4.3.1 The System and the Services interface with the Related Systems and Interfacing Systems and so it is essential to develop a common language and operational

framework if TTL, the Contractor, the Related Contractors and the Interfacing Parties are to work together to deliver high quality Services to Customers.

4.3.2   The Schedules provide greater detail in specific areas of Service transition and operation; however the following items set out key Service design principles for TTL and the Contractor:

(a)   design Services to satisfy business objectives, based on the quality, compliance, risk and security requirements, delivering more effective and efficient solutions and Services aligned to organisational needs;

(b)   design Services that can be easily and efficiently developed and enhanced within appropriate timescales and costs and, wherever possible, reduce, minimise or constrain the long term costs of Service provision;

(c)   design efficient and effective processes for the design, transition, operation and improvement of high quality Services, together with the supporting tools, systems and information, especially the Service portfolio, to manage Services through their lifecycle;

(d)   design secure and resilient Service infrastructures, environments, applications, data/information resources and capability that meet the current and future needs of the organisation;

(e)   design measurement methods and metrics for assessing the effectiveness and efficiency of the design processes and their deliverables;

(f)   produce and maintain processes, policies, architectures, frameworks and high level Service design documents to meet current and future agreed organisation needs;

(g)   assist in the development of policies and standards in all areas of design;

(h)   develop the skills and capability within the respective organisations by moving strategy and design activities into operational tasks, making effective and efficient use of all Service resources; and

(i)   contribute to the improvement of the overall quality of Service within the imposed design constraints, especially by reducing the need for reworking and enhancing Services, once they have been implemented in the live operational environment.

4.4   Service Transition

4.4.1   Service transition is the implementation of new Services and includes the following key activities and processes:

(a)   *Change Management*: to provide technical assessment of all Changes to the System to ensure that the current and future agreed business requirements are met and to enable beneficial Changes to be made, with minimum disruption to Services. These processes are more fully described in Schedule 10.1 (Change Management);

(b)   *Project Management:* to provide technical support to project managers in the design and implementation of Changes to the System. These processes are more fully described in Schedule 10.2 (Programme and Project Lifecycle);

(c)   *Release Management:* to plan, schedule and control the movement of releases to test and live test environments, and to enable the smooth transition of fixes, enhancements, new developments and programmes into live operational service environment whilst minimising disruption to Services. These processes are more fully described in Schedule 10.1 (Change Management);

(d)   *Service Validation and Testing:* to ensure that deployed releases and the resulting Services meet Customer expectations, and to verify that the operations are able to support the new Service in the live operational environment. These processes are more fully described in Schedule 10.2 (Programme and Project Lifecycle) and Schedule 7.2 (System Integrator);

(e)   *Early Life Support:* to support the initial deployment of a new function into normal operations. This is more fully described in Schedule 10.2 (Programme and Project Lifecycle);

(f)   *Security Management:* processes to ensure the security and integrity of the System and the Services. These processes are more fully described in Schedule 9.4 (Security Management);

(g)   *Capacity Management:* processes to ensure that the System has sufficient capacity to continue to deliver the Services. These processes are more fully described in Schedule 8.2 (Asset Management & Maintenance);

(h)   *OSS Configuration:* processes and thresholds to create alerts that support proactive problem and intervention management. These processes are more fully described in Schedule 4.1 (Service Delivery);

(i)   *CMDB Configuration:* processes to ensure that the Configuration Data of all Configuration Items (CIs) and their relationship with other elements of the system is contained within the Configuration Management Database (CMDB) to support Service operations and Change management. These processes are more fully described in Schedule 10.1 (Change Management);

(j)   *Knowledge Management*: processes to gather, analyse, store and share knowledge and information to improve the efficiency and availability of Services provided;

(k)   *Problem Management:* processes that allow the early identification of threats, which could lead to a Service outage occurring, in sufficient time to allow the Contractor to intervene and/or jointly agree to take forward as part of continual Service improvement; and

(l)   *Continual Service Improvement:* a proactive and responsive approach which delivers a process of continual Service improvement to realise improvements in Service quality, operational efficiency and business continuity.

4.4.2   TTL have a team who manage the TTL activities associated with Service transition who also provide technical support to TTL Service Operations and support the Technical Authority to represent TTL interests in all matters relating to technology

decisions including platform roadmaps that interface into the IRC System, the Services and other Interfacing Systems.

