Digitalised Whole System Technical Code (dWSTC)

April 2022

Digitalisation of Codes Scoping Document

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Contents

1. Executive Summary

National Grid Electricity System Operator's (NGESO) RIIO-2 business plan included a proposal for a digitalised Whole System Technical Code (dWSTC) encompassing the existing Distribution Code (and associated Engineering Recommendations (ERECs)) and the Grid Code to be delivered with engagement from industry on the direction of this work. Stakeholder engagement commenced in June 2021 and a Consultation was conducted between September and November 2021. The analysis of responses led to a number of possible solutions to take forward and the instigation of a Steering Group to provide overall oversight, strategic direction and decision making on behalf of industry. In February 2022 the Steering Group voted on which solutions should be taken forward to scope out further, provide greater clarity on objectives, benefits, risks and timelines for delivery and grouped into the following workstreams:

- Alignment of Codes
- Consolidation of Codes
- Digitalisation of Codes
- Guidance and Training for the use of Codes

- Code Administrator Performance Improvement
- Simplification and Rationalisation of Codes
- Improving SQSS Governance

The purpose of this document is to expand the detail on the workstream relating to:

- Digitalisation of Codes

Separate documents released alongside this document have been developed for the other workstreams.

This document proposes that the work within scope should be progressed to further develop an understanding of user requirements and solution design.

The solution will be an individual digital platform for each of the Grid Code and Distribution Code. The platforms should be interoperable, ensuring they can exchange information without major change, to minimise longer term risk to the investment. The intention is for all requirements to be defined, prioritised and assessed through significant user engagement, followed by technical review to identify the optimal route to solution delivery, i.e., build software in-house or buy from a software provider. This development or procurement process will need to ensure an appropriate solution delivery timeline is planned, accounting for extensive user testing throughout to maximise value.

The Steering Group is asked to approve this recommended way forward, to allow mobilisation of the Digitalisation of Codes workstream.

2. Background

National Grid Electricity System Operator's (NGESO) RIIO-2 business plan included a proposal to consider developing a digitalised Whole System Technical Code (dWSTC) encompassing the existing Distribution Code (and associated Engineering Recommendations (ERECs)) and the Grid Code. NGESO committed to ensure that there was engagement from industry on the direction of this work from the outset. In line with this commitment, stakeholder engagement commenced in June 2021 gathering views on the project's scope, objectives and approach which formed Consultation 1. The consultation gave an opportunity for stakeholders to formally provide their views on the proposed dWSTC. It was released in September 2021 and closed in November 2021.

- 25 responses across a range of industry stakeholders were received (written and verbally)
- Full analysis has been published on the Digitalised Whole System Technical Code Website.

Due to the range of possible solutions coming out of the industry Consultation period, a Steering Group was created to provide overall oversight, strategic direction and decision making on behalf of industry and had their inaugural monthly meeting in December 2021. In February 2022 they voted on which solutions should be taken forward to scope out further, providing greater clarity on objectives, benefits, risks and timelines for delivery. The results of the vote can be seen in Table 4.

The work that has been approved to take forward has been grouped into workstreams as follows:

- Alignment of Codes
- Consolidation of Codes
- Digitalisation of Codes
- Guidance and Training for the use of Codes
- Code Administrator Performance Improvement
- Simplification and Rationalisation of Codes
- Improving SQSS Governance

The purpose of this document is to expand the detail on the workstreams relating to:

- Digitalisation of Codes

The document also states the governance arrangements agreed to by Stakeholders to ensure that the project communicates effectively with Ofgem via the Grid Code Review Panel (GCRP) and Distribution Code Review Panel (DCRP).

Separate documents released alongside this document have been developed for the other workstreams:

- Code Governance Scoping Document detailing the Guidance and Training for use of the Codes workstream and Code Administrator Performance Improvement workstream
- Code Consolidation Paper detailing the Consolidation of Codes workstream
- Code Content Scoping Document detailing the Alignment, Simplification and Rationalisation of Codes workstream
- Improving the SQSS Governance Scoping Document detailing the Improving the SQSS Governance workstream

3. Digitalisation of Codes

In this section the objectives, benefits, scope, and indicative timelines of the Digitalisation of Codes workstream are detailed further.

