Data Communications Company

D-4.3.1 End to End Design and Build Plan

Ofgem Switching Programme

Delivery Workstream

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1 Executive Summary

This E2E Design and Build Plan is intended to provide sufficient guidance and direction to:

- enable all Industry Parties, including the existing Central Data Service Providers (CDSPs), DCC and their Service Providers (SPs), to plan and then execute their Design and Build activities, within the context of the wider Design, Build and Test (DBT) phase of the programme; and

- ensure that the physical realisation of the E2E Switching Arrangements meets the requirements and specifications of the programme as defined in the Detailed Level Specification (DLS) phase.

This Design and Build Plan follows the principle of 'Progressive Assurance' whereby DBT phase issues and risks are captured and mitigated, and evidence is gathered that provides confidence to the SRO that the programme remains on track to deliver its objectives and benefits as intended. Design and Build activities undertaken in DBT will translate the DLS E2E and CSS design specifications into physical designs comprising hardware and software, as well as associated business change, that will then be built, integrated, tested and transitioned into the live environment.

All parties and providers affected by the new Switching Arrangements (Suppliers, GTs, DNOs, Shippers, Xoserve, Gemserv, DCC, etc.) will have a varying scale and complexity of change to implement; spanning both technical (systems, data) and business (people, process, policy) change aspects. This could range from simply changing how and where switch notifications are received, through to the implementation of the new CSS. However, the full objectives, requirements and benefits of the new E2E Switching Arrangements will only be achieved if all parties successfully implement their part in a way that seamlessly integrates with the E2E solution.

In line with the principle of progressive assurance, the Design and Build activities within DBT provide the first and earliest opportunity to ensure that all parties and providers translate the DLS specifications into physical designs and build these in a way that is consistent, transparent and traceable. Ensuring consistency in physical design and build specifications at this stage minimises the risk of downstream issues and defects, where they will generally involve greater time and cost impact to resolve.

An E2E Design and Build Strategy was not developed in the Blueprint phase of the programme, but strategies were developed for Testing, Integration, Transition, Data Improvement, Data Migration and Post-Implementation. It was recognised that an E2E Design and Build Plan product was required to sit alongside the other Delivery Workstream DLS phase products to ensure completeness and coverage of all key DBT phase activities and to identify the minimum set of requirements that need to be placed on any and all parties and providers affected.

This E2E Design and Build Plan only lays down requirements and expectations on parties and providers that are not covered in the other DLS phase E2E Delivery products.

2 Introduction

This E2E Design & Build Plan has been produced in the DLS phase of the programme and builds on work undertaken during the Blueprint phase of the programme. Ultimately, it sets out the minimum requirements and expectations on all Industry parties, CDSPs, DCC and, through them, the Central Switching Service (CSS) SPs, to ensure, and provide assurance, that the physical Design and Build activities meet minimum standards and are co-ordinated across all these parties and providers. The key roles and responsibilities for all parties and providers for Design and Build activities within DBT are set out in Section 6.

2.1 Background

Ofgem Switching Programme

A general overview of the Ofgem Switching Programme documents can be found in other programme documents and is not repeated within this E2E Design and Build Plan

Design and Build of the End to End Switching Arrangements

Design and Build activities undertaken in DBT will translate the DLS design specifications into physical designs comprising hardware and software, as well as associated business change, that will then be built, integrated, tested and transitioned into the live environment.

A Design and Build strategy was not developed during the Blueprint phase of the programme. It was previously considered that Design and Build activities would proceed in accordance with the CSS contracted requirements and that other parties and providers would follow their own internal design and development processes when delivering their part of the End to End solution in readiness for integration and testing with the wider E2E solution.

However, experience from other programmes such as Nexus and SMIP has illustrated the importance of monitoring and assuring the progression of design and build activity to ensure that individual organisations responsible for change implementation interpret design specifications consistently. The relevant Governance and Assurance functions put in place for DBT also need to ensure each party and provider is progressing in line with the agreed plans to provide confidence they will be ready in time for delivering their part of the new Switching arrangements.

This E2E Design and Build Plan therefore follows the principle of ‘Progressive Assurance’ whereby DBT phase issues and risks are identified and mitigated, and evidence is gathered that provides confidence to the SRO and other stakeholders that the programme remains on track to deliver its objectives and benefits as intended.

2.2 Purpose and Objectives

In line with the principle of Progressive Assurance, the Design and Build activities within DBT provide the first and earliest opportunity to ensure that all parties and providers translate the DLS specifications into physical designs and build these in a way that is consistent, transparent and traceable. Ensuring consistency in physical design and build at this stage minimises the risk of downstream issues and defects, where they will generally involve greater time and cost impact to resolve.

Purpose

The purpose of this E2E Design and Build Plan is to monitor, co-ordinate and assure the Design and Build activities of the various parties and providers during DBT. It is based on lessons learned and best practices from previous industry programmes and projects of similar size and scope to the Ofgem Switching Programme to mitigate risks and issues commonly encountered in multi-party, IT-enabled business transformation programmes in regulated environments.

The plan will only include requirements and expectations on parties and providers that are not covered in the other DLS phase E2E Delivery products and will be maintained under change control to ensure alignment with changing circumstances.

Objectives

The objectives of the E2E Design and Build Plan are to:

- Drive actionable plans for Design and Build activity during DBT such that all participants undertake this activity in a way which is consistent, co-ordinated and transparent; thus enabling the programme to gain progressive assurance that: the Design and Build activities:
  - are proceeding to plan
  - are consistent with E2E specifications and requirements; and that
  - any associated issues are identified and resolved early.
- Define the minimum Design & Build requirements to be placed on the CSS Provider and other Service Providers so that these can be extracted into the CSS Delivery Plans (product D-4.2.4) that will be used in tender packs and ultimately contractual specifications, covering:
  - activities in support of the CSS in line with the final (detailed) CSS Design;
  - data improvement remedies and data migration mechanisms
- Define the minimum Design & Build requirements to be placed on Industry parties and their providers and agents so that these can be extracted into appropriate obligations in Licenses and Codes in Enactment, covering:
  - Design & Build of changes to legacy Central Data Systems and Services
  - Design and Build of changes to any Industry Party systems and services affected, prior to integration with the CSS;
- Identify any potential Design & Build requirements to feed into other Delivery Plan products in parallel (e.g. transitional governance and assurance)

2.3 E2E Design and Build Plan Scope

The following key considerations are relevant to the Design and Build stage of DBT and hence reflected in this E2E Design and Build Plan:

- There may be an ongoing need to clarify the E2E and CSS design specifications (including interface specifications) to ensure consistent interpretation across all parties as these specifications are translated into physical design and build of the solution
- Design Management processes for the physical designs will need to be in place, aligned to wider governance and assurance arrangements, to allow for the nature and volume of design issues/defects likely to be raised during design and build, and related requests for change
- Assurance needs to be provided that design and build is proceeding as planned and that ideally all parties and providers will be ready for integration and testing.

This assurance will be provided by a range of mechanisms and roles defined in the DBT Governance and Assurance product (D-8.2)

- Arrangements need to be in place to exploit any design proving outputs and artefacts that can continue to reduce technical risk during design and build
- Effective arrangements need to be in place to share knowledge across all parties

Many of these considerations are addressed by the E2E Integration Plan (product D-4.3.2) and will be the responsibility of the CSS and Core Systems Integrator (SI) to manage, together with other programme-level DBT Governance and Assurance roles; such as the E2E System Co-ordination and Programme Assurance role.[1] This E2E Design and Build Plan is therefore clearly delineated from the E2E Integration Plan in terms of its contribution to addressing the points above, and the Risks, Assumptions and Dependencies captured in Section 4. The E2E Design & Build Plan, Integration Plan and Testing Plan should be seen as a complimentary set of plans that progressively seek to de-risk the physical realisation of the specified solution as it progresses through DBT.

