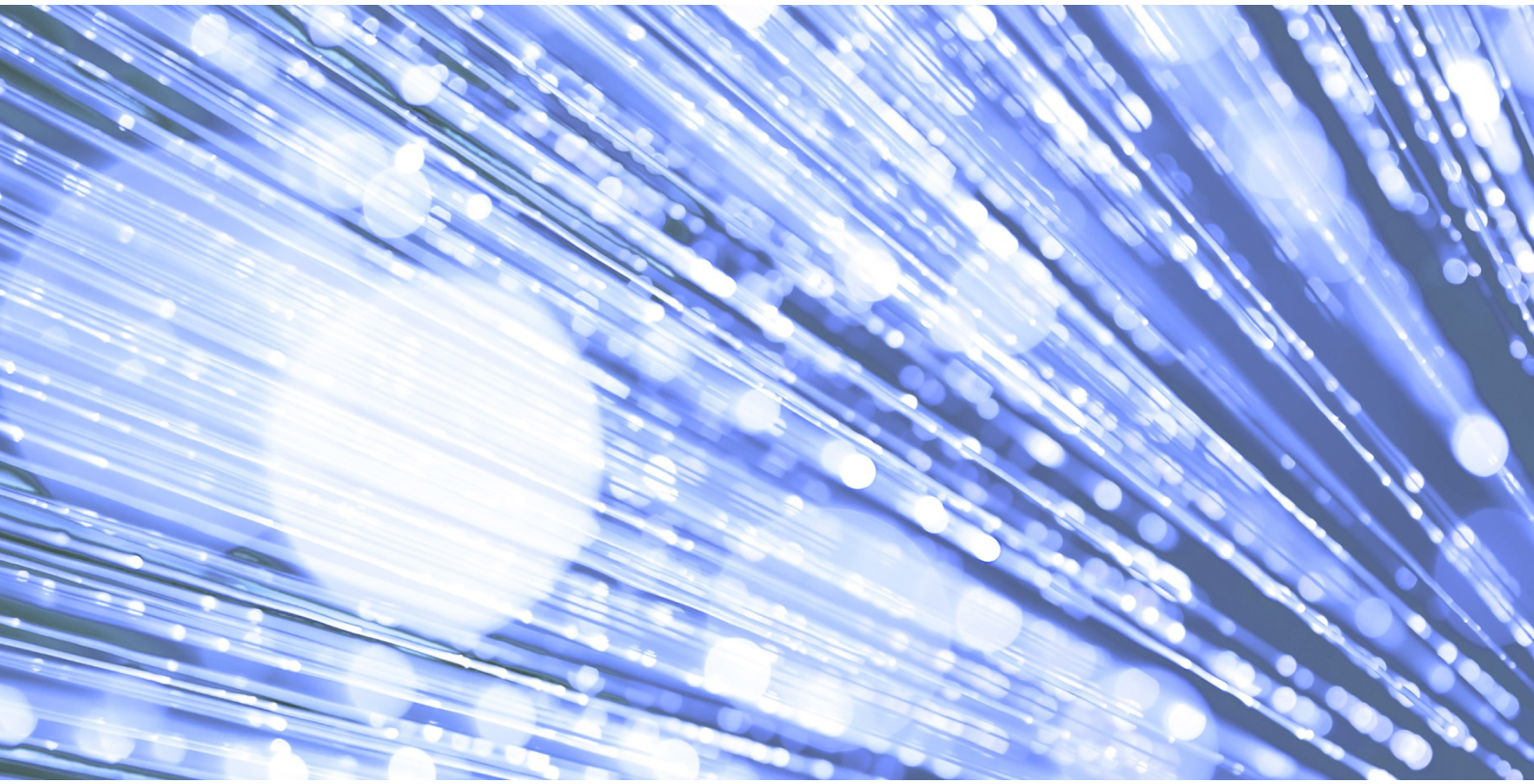
Health and Social Care Organisation Reference Data (DCB0090)

Implementation Plan and Guidance

Published 8 March 2018



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Data Coordination Board

This information standard (DCB0090) has been approved for publication by the Department of Health and Social Care under section 250 of the Health and Social Care Act 2012.