This workstream will explore how migrating the Grid Code and/or the Distribution Code onto a digital platform would transform the customer experience. The digital platform would include features such as search, filter and signposting to related guidance material to enhance the customer journey.

The issues identified by stakeholders through Consultation 1 provided insight into what the workstream should seek to address. These have been presented in Table 1, overlaid against the proposed solutions presented in the Analysis of Consultation Responses[1] document. An indication of which issue could be addressed by each proposed solution is shown by a green "x" to show a strong resolution or a yellow "/" showing partial resolution.

Proposed solutions			1 — Codes are lengthy and not easy to understand, especially for new entrants.	2 — Codes are overly complex.	3 — Codes lack clarity and can be confusing for new users.	4 — Difficult for industry participants to understand their obligations.	5 — Codes are difficult to navigate.	6 — Code modification process is resource intensive and cumbersome.	7 — Duplication across codes resulting in contradictions.
Platform	Digitalisation of both codes	Separate platforms							
		Separately on common platform					x	x	
		Together on common platform							
Features and Content	Filtering	Code filtering	x			x	x		
	Guided navigation	User Journeys	x	/	/	x	x	/	/
		Point to supporting info within codes/standards/other codes							
		Self-service with signposting	/				x	x	
		Cross code signposting							
		AI driven platform							
	Document management	Version control with ability to view previous versions of code						x	
		Visibility of clauses currently being considered for change							
	Collaboration	Record additional meta data about the codes (wiki)	/	/	/	/	/	/	/
		Discussion board							

Table 1: Overview of which issues the proposed solutions could address

3.1 Objectives

The Digitalisation of Codes workstream aims to transform the customer experience of interacting with industry codes. The objectives underpinning this outcome are:

1. Improve accessibility and navigation of the codes

2. Aid understanding of the codes

3. Improve code management processes and support wider participation in code change

Achievement of these objectives will be ascertained through continuous stakeholder feedback.

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[1] WSTC Analysis of Consultation 1 Responses, NGESO, April 2022. https://www.nationalgrideso.com/document/247656/download

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3.2   Benefits

The benefits identified in relation to Digitalisation of Codes are summarised in Table 2, and will be refined and quantified through workstream mobilisation, solution design and delivery.

Benefit	Related Solution Categories	Description	Benefit Type	Proposed Measure
Resource efficiency	Guided navigation	Improved features to speed up navigation of the code	Tangible	Time & motion analysis
	Digital content	Improved accessibility to supporting guidance tools and content, e.g. user journeys	Intangible	Customer Satisfaction
	Digital code management	Streamlined process can reduce number of process steps required to manage a code modification	Tangible	Time & motion analysis
Quality of process outputs	Digital code management	Streamlined process using automated features to reduce risk of human error	Intangible	Assurance review
Understanding of relevant obligations	Filtering	Availability of features to identify relevant sections of the code for a given user/task/query e.g. compliance obligations	Intangible	Customer Satisfaction
	Guided navigation	Availability of features and content to support identification of relevant parts of the code for a given user/task/query e.g. signposting from compliance obligation to other relevant material	Intangible	Customer Satisfaction
Participation in code governance processes	Digital code management	Increased visibility of in-flight code modifications e.g. highlighting sections of the code impacted by change	Intangible	Customer Satisfaction
Wider understanding and awareness of industry codes	Digitalisation of codes	Improved access to guidance materials and content which supports accessibility to wider audience, in turn increasing understanding of importance of industry codes	Intangible	Customer Satisfaction
Support to digitalise other industry codes	Digitalisation of codes	A flexible and scalable platform could allow further digitalisation of other industry codes in future, increasing the ability to navigate efficiently and understand obligations across multiple codes	Intangible	Customer Satisfaction
Support to integration of related processes	Digitalisation of codes	A flexible and scalable platform could allow use of the data for other purposes, integration with wider processes	Intangible	Customer Satisfaction

Table 2: Summary of benefits

3.3   Scope and Stakeholder Considerations

Stakeholder feedback has been collected and will shape the scope of the Digitalisation of Codes workstream. Considerations of scope items are presented below, alongside feedback from stakeholders.