The E2E Design and Build Plan covers the following topics:

- E2E Design and Build Plan Scope (this section)
- Design & Build Definition and Scope
- Design & Build Risks, Assumptions and Dependencies
- Design & Build Organisation, Management and Assurance
- Design & Build Process & Plan
- Design & Build Mobilisation & Preparation
- Centralised Design & Build Services, Assets and Facilities
- Design & Build Issue and Defect Management

The level of prescription provided at this stage in the programme recognises that each affected party and provider will have their own techniques, methodologies, tools, etc. for undertaking this type of activity. This E2E Design and Build Plan therefore mainly covers 'what' needs to be done (in the form of design and build activities) and by whom, with less focus at this time on 'how' (detailed design and build processes, tools and techniques) and 'when' (noting the need for more detailed 'bottom-up' plans to be developed by each party and provider prior to the start of DBT).

Individual Party Design and Build Plans

Each affected party and provider will be expected to develop its own Design and Build plans relevant to the scope of its design and build activities, in line with this E2E Design and Build Plan.

For CSS this will be captured in the CSS Delivery Plans product (D-4.2.4). All other parties and providers affected are expected to develop their own detailed plans for Design and Build in response to regulatory requirements.

These individual Design & Build Plans will include:

[1] It should be noted that the proposed governance model for the Design, Build and Test phase identifies distinct roles for a CSS and Core Systems Integration function (which will integrate existing industry systems such as UK Link, MPRS etc. with the CSS infrastructure) and an 'E2E Co-ordination' role,, which will assess the readiness of market participants such as suppliers for go-live. For the purposes of this document, 'System Integration' or 'SI' will refer to the CSS and Core System Integration function. These functions are explored in more detail in the E2E Integration Plan product.

- a schedule of activities,
- outcomes/deliverables,
- roles & responsibilities,
- resources and where resources will be sourced, costed and time-bounded

The individual plans could be combined into a single Design, Build and Test plan if considered appropriate, but individual plans will be required as part of the assurance evidence for the DBT phase.

3 Design and Build Definition and Scope

Definition

The definition of Design and Build for the E2E Switching Arrangements covers those activities required to translate the E2E and CSS Design Specifications from DLS into physically realisable components of business capability (Organisation, People, Processes, Technology and Information) that, when implemented, combine to deliver the required E2E switching service.

Scope

The scope of the E2E Design and Build activity is driven by the scope of change required to implement the new E2E Switching Arrangements. The existing Switching Arrangements across Gas and Electricity markets are being harmonised and improved to deliver the objectives of faster and more reliable switching for consumers. Through the E2E Design work undertaken in Blueprint and DLS phases, these high-level objectives have been translated into a 'to-be' E2E logical architecture design as captured in the Design repository (Abacus) and a range of associated design artefacts. This E2E design generally specifies the conceptual and logical designs, leaving the physical design implementation and technology decisions to Industry parties, legacy central data system/service providers and DCC and its SPs.

The diagram in Figure 1 below taken from the E2E Solution Architecture provides an overview of the new E2E Switching Arrangements design.

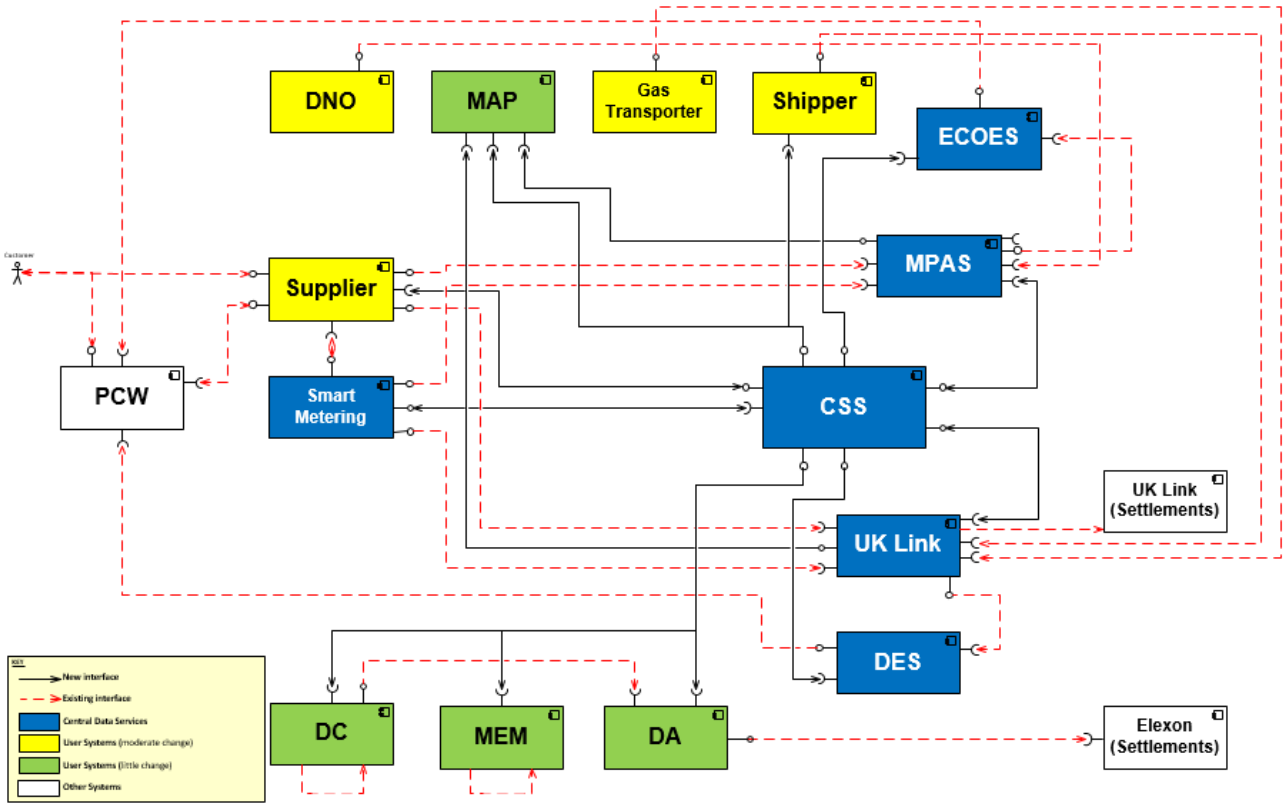

Figure 1 - E2E Switching Arrangements (To-Be - Application Architecture)

As can be seen from Figure 1, the new E2E Switching Arrangements span multiple organisations (Suppliers, Shippers, Gas Transporters, Network Operators, DCC, Xoserve and Gemserv, Agents, etc.) and involve changes of varying degrees to existing systems and services (DSP, UK Link, MPRS, DES, ECOES, Supplier systems, etc.) as well as the implementation of new system components (CSS and the Address Service) together with new/changed interfaces between these systems. As well as 'Technology' changes (required to implement the new Data Model, new/changed systems and new/changed system interfaces) there will be a range of 'Business' changes required across parties and providers affected; e.g. to implement the new or changed policies and business rules, new/changed business processes, E2E service and security management arrangements and to train/recruit the people involved).

The scope of the E2E Switching Arrangements subject to this document will be that as defined at Design Baseline 3, with any agreed changes against that baseline managed under change control.

3.1 Alignment with E2E Transition Plan

An additional consideration for Design and Build is to ensure alignment with the E2E Transition Plan. The E2E Transition Plan describes how the implementation of changes are broken down into manageable portions to be deployed into the live production environments in a series of staged releases over a period of time that reflects the E2E Overall Delivery Plan for the programme.

Transition Overview

The current E2E Transition approach is composed of three (3) main stages together with a Preliminary stage and a Post-Implementation stage. These are defined in more detail in the latest E2E Transition Plan.

However, as these transition stages essentially culminate in a single Go-Live event across the Market (stages 1 and 2 are essentially involved with the migration and improvement of Industry held data), then it is assumed that this will require that the design, build, integration and testing of the full E2E functional and non-functional requirements will need to have taken place prior to the start of the 3 stages of release. This is reflected in the E2E Testing Plan and E2E Integration Plan.

Further details regarding the final Transition approach should be obtained from the E2E Transition Plan referred to below:

DLS Product	Section:	Topic:
D-4.3.4 E2E Transition Plan	All sections	E2E Transition

3.2 Alignment with E2E Integration and Testing Plans

Another key consideration for the Design and Build approach and scope is alignment with the downstream activities of Integration and Testing.