4.5   Service Operations

4.5.1   Service operations is the day to day operation of the Services and includes the following key activities and processes:

(a)   *OSS Monitoring Tools:* sometimes referred to as "event management", their key task is to ensure that the Level 1 Help Desk is constantly monitoring all of the Devices/CIs and Services with appropriate thresholds applied. The OSS is more fully described in Schedule 4.6 (FTP Back Office Services) and Schedule 6.6 (Operational Support System);

(b)   *Incident Management:* to ensure that the Level 1 Help Desk remains the single point of contact and manages the lifecycle of all System Incidents, Incidents, System Faults and Faults. The primary objective of incident management is to return Services to Customers as quickly as possible. These processes are more fully described in Schedule 4.1 (Service Delivery);

(c)   *Site Access:* where the Contractor requires access to any Site it must be in accordance with the local access procedures. These processes are more fully described in Schedule 8.4 (Access Management).

(d)   *Repeat Failure & Problem Management*: the Contractor shall adopt pro-active problem management with its primary objective being to prevent incidents from happening; where pro-active intervention has not occurred, the Contractor will collate incident records and other Data to identify adverse trends and implement solutions. These processes are more fully described in Schedule 4.1 (Service Delivery);

(e)   *Escalation & Major Incidents:* TTL Service Operations will be the principal point of engagement between the Contractor and TTL for all Service matters and an Escalation Process will be put in place on and from the Service Commencement Date. These processes are more fully described in Schedule 8.3 (Major Incident Management); and

(f)   *Consent to Operate:* the Contractor shall provide all the necessary Assurance to TTL to meet the criteria for a Technical Change to be adopted into normal operations. These processes are more fully described in Schedule 10.1 (Change Management).

4.6   Incident Management

4.6.1   The Contractor is directly responsible for the monitoring, management, operation and maintenance of the System itself; however, the Contractor is also responsible for the integrity and monitoring of the wider IRC System. This means working closely with the Related Contractors and the Interfacing Parties to address Incidents which arise from or relate to the Interfacing Systems or the Related Systems.

4.6.2   Where an Incident is reported to the Level 1 Help Desk the appropriate Resolver Group will be identified to resolve the issue. Where the Incident relates to or affects a Related System or an Interfacing System then Related Contractors, Interfacing Parties and TTL may be part of such a Resolver Group. Whilst the Contractor will not have a direct contractual relationship with some of these parties, it must try to

achieve resolution of the Incident by working in collaboration with them. Where this is unsuccessful the matter should be escalated to TTL.

4.6.3   TTL's strategy is to move towards more pro-active monitoring and management of the System with greater self reporting, diagnosis and resolution prior to Faults or System Faults affecting the delivery of the Service to the Customer.

5 Change Management

5.1 Overview

5.1.1   Due to the overriding need for Service continuity and the potential impact on Related Systems, Interfacing Systems, Customers, TTL and Third Parties of any Change, irrespective of how they are initiated or by whom, all such Changes must be properly controlled and managed through the processes set out in Schedule 10.1 (Change Management).

5.1.2   In order to ensure that the programme of works is properly managed, that all stakeholders are properly engaged and that TTL receives the necessary Assurance, any Change other than as a result of Corrective Maintenance, Preventative Maintenance or a Fares Revision, irrespective of whether initiated by TTL or the Contractor, is to be managed as a Project in accordance with Schedule 10.2 (Programme and Project Lifecycle).

5.1.3   Where TTL requires a Change it will be addressed through the Variation Procedure set out in Schedule 12.3 (Contract Variation Procedure) or, in the case of a Fares Revision, through the procedure set out in Schedule 10.3 (Fares Revision).

5.1.4   Accordingly whilst the majority of Variations will result in Projects and the majority of Projects will result in Changes, not all Changes will originate from Projects and nor will all Projects originate from Variations. Hence the separate processes and procedures for Change management, Project management and Variations.

5.2 Technical Authority

5.2.1   TTL has invested heavily in the System with the objective not only of delivering the Services currently required but also making it a foundation for future development.

5.2.2   In order to ensure that this objective is not compromised by Changes, TTL has captured its key design and operating principles (as set out in Schedule 9.2 (System Design & Operating Principles)) with which the Contractor is required to comply.

5.2.3   In addition, TTL will act as the Technical Authority in relation to Technical Changes to the System and will require Assurance from the Contractor that the Technical Changes proposed do not compromise these principles or adversely impact any of the Interfaces with Third Parties. The processes for such review and Assurance are set out in Schedule 9.1 (Technical Authority).