Before investigating the scope of specific aspects of Digitalisation, general considerations expressed by stakeholders to date have included:

- The need to review the materiality of the issues being addressed before pursuing a proportionate response

- The need to ensure low cost and 'no-regrets' options that provide guidance to users

- Ensuring not to underestimate the resources (and therefore costs) involved in undertaking more complex solutions.

To provide a high-level overview of scope, Figure 1 provides the initial areas that will be assessed and prioritised, by category. Each of these elements will be drawn out through detailed requirements analysis and significant user engagement, before being prioritised ahead of development of a high-level solution design. These activities will refine the current broad scope, to an achievable level, prioritised to deliver early value to customers.
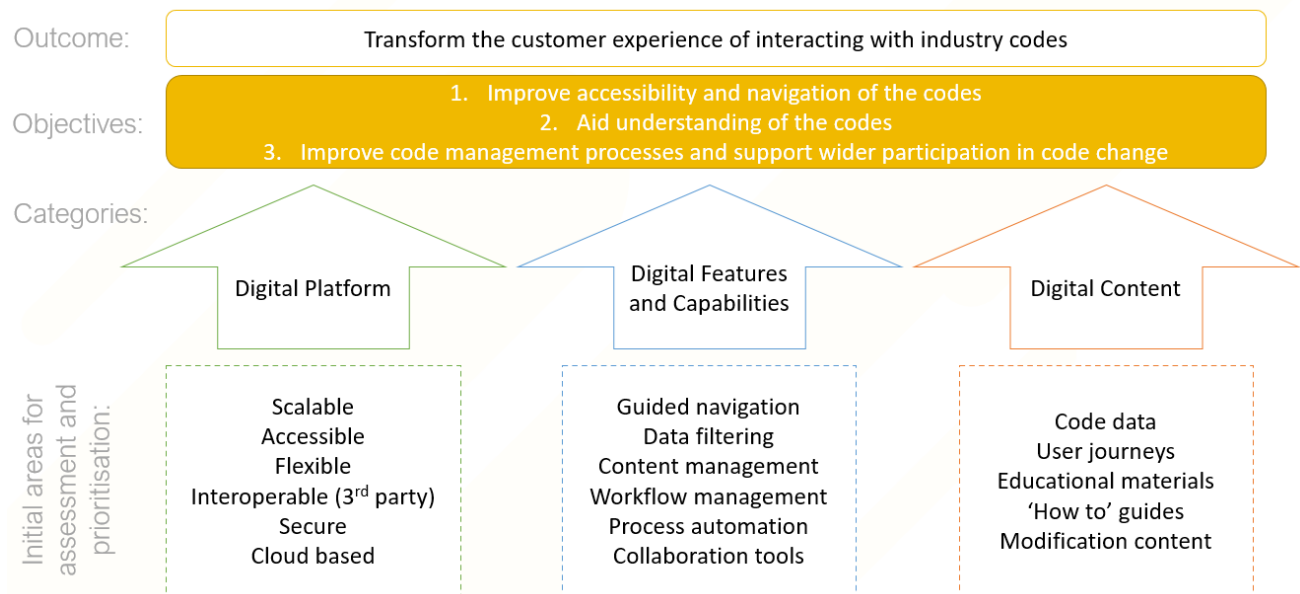

Figure 1: Overview of project outcome, objectives, workstreams and initial areas of interest for onward assessment and prioritisation

Digital Platform Scope

The new digital platform should consider flexibility to support different types of functionality and scalability to support multiple codes in the future, to maximise the value of the investment. Stakeholders highlighted the need for interoperability with other platforms, ensuring that any solution can exchange and make use of information from other systems, with a view to mitigating risk of future change brought about by the results of the Energy Code Reform (ECR) consultation.

One stakeholder also referenced the need for the longer-term affordability of a solution, independent of software providers, bringing to light the considerations needed for ongoing costs such as licence fees and service contract costs to 'run the business'.