The E2E Integration Plan (D-4.3.2) defines our expected integration approach as the basis for progressively bringing the various designed and built system components together across all parties in a logical order for Testing and then Transition to live, through a number of defined workstreams.

The E2E Testing Plan (D-4.3.3) defines the test phases and approaches required to provide progressive assurance that the system components, separately and when integrated, conform to the specifications, covering technology change, prior to deployment of the solution into the live production environments in staged releases over a period of time as defined in the E2E Transition Plan. Our expectation is that parties and providers will use the E2E Testing Plan, along with this Design and Build plan, to develop their own individual Design, Build and Testing Plans.

As in Section 3.1, a staged release strategy with consumer go-live of the new E2E Switching Arrangements in the final stage essentially means that the full E2E functional and non-functional requirements will need to have been integrated and tested prior to the start of the planned Transition stages.

Importantly, the E2E Integration Plan also defines the roles and responsibilities of a CSS and Core Systems System Integrator (SI). The E2E Integration Plan defines the roles of the SI in respect of business process and system changes through-out the CSS and existing central data systems and services, including interfaces with market participant systems. This includes definition, provision and management of Environments as well as management of Defects, Change and Configurations throughout the DBT phase.

The full extent of the SI roles and responsibilities is summarised in the E2E Integration Plan, alongside other key DBT governance and assurance roles and responsibilities. This E2E Design and Build Plan captures the design and build activities that are the responsibility of the SI aligned with the E2E Integration Plan, as well as other programme level governance and assurance roles such as the E2E System Co-ordination and Programme Assurance role, Core Systems Assurance role and Licensed Party Assurance role. This is covered further in section 6.2 below. For further details of the overall programme Governance and Assurance roles and responsibilities during DBT, see product D-8.2.

In considering where Design and Build activity stops and Testing starts, it is also necessary to understand the scope of Testing activity as captured in the E2E Testing Plan. The E2E Testing Plan defines the order for testing of the various E2E components individually and collectively, and the Test Phases that will be utilised to provide progressive assurance that the ‘as implemented’ components conform to the specifications (covering functional and non-functional requirements, and security and service management requirements). The E2E Testing Plan therefore defines that main Test Phases, Stages and Testing activities from the perspective of the E2E Design.

Individually, the various parties and providers impacted by the new E2E Switching Arrangements will be required to undertake component (System) level Testing and Interface Testing as part of the Test Phase called Pre-Integration Testing (PIT), together with any other internal testing and assurance activities they deem as necessary for their new or changed components prior to ‘offering’ these into the wider/cross-party Test Phases defined in the E2E Testing Plan (such as System Integration Testing (SIT) and User Integration Testing (UIT)). This PIT phase, as recognised in Section 6.1 below, will be the responsibility of individual parties and providers and will align to the particular design/build/test processes, methodologies and toolsets adopted by individual parties and providers (e.g. Agile or Waterfall). From the perspective of this E2E Design and Build Plan, PIT evidence will form a key part of the assurance evidence that parties and providers are ready to enter Integration and testing across parties and providers. This is covered further in Section 6.3 below.

For further details regarding the E2E Integration and Testing Plans as input to the final and revised versions of the E2E Design and Build Plan, refer to:

DLS Product	Section:	Topic:
D-4.3.2 E2E Integration Plan	All sections	E2E Integration
D-4.3.3 E2E Testing Plan	All sections	E2E Testing

4 Design and Build Risks, Assumptions and Dependencies

The key Risks, Assumptions and Dependencies associated with the Design and Build of the new E2E Switching Arrangements are captured in the following table, together with mitigation and management actions and responsibility for ownership if appropriate.

Design and Build Risk, Assumption or Dependency	Type	Mitigation and Management Actions
Issues arising when translating from logical component and interface specifications (DLS), and any development of these specifications during the Enactment phase to physical designs during DBT (and any work undertaken in the Enactment phase) will lead to the need for clarification and/or different interpretations during Design & Build	R	SI together with Licensed Party Assurance, Core Systems Assurance, E2E System Co-ordination and Programme Assurance roles to ensure effective sharing and collaboration across design teams in DBT Industry parties and providers to provide transparency of evolving designs SI and E2E System Co-ordination clarifies, mediates and arbitrates on physical design issues and interpretations, with Ofgem (DA) making determinations on E2E design baseline issues Design Proving Project (DPP) knowledge and experience made available to all parties and providers
Complex, multi-party environment leading to federated, dispersed design, build and test of components and sub-systems controlled through a variety of regulatory and commercial instruments with insufficient central visibility and oversight	R	SI will co-ordinate across all CSS and legacy central data systems DBT activity, together with interfaces out to other parties, to ensure continued alignment. Market Participant Assurance, Core Systems Assurance, E2E System Co-ordination and Programme Assurance roles will co-ordinate and assure across wider E2E market participants SI together with other DBT Assurance roles/ functions will monitor and drive readiness of all parties and providers SI will put in place and manage clear, centralised issue/defect, change and configuration management processes with clear escalation routes to Ofgem via DCC and E2E System Co-ordination and Programme Assurance roles as appropriate
System partitioning based on organisational rather than ‘ideal’ boundaries and hence	R	SI and E2E System Co-ordination and Programme Assurance roles to continually review interface specifications and their physical

complex interfaces between parties leading to higher numbers of errors in physical design and build		design interpretation across multiple parties and providers Informal testing of CSS interfaces with E2E Test Harness/CSS Test Tool provided by the SI prior to formal Integration and Testing
High likelihood of external and internal changes given complex, changing environment	R	Ofgem central Governance arrangements will need proactive and effective change management to evaluate and control internal and external change requirements
Parties and providers will be sufficiently incentivised to resource and undertake Design & Build in required timelines	A	SI together with other DBT Governance and Assurance functions/roles to monitor progress and readiness to plan, and to ensure remedial action is taken if progression and readiness are not satisfactory Binding transitional obligations to be placed on Industry parties to resource appropriately and comply with programme timelines Strong DBT Governance required to drive required behaviours and progress if parties or providers fall short
An E2E Test Harness/Tool or equivalent capability will be available to enable parties to informally test and validate their evolving designs and interfaces with the CSS	D	This is defined in greater detail in the E2E Testing Plan and E2E Integration Plan and is expected to be one of the tools provided by the SI. If this is not provided as an output of the DPP work, then additional costed activity should be put in the plan to adapt this so it is appropriate for the DBT phase
All parties and providers will adopt 'good practice' in design and build and have arrangements for internal assurance of this activity	A	SI and/or wider DBT Governance and Assurance roles to undertake 'spot check' assurance, design walk-throughs, document reviews as appropriate depending on risk and criticality of change component/party/ provider.
All parties and providers will have arrangements in place for logging issues and defects and for the internal triage of these	A	SI together with wider DBT Governance and Assurance roles to ensure all parties and providers log and record defects and issues consistently, categorise these and escalate them for resolution as appropriate
The CSS Providers will make available interim drops of the CSS Design (via DCC)	A	Given criticality of CSS in 'hub and spoke' design, interim drops of physical design information (particularly related to interfaces) will

		help those interfacing with CSS to validate and check their designs. Ensure that this is fed into CSS Procurement specifications, industry codes and licence obligations on DCC as appropriate.
The new E2E Switching Arrangements will be Transitioned into live operations using 3 stage releases, culminating in a single E2E go-live event in the final stage (at cut-over). This will require the full functional and non-functional requirement scope to be designed, built, integrated and tested prior to Transition	A	E2E Design & Build, Integration and Testing Plans to ensure full functionality is tested prior to start of Transition phases. Given risks inherent in this market-wide' single release approach, Integration and Testing phases must provide high confidence that the full E2E arrangements will operate as intended. Continue to monitor and evaluate Transition approach documented in E2E Transition Plan

Table 1 – Key Risks, Assumptions and Dependencies for Design and Build

5 Design and Build Organisation, Management and Assurance

5.1 Overall Programme Structure (DBT Phase)

The Programme Structure will describe how the new E2E Switching Arrangements will be implemented as a programme of co-ordinated activities across all parties and providers during the DBT phase of the programme via various work-streams, projects, quality gates and capabilities. It is expected that the final programme structure will be developed and refined by the Switching Programme governance and assurance bodies working with Ofgem, DCC and the appointed SI role and E2E Systems Co-ordination and Programme Assurance role.