One stakeholder pointed out that both the Grid Code and Distribution Code are already in a digital format, however, it is acknowledged by the Steering Group specifically that a PDF does not facilitate the same functionality that an alternative digital format could.

Discussions between Steering Group members in March suggested a move towards a digital platform provides potential for realisation of benefits longer term.

The initial direction of the dWSTC programme was to aim for digitalisation of the Whole System Technical Code, i.e., through consolidating the Grid Code and Distribution Code into a single whole system document. However, many stakeholders have expressed that there is value in progressing digitalisation of the current Grid and/or Distribution Codes, whilst maintaining review of relevant changes across the industry, e.g., progression of outcomes from the Energy Code Reform. The codes within scope are currently managed by two different Code Administrators. As access to the platform will need to be secure by design, procurement and management of a joint platform would involve significant administrative, contractual and security related overheads and is therefore considered the least viable option. This results in two options for the workstream to pursue regarding a digital platform:

1. Delivery of two different but interoperable platforms

2. Delivery of two instances of the same platform solution

Should consolidation or other changes affecting code management occur, option 1 still delivers an interoperable platform that could support exchange of information across different systems and therefore at reduces future risk to the investment. The second would provide full support for a simple migration of data if a change such as code consolidation were to occur at a future point in time. Voting completed by the Steering Group in February was split regarding these options, but most supporting statements alluded to issues of clarity regarding what digitalisation could look like rather than an argument against the concept outright. Whilst these options cover delivery of the product, another consideration would be timing of the project delivery. Referring to the broad stakeholder considerations outlined previously, a lower cost option would be to digitalise one code first, folding lessons learned into any future project to digitalise the other code.

NGESO will focus on digitalisation of the Grid Code, ensuring to work closely with ENA regarding digitalisation of the Distribution Code, supporting a consistent and joined up approach without hindering progress.

Some stakeholders have raised whether it would be appropriate to include associated documents alongside the technical codes, such as the Relevant Electrical Standards with Grid Code. Given the objective of this workstream is to transform the customer experience, it seems sensible to include the associated documents within the scope of the solution at this point to ensure a future proofed and holistic design, with a view that any such documents could be prioritised at a lower level through the delivery phase.

One important issue raised by multiple stakeholders is regarding the implications of the new digitalised code being legally binding. The current format of the codes are both legally binding, however, there is a concern that moving to a platform that can filter or guide the user to a certain section, may risk the user missing vital information that is relevant to them. Should any dispute occur, this situation could cause a grey area regarding liability.

At this stage, it is proposed that the digitalisation workstream should continue to explore this as detailed designs are developed. As seen in the digitalisation journeys of other industry codes, there are options to run both a digital format and the existing format in parallel, until users and Code Administrations alike are confident in the final product. This would start to see some realisation of benefits for certain features, whilst building the detailed quality assurance behind others. This would require regular review to understand when the solution could be approved from a legal standpoint and switched to a single view of the code.

Digital Features, Capabilities & Content Scope

The features and capabilities to be included in the scope range from searching and filtering the code, to creation of a digital community via discussion boards or capturing of meta data.

Filtering

Filtering would enable to user to select relevant options to reduce the amount of code displayed on screen. Some stakeholders raised concerns that this functionality could introduce the risk that a user would miss the context in which the text should be read or miss other relevant clauses altogether. The design will need to ensure this risk is mitigated, whilst still providing the benefits of the functionality.

Guided navigation

- User journeys.

The possibility of User Journey functionality has generated a great deal of discussion between stakeholders, who are overwhelmingly in support of this proposed solution. It is acknowledged that there are a wide variety of options to 'codify' user journeys and to address this, one stakeholder suggested that a case study should be undertaken. This would inform an impact assessment such as resource requirements and risks, as well as an understanding of the design options. We are aware that industry resources are limited, in particular subject matter experts, which would be relied on for co-creation to progress this option and an assessment of effort vs impact should be completed before commencement.

Other stakeholder feedback recognised the need to make sure the user journey solution was not oversimplified to gain benefit from implementation. Another stakeholder identified the need for a thorough understanding of the full range of user journeys before implementing. One respondent suggested that code shouldn't need to be updated or restructured following a change to the user journey content. Each of these considerations should be reviewed as part of the requirements gathering stage.

- Signposting (Self-service, Cross code)

With regard to features such as self-service and cross code signposting, stakeholders agreed that there is lots of scope for improvement. However, this needs to be balanced with the administrative burden of maintaining the solution, e.g., refreshing links following change. One respondent suggested that any further functionality such as signposting would not be required if the solution for the user journeys sufficiently addressed the same issues.

For cross code signposting options specifically, the design will need to consider limitations such as how interoperable other code platforms are and the actual value of benefits that could be realised through linking to the overall code. This should be considered in the requirements prioritisation.

- Signposting (Artificial Intelligence driven)

During Consultation 1, stakeholders acknowledged that different respondents have very different views on what an Artificial Intelligence driven platform would look like. This is driven by many different use cases of applying AI, ranging from the very simple to the very complex. Concerns were raised by some stakeholders over cost to deliver and the level of benefit that would be realised in comparison to cheaper or simpler options such as self-service signposting. The Steering Group voting (as seen in Appendix 1, proposed solution 22) was split down the middle. It is therefore suggested that detailed options analysis considers what an AI platform could deliver versus more basic coded functionality, engaging users to define value and inform prioritisation of requirements.

Document management

The application of indicators to identify clauses or sections currently under consideration for change received support from many stakeholders. However, there are considerations highlighted by multiple respondents that will need to be reviewed before finalising a design. These include:

- When a code change 'indicator' would be applied and who would apply it

- The level at which the indicator would be applied, e.g., section or clause(s)

- How users are made aware of the code modification process and that this change is a 'proposal' until decided by Ofgem

- How timelines would be explained to users (e.g., point to code modification tracker or webpage)

During Consultation 1, a small number of stakeholders referenced the requirement for version control. One benefit of this would be to allow participants involved in code modifications to review previous iterations of the code to better inform future change. The current process involves contacting the relevant code Administrator to gain an offline copy of a previous version. The have been historical instances where the wrong version of the code have then been used to update legal text through the code modification process. In the future, this could be provided by enabling a self-service digital option to see previous iterations of the code, whilst maintaining clarity on 'live' versus 'archive' documentation. This would reduce the burden on Code Administrator, speed up the process and provide access to users 'on demand'. Including this feature in the

future design could also support evidence gathering for resolution of compliance issues, e.g., ability to see which version of the code applied at a given point in time.

Collaboration

Analysis of Consultation 1 feedback identified that a digital discussion board could be an alternative approach to supporting users through issues interacting with the code. It is anticipated that 'threads' could be initiated by any user and the wider community of participants could respond with their own views or offers of support. Supported by a 'log in' option, users could opt to be 'notified' of new items/responses to posts etc. The role of Code Administrator would need to be very clear, as this solution would need to be moderated to ensure 'appropriate use'. A benefit of this could be that the community is able to provide efficient expertise to support itself, reducing the dependence on a central point of contact. As expressed in feedback from stakeholders, this would be an 'addition' to resolution of issues and would not replace the current governance process.

Additional to the discussion board, the ability to record additional data against the code was also put forward as an approach to support community understanding and provide clarity to complex sections. Whilst some stakeholders though this option is worth exploring, many acknowledged the risks and administrative requirements that would need to be addressed ahead of inclusion in the final design.