For the purposes of this E2E Design and Build Plan, it is necessary to understand that there will be a range of programme roles, work-streams, projects, quality gates and capabilities needed within the DBT phase that may include, but not limited to:

Central Systems and Services Implementation Work-streams (SI Co-ordinated)

- Business Process Change Work-stream
- Technology Change Work-stream (including E2E Testing)
- Operational Transition and Post-Implementation (including Data Migration)

Central Systems and Services Implementation Projects (SI Co-ordinated)

- CSS
- Address Service (AS)
- Customer Enquiry Service (to be confirmed)
- Data Communications Network (DCN) – if taken forward
- E2E Switching Service Management
- DSP Changes
- UK Link Changes
- MPRS Changes
- DES Changes
- ECOES Changes

Industry Parties and their Agents and Providers projects and work-streams (E2E System Co-ordination and Programme Assurance co-ordinated)

Quality Gates (used by all to assure progress and readiness)

- Integration Readiness
- Operational Readiness

Central Capabilities/Services (provided by the SI)

- Environment Management including Test Tools and Test Data
- Defect Management
- Change Management (i.e. Change Control Management)
- IT Service Management for DBT

Functions/Roles (provided by Ofgem, the SI, E2E System Co-ordination and Programme Assurance, Licensed Party Assurance and Core Systems Assurance)

- Design Authority
- Programme Management/PMO
- System Integration
- Programme Assurance
- Quality Assurance

The final definition of the programme structure and associated plans and timescales is expected to be finalised prior to the start of DBT (see Section 6.4).

5.2 Overall Programme Organisation and Governance (DBT Phase)

The overall Programme Organisation, Governance and Assurance model will require the involvement of Ofgem, DCC, the SI, the E2E System Co-ordination and Programme Assurance role, industry parties, Vendors/SPs and other stakeholders to ensure efficient, quality and proper programme management and assurance throughout the programme execution of DBT. The proposed programme organisation, governance and assurance model is being developed and will be documented in product D-8.2; Governance and Assurance Plan for DBT.

DLS Product	Section:	Topic:
D-8.2 Governance and Assurance Plan for DBT	All sections	E2E Governance & Assurance for DBT

5.3 Overall Programme Roles & Responsibilities (DBT Phase)

The Design and Build activities within the broader DBT phase will come under the overall co-ordination, management and assurance of the SI (for CSS and legacy central data systems/services) and the E2E System Co-ordination and Programme Assurance role (for Market Participants). Additional assurance will also be undertaken as required by other independent assurance functions such as Market Participant assurance and Core Systems assurance to provide confidence to the programme that Design and Build (and Integration, Testing, etc.) are being conducted effectively and in accordance with the planned requirements for these activities. This overall governance and assurance regime for DBT is explained further in D-8.2.

The SI role will need to link closely to the Ofgem Design Authority (DA) role for the programme during DBT. Ultimately, the DA acts as custodian of the baseline E2E design and is responsible for maintaining the design intent on behalf of the SRO throughout the DBT phase. This includes evaluating, assessing and agreeing any changes proposed to the design that may impact on that design intent. During DBT, the largely logical design developed in DLS (and updated as necessary during the Enactment phase) will be turned into physical designs by the various parties and providers and this will give rise to clarifications and requests for change; e.g. to resolve issues and defects, address ambiguities and gaps in the E2E design specifications, or to enable a more cost-effective approach to be implemented.

The roles and responsibilities of the DA are therefore key in framing the lower level responsibilities on the SI and other parties and providers for Design and Build (and Test and Integration) activities. The DA and SI roles are summarised below, but are covered in more detail in the E2E Integration Plan and the DBT Governance and Assurance Plan.

Role of the SI

It is expected that the SI will have overall responsibility for managing, monitoring, coordinating and assuring (together with the Core Systems Assurance role) the design, build, test, integration, deployment and roll-out of the business process and system changes for the CSS and other affected legacy central data systems and services as well as the interfaces from these to wider market participant systems to implement the E2E Switching Arrangements with the full cooperation of the industry stakeholders, impacted parties and service providers. Further information can be found in the E2E Integration Plan.

As part of its role, the SI will provide test services to enable the Market Participants to test their interfaces with the central systems (as part of the UIT Test Phase) in DBT and, in conjunction with the E2E System Co-ordination and Programme Assurance role, Core Systems Assurance and Licensed Part Assurance roles, will also provide assurance that all parties and providers are ready and prepared for E2E systems integration and testing.

Role of the Design Authority

The E2E Design Authority (DA), known as the Technical Design Authority (TDA) in previous phases of the programme, is a governance function at the programme executive level responsible for ensuring that the consequences of any design, architecture, technical or change decisions are understood, fit for purpose and comply with the standards necessary to maintain a robust, consistent and integrated technical capability. The DA maintains a consistent, coherent and complete perspective of the E2E design and architecture, defining the programme critical interfaces and integration points, such that business operations across the Switching Arrangements can be changed and benefits secured in a coordinated manner across the industry. The DA is the ultimate arbitrator of design and testing issues that relate to the design baseline.

The following diagram from the SI Strategy illustrates the relationship between the SI and the DA at programme level during the DBT phase of the programme.

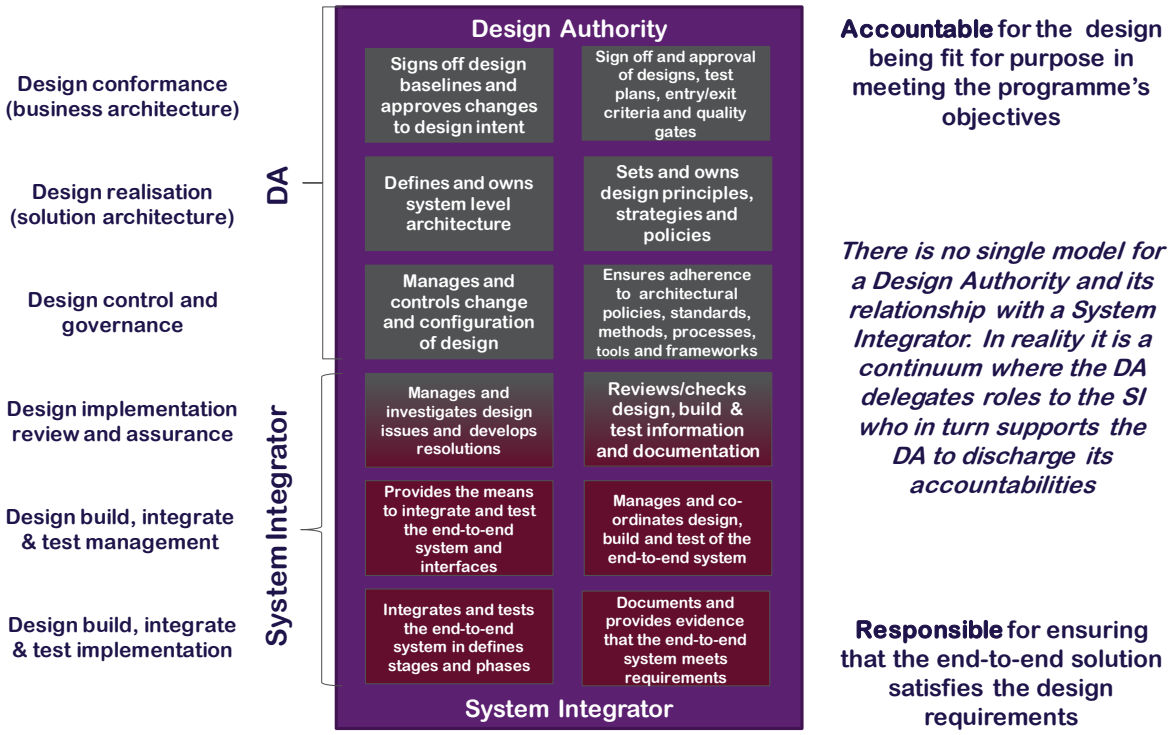

Figure 2 - Illustrative relationship between the SI and DA

The following responsibilities are assumed for the DA during design, build (and integration and testing) for the DBT Phase of the programme:

- To ensure that the solution design is 'fit for purpose', and to propose or approve changes to the design intent for delivery.
- To increase the likelihood and predictability of success whilst reducing the probability and cost of non-conformance and duplication.
- To ensure that the solution design adheres to a common set of design principles and that delivery remains focussed on the strategic goals of the programme.
- To develop and impose business control and governance over projects and programmes from an architecture and design perspective.
- To define and enforce adherence to the architecture policies, standards, methodologies, processes, tools and frameworks.
- To arbitrate and resolve disputes on design and testing issues related to the design baseline.