3.4   Indicative Timelines and Deliverables

Indicative timeline

Image 2 provides an overview of the indicative timelines for delivery of the digitalisation workstream, based on current information. The main caveat to this timeline is that the procurement and delivery windows may extend or reduce, dependent on the solution and/or supplier chosen.
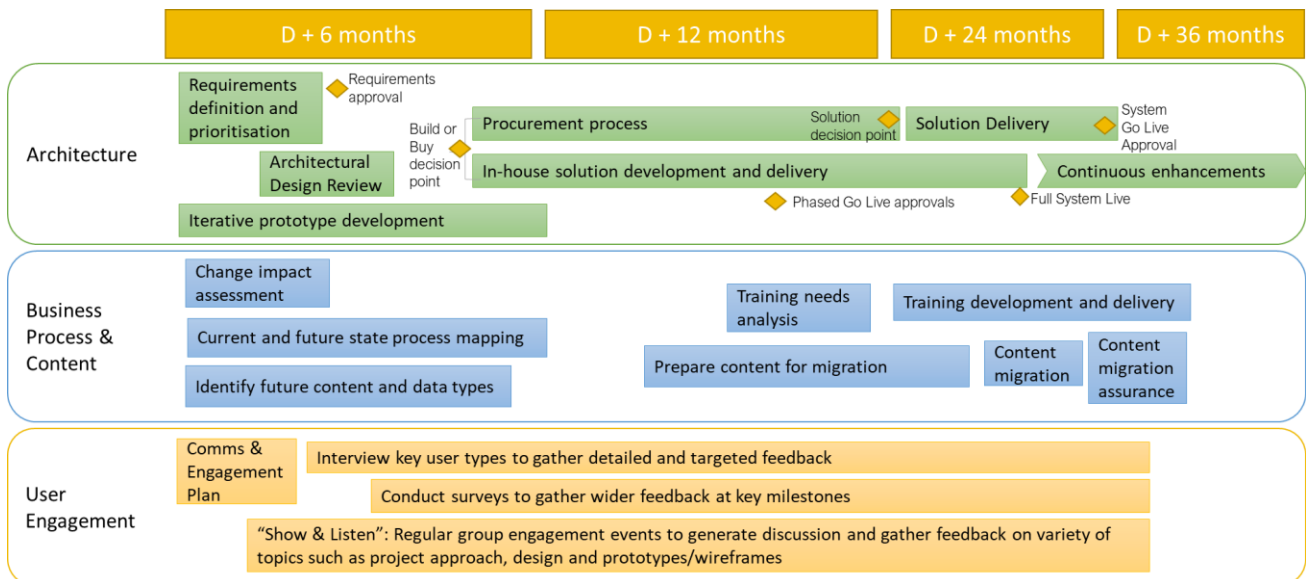

Figure 2: Indicative timeline for workstream delivery

- Requirements

All requirements will be defined, prioritised and assessed through significant user engagement before being subjected to technical review to identify the optimal route to solution delivery, i.e., build software in-house or buy from a software provider. This development or procurement process will need to ensure an appropriate solution delivery timeline is planned, accounting for extensive user testing throughout to maximise value delivered.

- Process

Current and future processes to manage the codes and associated content will need to be mapped to ensure clarity on requirements and future state design. A review of the current and future data and content should also be undertaken to inform a fit for purpose design, in line with customer requirements.

- Training

Once the solution design is known, training needs analysis should be conducted to ensure appropriate training materials can be developed and delivered for all impacted users in a timely manner.

- Communications and engagement

A communications and engagement plan will be produced, agreed with key stakeholders before being put under continuous review, to ensure it remains fit for purpose. A key part of the engagement will be regular, two-way interaction with end users, preferably with a wide array of views and challenges that the new solution can address.

Deliverables

A list of key deliverables expected to be delivered through this project are provided in table 3. Each deliverable is accompanied by an indicative cost to deliver, which considers high level information regarding investment and resource required and should be viewed as comparison between deliverable sizes rather than absolute costs.

Deliverable Title	Indicative Cost
High level project plan	£
Comms & engagement plan	£
Detailed functional and non-functional requirements document	££
Acceptance criteria	£
High level design	££
Procurement or development plan* including testing and implementation	££
Digital platform	£££££
Content review	££
Content migration plan	£
Content migrated to digital platform	££
Assurance report on completion of content migration	£
System 'Go Live' Approval	£

Table 3: Overview of key deliverables and indicative costs

Should the chosen design not include the full scope of features detailed in section 3.3, delivery timelines may reduce by up to 6 months. This estimate is based on a minimal viable product being built on the basic platform, with 1 or 2 key features to enable better navigation. However, due to basic architecture requirements, a reduction in features is unlikely to have a significant impact to cost.