For the DBT phase, it is likely that the DA at the programme executive level in the programme governance model managed by Ofgem for the Switching Programme will need to be supported by a DA or Design Management function at the systems integration programme level. This lower level DA or Design Management function will manage defects, change and configuration control related to the physical design as it evolves, arbitrate on issues and defects and escalate these via the appropriate route where they cannot be resolved at that level or impact programme timescales or the design baseline.

This Design Management function will also ensure continued alignment of physical designs with the baseline E2E design specifications. This will be done under delegation from the programme executive DA with appropriate reporting and escalation agreed.

5.4 Design and Build Management

As described above in Section 5.3, the role of the SI includes the management and co-ordination of the Design, Build, Integration and Testing activities across the CSS and all legacy central data systems and services together with the interfaces to wider market participants, whilst the E2E System Co-ordination and Programme Assurance role will oversee and assure the Design, Build and PIT activity for Market Participants (Licensed Parties). All parties and providers will be expected to work within the overall management structure and reporting framework proposed by the SI and the E2E System Co-ordination and Programme Assurance role, as part of the wider programme governance and assurance structure agreed for the DBT phase.

5.5 Design and Build Assurance

As part of the wider programme Assurance arrangements for DBT, as defined in the Overall Delivery Plan (D-4.3) and the DBT Governance and Assurance plan (D-8.2) there is a need to provide confidence to the SRO, other programme governance roles and wider stakeholders that Design and Build activities are progressing as planned and that physical designs of the various components are correctly and consistently interpreting the baseline E2E and CRS Design Specifications developed in DLS.

Ofgem are developing the approach for overall Assurance of the Switching Programme during the DBT phase and this will be documented in product D-8.2, which may include a range of internal and external bodies conducting assurance assessments and reviews and other activities that provide evidence of progress across all aspects of DBT.

It is proposed that the Assurance of Design and Build activities in terms of quality and progress will primarily be undertaken by the relevant parties and providers themselves, using their existing Quality Assurance (QA) arrangements. Additionally, assurance of higher risk or critical areas of Design and Build will be undertaken as follows:

The DCC (in its assumed role as CSS Procurer and Manager) will provide assurance that the CSS contracted SP(s) and any other contracted SPs (including the SMETS2 DSP) are conducting Design and Build in accordance with contracted requirements;

The SI will provide assurance that the CSS SPs and other legacy central data system/service providers (including the DSP) are undertaking Design and Build in accordance with regulations, MoUs and contracts and related plans and specifications (as defined in the E2E Integration Plan);

The Core Systems Assurance role will provide further independent assurance of Design and Build activities across CSS and the existing central data systems and services as deemed necessary by Ofgem;

Ofgem will provide assurance (via the E2E System Co-ordination and Programme Assurance role and Licensed Party Assurance role) that Market Participants are undertaking Design and Build in accordance with Licenses and Codes, and are passing this down to their agents and providers where applicable;

Other independent assurance bodies as appointed during DBT will provide targeted assurance as required across the parties and providers involved.

The methods and techniques considered appropriate to the assurance of Design and Build activities include (but are not limited to):

Attendance at individual party and provider Design Reviews

Documentation reviews (Design Datum packs, Plans, Test Cases, etc.)

Examination of Defect Logs and Resolutions

Progress Reporting

Design Walk-throughs (Design Datum Packs or similar)

PIT or other test witnessing (see Testing Plan for Test Assurance activities)

Evidence of Requirements Traceability (validation)

5.6 Design and Build Reporting

Design and Build Status & Progress Reporting

All parties and providers will be required to provide periodic status and progress reporting for Design and Build activities. This will be in the form of regular status and progress reports to the SI (via DCC if appropriate) or to the Ofgem E2E System Co-ordination and Programme Assurance role as appropriate, on a periodic frequency. The progress reports will include the following information (but not limited to):

- Work, activities and/or tasks performed during the reporting period (previous, current and next)
- Milestones met and/or achieved
- Comparison with plan/schedule and remedial actions to address shortfalls
- Defects logged and progress towards resolution
- Current prioritised Issues, the status of those Issues and the mitigation
- Current prioritised Risks, the status of those Risks and the mitigation
- Key Assumptions and Dependencies, and their management
- Change Request (CR) status

5.7 Design and Build Roles

The following table identifies the key roles (parties and providers) who are expected to be involved in the Design and Build activities within the DBT phase of the programme. These roles are used to define responsibilities and accountabilities for specific Design and Build activities defined in Section 6.2 below. These responsibilities and accountabilities are defined using a standard RACI (Responsible, Accountable, Consulted, Informed) Matrix.

Role	Description / Comments
CSS and Core Systems Integrator (SI)	The SI is the main system integrator that will be providing professional services to manage all the activities related to systems integration and testing of CSS and the other legacy central data systems and services for DBT, together with new/changed interfaces from these central systems to wider market participants.
E2E System Co-ordination and Programme Assurance	This is a function that will be procured by Ofgem to provide a range of professional services in direct support of, and integral to, enabling Ofgem to discharge its roles. As well as support to Programme Management during DBT, it will also provide a role co-ordinating and assuring the activities of Market Participants in line with transitional regulations
CSS Service Provider(s)	The CSS Service Provider(s) are the main service providers that will be providing the components of the CSS system during DBT.
DCC (as Procurer and Manager for the SI and CSS/Service Providers)	DCC, in the context of this plan, is the party that is assumed to be managing and overseeing the SI as well as being the licensed CSS Provider (and potentially CES) – a sort of Prime Contractor. Note, these roles are distinct from the DCC existing role in respect of SMIP/SMETS2 (refer to section on Existing Central Data System/Service Providers for the DCC / CGI role regarding DSP).
Ofgem	Ofgem is the client, programme sponsor, covens the programme-level Design Authority and is ultimately accountable for the Switching Programme.
Market Participants	**Suppliers** are one of the Industry Parties that will undergo business process and systems change including changes to interfaces and integration for Switch Requests, Cooling Off, Withdrawal and Objections
	DNOs are one of the Industry Parties that will undertake business process and systems change including changes to interfaces and integration for MPRS and RDP data.
	Agents (i.e. MAPs, MOPs, DCs, DAs, etc.) are bodies contracted by Suppliers that will undergo business processes and systems change – including changes to interfaces and integration (e.g. Confirmed Switch Notifications)
	Shippers are one of the Industry Parties that will undertake business processes and systems changes including changes to responsibilities for switch requests interfaces and integration for Confirmed Switch Notifications.