4. Governance and Decision Making

It is envisaged that there will be continued decision-making requirements throughout delivery of the workstream. To ensure transparency, an overview of the expectations for decision-making are:

- Decisions such as scope, prioritisation, solution feature design and overall strategic direction will be directed by the Steering Group

- Decisions such as cyber security, branding and procurement will be made internally by the workstream owner (i.e., NGESO or ENA)

5. Key Risks, Assumptions, Dependencies and Constraints

Key risks to the Digitalisation programme include change associated with the outcomes of both the Energy Codes Reform (ECR) and Future System Operator (FSO) consultations. These changes could impact code governance processes, ways of working and accountabilities for code management. Ensuring to maintain a 'no-regrets' approach to investment will provide a level of mitigation to these risks whilst maintaining momentum in areas of value to the industry.

Dependent on the chosen solution requirements and design, there may be a reliance on industry expertise. It is widely acknowledged that Subject Matter Expertise are currently stretched which poses a risk to delivery timelines throughout the co-creation and delivery of the digitalisation workstream. It is anticipated that mitigation actions can be agreed and put in place to manage the risk through early engagement, transparency, and realistic timelines. Ultimately, the quality of the solution will be dependent on the quality of feedback from end users.

The current code governance rules as defined within each code document provide clear constraints to the digitalised process and as such any future process will need to adhere to this ruleset, whilst having flexibility to adapt to future changes.

It is not anticipated that code modifications will be required through this workstream and are therefore considered to be out of scope.

6. Next Steps

The recommendation to the Steering Group is to proceed with mobilisation of the Digitalisation workstream in line with the timeline provided in section 3.4. For clarity, the immediate tasks include:

1. Liaison between Grid Code and Distribution Code Administrators to agree how to proceed with alignment of projects
2. Creation of a detailed project plan
3. Commencement of user engagement to document and prioritise requirements
4. Complete change impact assessment to inform delivery planning
5. Production of high-level design

The Steering Group will be informed of progress, providing strategic direction at key milestones and decision points.

Appendix A: Voting Results & Workstream Assignments

Proposed Solutions	For	Against	Comments	Workstream Assignment(s)
1	11	0	Take forward to scoping	Digitalisation
2	10	1	Take forward to scoping	Guidance & Training
3	9	1	Take forward to scoping	Digitalisation
4	8	3	Take forward to scoping	Digitalisation
5	11	0	Take forward to scoping	Digitalisation
6	6	2	Further vote required	Simplification & Rationalisation
6 a	6	0	Take forward to scoping	Simplification & Rationalisation
6 b	3	3	Take forward to scoping	Simplification & Rationalisation
7	6	3	Take forward to scoping	Consolidation and Simplification & Rationalisation
8	8	0	Further vote required	Simplification & Rationalisation
8 a	5	2	Take forward to scoping	Simplification & Rationalisation
8 b	7	0	Take forward to scoping	Simplification & Rationalisation
9	8	2	Take forward to scoping	Guidance & Training
10	6	3	Take forward to scoping	Consolidation
11	10	0	Take forward to scoping	Alignment
12	3	7	Do not take forward	
13	1	9	Do not take forward	
14	3	6	Do not take forward	
15	5	5	Take forward to scoping	Performance Improvement
16	2	6	Do not take forward	
17	11	0	Take forward to scoping	Digitalisation
18	9	2	Take forward to scoping	Digitalisation
19	8	3	Take forward to scoping	Digitalisation
20	8	2	Take forward to scoping	Digitalisation
21	10	1	Take forward to scoping	Digitalisation
22	5	6	Take forward to scoping as low priority	Digitalisation
23	4	4	Take forward to scoping	Digitalisation
24	3	5	Take forward to scoping as low priority	SQSS Governance
25	4	4	Take forward to scoping	Digitalisation and Consolidation
Recommendations	For	Against		
1	9	0	Take forward	
2	10	0	Take forward	

3	8	1	Take forward	Digitalisation
4	9	0	Take forward	
5	10	0	Take forward	All (include in each workstream)
6	10	0	Take forward	
Proposed Delivery Solutions	**For**	**Against**		
1	7	3	Take forward to scoping	Alignment
2	7	3	Take forward to scoping	Consolidation
3	5	5	Take forward to scoping	Digitalisation

Table 4: Voting Results and Workstream Assignments