Role	Description / Comments
	Gas Transporters (GTs) are one of the Industry Parties that will be required to undertake business process and systems changes
Existing Central Data System and Service Providers	**Gemserv / C&C Group** are existing central data system/service providers that will undertake system change including changes to interfaces and integration for ECOES
	St. Clements are existing central data system/service providers that provide MPRS software to the 3 RDPs on behalf of the DNOs will undertake business process and systems change including changes to interfaces and integration for MPRS and any associated data transformation and migration
	Xoserve is a current central data system/service provider that will undertake systems change implementation including changes to interfaces and integration for UK Link and DES and any associated data transformation and migration
	DCC / DSP (CGI) are one of the existing central data system/service providers (contracted via DCC) that will undergo business process and systems change including changes to interfaces and integration for DSP and RDP data.
Other Service Providers (SPs)	There may be other SPs involved in providing professional services and/or data products as part of the implementation activities within DBT. For example, the SP providing the Address Service to create the new Retail Energy Location data mastered within the CSS (There may also be a SP appointed for the Customer Enquiry Service for Switching and to provide any new or changed Communications Network required). These SPs may or may not be contracted and managed by DCC

Table 2 – Role Descriptions for Design and Build of Switching

The E2E Integration Plan includes a high-level RACI Matrix that provides a representative example of the roles and responsibilities of all the parties and providers involved in implementing new or changed components within the DBT phase. The SI will provide a final, refined and more detailed version for the systems integration plan they produce.

6 Design and Build Process and Plan

6.1 Design and Build Process ('how')

Design and Build processes will generally follow those laid down in individual parties' and providers' internal management systems. It is assumed that all parties and providers

involved in the implementation of the E2E Switching Arrangements will have processes, capabilities and resources already in place for the design and build (and integration, test, deployment and release) of IT based services, or they will have outsourced this capability to a Managed Service Provider.

Furthermore, it is likely that different parties and providers will be at different levels of maturity and will adopt a range of practices, standards and frameworks for IT based service delivery, business change and project and programme management which may include ITIL, Agile (DSDM, Scrum, etc.), eTOM, Prince 2, ISO9001, ISO20000, etc. Specifically, for DCC contracted services providers for implementation of the CSS and CES, it is expected that DCC will contract as appropriate for these activities, taking account of the requirements in this E2E Design and Build Plan and the Integration Plan, and this approach will be reflected in their more detailed CRS Delivery Plans and their CES Implementation Plan.

Given this diversity, it is not the purpose of this E2E Design and Build Plan to define in any detail 'how' Industry parties, DCC and their Service Providers and other service or system providers will design and build the new or changed components they are responsible for implementing. However, there are some minimum requirements in terms of 'what' must be undertaken, how and when to ensure that the design and build activity across the E2E 'switching ecosystem' is co-ordinated and made transparent across all parties so that knowledge is shared and issues, risks and dependencies can be identified and mitigated as early as possible with 'best for programme' resolutions.

Notwithstanding this, there are some principles common to best practice for the Design and Build of most IT-enabled transformational change programmes, and all parties and providers should seek to conform to these principles:

- Design and build should holistically address all change implications of the E2E Design Specifications, i.e. Process, People, Technology (systems, data) and Partners (suppliers and vendors).

- Designs should cover all functional (utility) and non-functional (warranty) requirements, as well as any changes required to Service Management and Security arrangements.

- Detailed design and build specifications developed by parties and providers should be document (Datum Pack or similar) and ensure requirements traceability to the higher level applicable requirements (via a Requirements Traceability Matrix or similar).

- Parties and providers should ensure they have appropriate Capabilities (management, organisation, processes, people and knowledge) and Resources (infrastructure, applications, information and finance) in place to undertake the Design and Build.

- Design and Build activities should be planned and managed with progress monitored and reported, and any remedial action agreed to ensure the required scope is delivered within agreed time and cost.

- Design and Build configurations should be brought under configuration control aligned to higher level published design baselines.

- Component and Interface Testing activities (as part of PIT) should be undertaken commensurate with the criticality of the component in line with the E2E Testing Plan

- Opportunities should be taken to de-risk designs ahead of the formal E2E Testing phases as defined in the E2E Testing Plan; e.g. through informal testing using the E2E test harness and other facilities provided by the System Integrator

- Detailed design information relating to a party or provider's implementation of interface specifications should be shared and made visible to other parties and providers via the System Integrator

- All Design and Build Risks, Issues, Assumptions and Dependencies should be recorded and managed – escalating as required (e.g. if a Design Assumption needs to be made that might affect an Interface, this should be shared across all parties who have to implement that interface so that a common agreement can be reached).

- A means of logging and triaging Defects should be in place, with escalation arrangements as required

These principles are reflected in the following sections of this plan.

6.2 Design and Build Activities and Responsibilities ('what and who')

A high-level RACI matrix for all DBT phase activities is included in the E2E Integration Plan. This section breaks that down to a greater level of detail for the Design and Build activities, using a RACI matrix to assign responsibilities and accountabilities for the Design and Build activities to each of the roles described in Table 2.

The following table is a legend that provides a high-level set of definitions of RACI.

RACI Legend	
Responsible	Those who do the work to achieve the task or activity, according to agreed quality and schedule, up to and including acquiring the approvals of relevant parties. There must be at least one **R** specified for each task or activity.
Accountable	The accountable party has full ownership. The resource ultimately accountable for the completion and "output / results" of the task or activity, there must be exactly one **A** specified for each task. The Accountable party will be the escalation point for the Responsible party.
	Regarding signing off deliverables: **A**ccountable will approve / sign off deliverables from **R**esponsible(s), in case more than one party is involved.
Consulted	Those whose opinion is sought. Two-way communication where the opinion provided must be reasonably acted on.
Informed	Those that are kept up-to-date on progress. One way communication.

Table 3 - RACI Legend

This section breaks down into more detail those activities directly associated with the Design and Build of the new or changed physical components that form E2E Switching Arrangements across all parties and providers. In this respect, components can be taken to mean those things required to physically implement the new E2E Switching arrangements across all affected parties and providers listed in Table 2 and captured in the Scope as described in Section 3, including Business changes (people, training, processes, policies, business rules) and Technology changes (systems and data).

The Design and Build activities are detailed in Table 4 below with the associated Roles and Responsibilities captured in the RACI format defined in Table 3.

Design & Build Activity	**R**	**A**	**C**	**I**	**When**
Develop Detailed Plans for Design and Build activity within their scope of responsibility (aligned to Overall Delivery Plan and E2E Integration Plan). Could be combined with individual Testing Plans for PIT	All parties and providers (new and existing)	All parties and providers (new and existing) DCC (for CSS)	SI E2E Sys Co-ord	Ofgem	Prior to start of DBT
Set up and identify initial RAID Logs specific to each party and providers implementation activities and approach	All parties and providers	All parties and providers DCC (for CSS)	SI E2E Sys Co-ord	Ofgem	By start of DBT
Set up mechanisms for logging and triaging Defects (consistent with wider programme level Defect Management arrangements put in place by SI)	All parties and providers	All parties and providers DCC (for CSS)	SI E2E Sys Co-ord	Ofgem (DA)	By start of DBT
Set-up and configure existing hardware, software and infrastructure in accordance with E2E design specifications	All parties and providers	All parties and providers DCC (for CSS)	SI E2E Sys Co-ord	Ofgem (DA)	Early in DBT phase
Procure, set-up and configure and new hardware, software and infrastructure in accordance with E2E design specifications	All parties and providers	All parties and providers DCC (for CSS)	SI E2E Sys Co-ord	Ofgem (DA)	Early in DBT phase
Screen E2E Design Specifications and undertake Due Diligence – raise any	Existing parties and	Existing parties and	E2E Sys	Ofgem (DA) DCC	Prior to DBT or early in DBT phase

discrepancies or issues found via the SI or E2E System Co-ordination role as appropriate for clarification or resolution (e.g. gaps and ambiguities)	providers only	providers only	Co-ord SI		
Screen CSS (and potentially CES) detailed design specifications and undertake Due Diligence – raise any discrepancies or issues found via DCC for clarification or resolution	CSS SPs and CES SP only	DCC	SI	Ofgem (DA) E2E Sys Co-ord	As part of DCC Procurement process
Extract any applicable requirements from the E2E Design Specifications and generate Requirements Traceability Matrix or similar	Existing parties and providers only	Existing parties and providers only	SI E2E Sys Co-ord	Ofgem (DA)	Early in DBT phase. Extraction of CSS/CRS and CES requirements will be undertaken in DLS by DCC
Map of current (as-is) people/processes/ systems/data/ and identify areas of change specific to scope of responsibility (business and technology change). This is effectively 'gap analysis'	Existing parties and providers only	Existing parties and providers only	SI E2E Sys Co-ord	Ofgem (DA) DCC	Early in DBT phase
Undertake physical design activity to develop designs for business (processes, people, etc.) and technology (systems, data) changes identified utilising internal processes, tools and techniques	Existing parties and providers only	Existing parties and providers only	SI E2E Sys Co-ord	Ofgem (DA) DCC	To agreed Design & Build Plans
Undertake detailed physical CSS (and CES) designs aligned to contracted requirements and processes	CSS and CES SPs only	DCC	SI	Ofgem (DA) E2E Sys Co-ord	As contracted timelines
Document physical designs and associated design	All parties and providers	All parties and providers	SI E2E Sys	Ofgem (DA)	Through-out DBT

decisions, assumptions, etc. in design datum pack or similar		DCC (for CSS	Co-ord		
Make design and design interpretations transparent to the SI and E2E System Co-ordination roles. Also share selected aspects (e.g. interface specifications) with other parties and providers via arrangements set up by the SI and E2E System Co-ordinator; e.g. Design Forums and other Knowledge Sharing methods	All parties and providers	SI (for core systems) E2E Sys Co-ord (for wider party systems)	All	Ofgem (DA) DCC	Regularly throughout DBT, using SI defined methods
Build/configure changed components in accordance with physical design specifications developed, in a defined, logical order	Existing parties and providers	Existing parties and providers	SI E2E Sys Co-ord	Ofgem (DA) DCC	To agreed Design & Build Plans
Build and configure new CSS (and CES) components in accordance with physical design specifications developed in a defined, logical order	CSS and CES SPs only	DCC	SI	Ofgem (DA) E2E Sys Co-ord	As contracted timelines
Develop individual PIT Test Plans and undertake PIT including any internal (to that party or provider) Integration and testing in accordance with E2E Testing Plan (and log/triage any defects, escalating if required)	All parties and providers	All parties and providers DCC (for CSS)	SI E2E Sys Co-ord	Ofgem (DA)	To agreed timelines in E2E Testing Plan and individual party and provider developed PIT Testing Plans
Demonstrate readiness for Integration and Testing in line with defined quality and entry gate criteria	All parties and providers	All parties and providers DCC (for CSS)	SI E2E Sys Co-ord	Ofgem (DA)	To meet planned Gate point

Table 4 – Design and Build Activities Including RACI Chart

6.3 Readiness for Integration and Testing

The end of Design and Build activities (plus PIT) for each party and provider will form the entry criteria for the first cross-party integration and test phase as defined in the E2E

Testing Plan and E2E Integration Plan. The E2E Integration plan also defines this point as a key Integration quality gate called the 'Integration Readiness Gate'. The E2E Integration Plan and the E2E Testing plan define the evidence required for this quality gate from their perspective. From the perspective of Design and Build, each party and provider will need to provide evidence to either the SI or the E2E System Co-ordination and Programme Assurance roles of the following (not limited to):

- Design documentation and artefacts that demonstrate how the E2E or CSS design specifications have been translated into physical designs for new components or changes to existing components;
- Requirements Traceability showing the mapping from the individual party or provider physical design specifications back through to the functional and non-functional requirements defined from the DLS phase;
- Test evidence from PIT (for CSS and central data service providers) or equivalent from Market Participants for testing of the components (new and changed) that an individual party or provider is responsible for and any internal integration and regression testing including Test Cases and coverage aligned to the Requirements Traceability Matrix, Test Scripts and Test Results (as captured in Exit Criteria for PIT or Entry Criteria for User Entry Process Testing (UEPT – see E2E Testing Plan);
- Evidence showing the satisfactory resolution of any Defects (critical or serious as categorised by the pre-defined thresholds) that would impact on effective Integration and Testing (see E2E Integration and Testing Plans);
- Evidence that Interface Testing has taken place utilising CSS Test Harness/ Simulator/Tool and other facilities provided through the SI to de-risk the formal integration and Testing phases (see E2E Testing Plan);
- Other evidence that may be required to meet the defined Entry criteria for the relevant Test Phases such as PIT and UEPT (see E2E Testing Plan) and the Integration Readiness Quality Gate (see E2E Integration Plan).

The DCC will monitor, assess and assure the readiness of their SPs and all existing Industry parties and providers will be expected to self-assure their readiness and report progress towards this key Quality Gate. The SI (for CSS and legacy Central Data Service providers) and the E2E System Co-ordination and Programme Assurance role (for Market Participants) will also undertake monitoring of progress towards Integration Readiness and the Core Systems Assurance and Licensed Party Assurance roles may undertake additional assurance activities depending on the risk and criticality of the new or changed component in line with the E2E Integration Plan.

6.4 Design and Build Project Plan

A more detailed DBT phase plan will be produced in the Enactment phase of the programme. This plan will include all generic activities expected across all parties aligned to the latest Transition approach, consisting of 3 staged releases as described in section 3.1 above.

The initial iteration of the plan will be illustrative because, as mentioned above, the Design and Build process (e.g. Agile, Waterfall) for each party and provider is unknown and not

prescribed by this plan. Also, detailed (bottom-up) plans will only be developed during the Enactment Phase when the SI is procured, as well as the CSS and any other SPs, and following consultation against DB4. Once detailed plans from all parties and providers are available, it will be possible to develop a validated, 'left to right' plan for the DBT phase that is achievable and realistic.

6.4.1 Design and Build Timelines

The timelines for undertaking the Design and Build activities for each party and provider involved, will be developed iteratively and finalised during the Enactment phase. This will be on the basis of full 'Left to right' planning, initially developed with key stakeholders for DB3 and then iteratively refined in light of detailed responses and procurement proposals from Industry, the SI, the System Co-ordination and Programme Assurance function and the various Service Providers for the CSS being procured through DCC.

6.4.2 Design and Build Key Milestones

The only key milestone for the Design and Build activities is the Quality Gate for readiness to enter Integration and Testing as defined in the E2E Integration and Testing plans (the Integration Readiness Gate). Any interim milestones applicable to an individual party or provider should be documented in their individual Design & Build plans and published for visibility to the SI and other programme level governance and assurance roles.

6.5 Design and Build Resources

Each party will ensure they are adequately resourced to undertake the Design and Build activities in order to be ready for Integration and Testing as detail in section 6.3 in the timelines agreed.

The SI will provide some central resources, such as Environments and Test Tools and other Assets and Services as defined in the E2E Integration Plan and E2E Testing Plan.

6.6 Design and Build Deliverables

As covered in Section 6.1 and 6.2 above, all parties and providers are expected to provide or make available the following deliverables as a minimum:

- Individual Design and Build plans (could sensibly be combined with individual Testing plans including PIT if agreed with the SI or E2E System Co-ordination and Programme Assurance roles as appropriate)
- Requirements Traceability (to higher level Requirements Traceability Matrix (RTM))
- Design Datum Pack or similar
- Design and Build Progress Reports (see Section 5.6)
- PIT Test Deliverables (as defined in the E2E Testing Plan)
- Design and Build RAID Log (part of wider DBT RAID Log)
- Defect Log (applicable across whole DBT phase)

6.7 Design and Build Risks, Assumptions, Issues and Dependencies

In undertaking effective planning and control, all parties and providers will be expected to identify, manage and mitigate and Risks, Assumptions, Issues and Dependencies (RAID) applicable to their Design and Build activities within the DBT Phase of the programme. Section 4 above defines the key/generic risks applicable to the Design and Build activities which will be monitored and managed at whole programme level by Ofgem supported by the SI and the E2E System Co-ordination and Programme Assurance roles as appropriate.

All parties and providers should take these 'top-down' RAID' and use them to identify and log any 'bottom-up' RAID applicable to their Design and Build activities (and Integration and Testing), recording the potential impact on Time, Cost and Scope/Quality, and develop appropriate mitigation or management actions. The RAID should then be actively managed and monitored, and visibility made available to the SI and the E2E System Co-ordination and Programme Assurance roles as appropriate.

RAID should be reported and escalated as appropriate to the SI, DCC, E2E System Co-ordination and Programme Assurance Role or direct to Ofgem as defined in the RAID management and escalation arrangement defined for the DBT phase. The format of the RAID should follow good practice, but categorisation (by probability and impact) should be consistent across all parties and providers so that escalation and reporting can be managed to common thresholds. It is expected that an overall RAID framework for the DBT Phase will be defined by the DBT Governance functions; probably the E2E System Co-ordination and Programme Assurance function directly supporting Ofgem.

7 Design and Build Mobilisation & Preparation

It is essential that adequate time and effort is put into preparation for the DBT phase by all parties and providers to ensure momentum can be established early and that ways of working within and across the parties and providers are established and bedded down. This is particularly important given the multi-party delivery environment relevant to Switching and the need to ensure that multiple, disparate parties and providers progress in unison and that DBT activity is effectively co-ordinated.

The SI coupled with other DBT Governance & Assurance roles (particularly the E2E System Co-ordination and Programme Assurance role) will lead in co-ordinating the preparation and mobilisation for DBT and all parties and providers will be expected to support the preparation and mobilisation activities in line with the plans developed by the SI and the E2E System Co-ordination and Programme Assurance roles.

Individual parties and providers will be expected as a minimum to undertake detailed planning for their specific Design and Build activities as captured at Section 6.2 above, and identify and mobilise any resources required. It is expected that this planning will also include any Testing required prior to integration with other systems. As a minimum, this should cover the requirements of the PIT Test Phase as defined in the E2E Testing Plan but may include additional internal testing as deemed necessary by that party or provider. Preparation should also involve the procurement of any additional hardware, infrastructure and software required and the setting up and configuration of this ready for Design and Build (and PIT). Any existing hardware, infrastructure and software should similarly be configured and set up.

All parties and providers should ensure processes and procedures are set up for managing risks, issues and defects, and for the reporting and escalation of these as required. All parties and providers should undertake initial identification of any risks, issues, assumptions and dependencies and assign mitigations and management actions as part of their DBT planning work.

It is also recommended that all parties and providers familiarise themselves fully with the E2E Design specifications prior to the start of DBT, and undertake due diligence to confirm those aspects that are applicable to the changes they are required to implement. Initial requirements capture, validation and traceability will be a vital re-requisite to detailed Design and Build activities for all parties and providers.

8 Centralised Design and Build Services, Assets and Facilities

A number of services, facilities and assets will be made available to all parties and providers which will assist in the development and testing of their systems during the DBT phase, including Test harnesses/tools, Test data. Environments, etc.

At this time, no specific central services, assets and facilities to support Design and Build activities have been identified over and above those identified in the E2E Integration and Testing Plans.

All parties will be expected to undertake Design and Build of their part of the new E2E Switching Arrangements to meet the timescales and quality criteria described in Contracts and Regulation as applicable.

9 Design and Build Defect Management

A common process will be adopted for Defect Management across the programme including defect classification and categorisation, as well as Change and Configuration Management, throughout the DBT phase of the programme. This will span all parties and providers and include agreed, consistent arrangements and criteria for escalation of Defects for resolution, including dispute resolution. This Defect Management process is fully defined in the E2E Integration Plan and E2E Testing Plan.

All parties and providers are expected to have in place, as a minimum, processes and tools for logging defects arising from their design and build (and integration and testing) activities and for undertaking initial (first line) triage. Defects that cannot be resolved by the party or provider, or meet the criteria for escalation to a higher body for resolution, should be escalated as defined in the E2E Integration and Testing Plans.

During the Design and Build activities, it is expected that Defects will predominantly be identified in the PIT Test Phase. However, Issues and Defects may also arise from other Design and Build activities, such as screening and due diligence of the E2E Design Specifications revealing inconsistencies, gaps or ambiguities in these E2E Design specifications. These ‘non-conformances’ should also be treated as Defects.

The E2E Integration Plan also covers Change and Configuration Management (see Section 10 below).

10 Service Management

The E2E Switching Service Management Strategy and subsequent products will specify requirements on relevant parties and providers for the Service Management they must provide for the new E2E Switching Arrangements during its steady state operation. These will form part of the specifications from the DLS phase, and all affected parties and providers will be expected to incorporate these in to their Design and Build activities so that any changes required to their existing Service Management arrangements are identified, developed and implemented. Additionally, the CSS SPs will need to design, build and test appropriate Service Management and Service Operations arrangements that meet these requirements.

There may also be a requirement for a Customer Enquiry Service to be delivered as a 'stand-alone' service and this will be subject to its own Service Management requirements.

10.1 Services During the DBT Phase

The E2E Integration Plan also defines a number of Services that are required to be provided by the SI in respect of the DBT Phase of the programme. This essentially covers Defect, Change and Configuration Management during DBT, as well as provision and management of any central Environments, and should not be confused with the steady state Service Management model for the new E2E Switching Arrangements beyond cut-over.

However, the DBT Services provided by the SI will need to be consistent with the steady state Service Management model to enable smooth transfer; e.g. of Defect to Incidents, of relevant Environments needed for steady state, and for the transfer of knowledge from DBT to steady state. This is covered further in the E2E Integration Plan (Operational Transition) and the E2E Post-Implementation Plan.

11 Next Steps

This E2E Design and Build Plan, together with the other DLS Phase E2E Delivery plans, will be used to inform subsequent products to support procurement activity (e.g. of the SI and CSS SP roles, as well as the E2E System Co-ordinator and Programme Assurance role, Market Participant Assurance and Core System Assurance roles). In respect of the CSS, separate CSS Delivery Plan and CSS Data Migration Plan products are being developed in the DLS phase to extract all relevant delivery requirements from the E2E products and supplement these with any additional requirements needed to effectively and efficiently manage the relevant service providers. These products will then inform the CSS Tender Pack(s).

The E2E Design and Build Plan, together with the other E2E Delivery plans, will also inform regulation including transitional regulation requirements to extract those requirements that are applicable to Market Participants and existing CDSPs.

However, the procurement of the CSS SPs and the SI will require them to propose their specific approaches, plans and solutions which will need to be harmonised and aligned with each other and, once agreed, fed back into the E2E Delivery plans and hence transitional regulations to ensure all parties and providers are aligned to the final CSS solution and Core Systems and Services Integration approach.

Given this context, this E2E Design and Build Plan, and the other E2E Delivery plans, should be considered as live reference documents that will require revision and update at key points to ensure continued alignment and relevance to the programme as it progresses.

Appendix A – Glossary

E2E Design & Build Plan Glossary

Acronym / Term	Definition
AKA	Also Known As (a.k.a.)
AS	Address Service
CR	Change Request
CRS	Central Registration System (synonymous with CSS)
CSS	Central Switching Service (synonymous with CRS)
DA	Design Authority (a.k.a. TDA)
DBT	Design, Build and Test
DCC	Data Communication Company (synonymous with Smart DCC)
DLS	Design Level Specifications (a.k.a. Design Phase)
DNOs	Distribution Network Operators
DPP	Design Proving Project
DMT	Data Migration Test
E2E	End-to-End
EA	Enterprise Architecture
FAT	Factory Acceptance Test
GTs	Gas Transporters
IA	Information Assurance or Impact Assessment
IAAS (IaaS)	Infrastructure as a Service
ICT	Information Communications Technology

Acronym / Term	Definition
INT	Integration Test
IT	Information Technology
ITIL	IT Infrastructure Library (Best Practice framework for IT Service Management)
MSO	Most Sustainable Organisation
PAAS (PaaS)	Platform as a Service
PIT	Pre-Integration Testing
PMO	Project or Programme Management Office
RACI	Responsible, Accountable, Consulted and Informed (a.k.a. Responsibility Assignment Matrix)
RAID	Risks, Assumptions, Issues and Dependencies
RT	Regression Test
RTM	Requirements Traceability Matrix
SI	CSS and Core Systems Integrator
SIAM	Service Integration and Management
SIT	System Integration Test
SLA	Service Level Agreement
SRO	Senior Responsible Owner
TDA	Technical Design Authority (a.k.a. DA)
UIT	User Interface Testing
QA	Quality Assurance