Assurance that this information standard meets the requirements of the Act and is appropriate for the use specified in the specification document has been provided by the Data Coordination Board (DCB), a sub-group of the Digital Delivery Board.

This information standard comprises the following documents:

- Requirement Specification
- Implementation Plan and Guidance
- Change Specification.

An Information Standards Notice (DCB0090 Amd 81/2017) has been issued as a notification of use and implementation timescales. Please read this alongside the documents for the standard.

The controlled versions of these documents can be found on the NHS Digital website. Any copies held outside of that area, in whatever format (e.g. paper, email attachment), are considered to have passed out of control and should be checked for currency and validity.

Date of publication: 8 March 2018.

Glossary of Terms

Term / Abbreviation	What it stands for
API	Application Programming Interface. A way of communicating with a particular computer program or internet service.
Assigning Authority	The organisation responsible for maintaining a range of identifiers.
Cardinality	The number of occurrences of a given object or data item at each end of an association or relationship
Component	In XML terms this is a structural element of the document hierarchy.
CSV	Comma Separated Values. A common, relatively simple file format for storing tabular data in plain-text form, particularly well-suited to fixed length records.
Data Item Catalogue	A detailed technical description of all data items contained within the Object model which supports Organisation Reference Data.
DCB	Data Co-ordination Board. The DCB meets on a monthly basis to review and approve the assurance of information standards and data collections (including extractions), known collectively as ISCE http://content.digital.nhs.uk/isce/dcb
Entity	An organisation, site or location which physically exists in the real world.
HSCIC	Health and Social Care Information Centre - a data, information and technology resource for the health and care system which plays a fundamental role in driving better care, better services and better outcomes for patients in England. Operates under the trading name of NHS Digital
HSCOrg	The name for the record class in the data model of a Health and Social Care Organisation.
HSCSite	The name for the record class in the data model of a Health and Social Care Organisation Site.
Intelligence	The ability for a consumer to interpret the Primary Role of a given organisation from the format of the organisation code.
Issuing Authority	The organisation responsible for publishing Health and Social Care Organisation Reference Data – currently the Organisation Data Service (ODS).
Meta Data	'Data about data' - in this context additional information about an organisation or site entity (i.e. indicating its Roles, Relationships, etc).
Multiple-frame Identifier Structure	(See also 'Unified Identifier Structure') Historically, multiple structures have been used for Organisation Reference Data identifiers to denote organisation types (referred to as 'code-frames'). For example NHS Trust codes are 3 characters long and begin with an 'R'. Code frames also convey organisation-to-site relationships
NHS Digital	The trading name for HSCIC
ODS	Organisation Data Service[1] – part of NHS Digital responsible for the publication of organisation and practitioner codes, and for the national policy and standards with regard to the majority of organisation codes. These code standards form part of the NHS

[1] https://digital.nhs.uk/organisation-data-service

	data standards. This service was previously known as National Administrative Codes Service (NACS).
Partial	Partial in the context of this document is used to describe releases restricted to changed records, designed to allow updates only to be applied to reference data, avoiding the need to refresh the entire data set.
Record	The representation of an entity within Organisation Reference Data.
Reference Data	Data that defines the set of permissible values to be used by other data fields.
Referential Integrity	Referential integrity is a database concept that ensures that relationships between tables remain consistent. When one table has a foreign key[2] to another table, the concept of referential integrity states that you may not add a record to the table that contains the foreign key unless there is a corresponding record in the linked table.
SCCI	Standardisation Committee for Care Information - superseded by Data Co-ordination Board. Ceased to exist as of end March 2017 when the approval of standards was transferred to the DCB.
Subject	The current record within Organisation Reference Data.
Target	Identifies the records to which relationships on the current record point.
Unified Identifier Structure	(See also 'Multiple-frame Identifier Structure') Unique identifiers, with a single, unified standard structure of 5 alternating alphabetic and numeric characters (ANANA) *with no inherent meaning*.
UPRN	Unique Property Reference Number - a unique identifier for spatial addresses in Great Britain provided in AddressBase (an Ordnance Survey product).
URI	Uniform Resource Identifier (URI). A string of characters used to identify the name of a resource. Such identification enables interaction with representations of the resource over a network, typically the World Wide Web. The most common form of URI is the Uniform Resource Locator (URL), frequently referred to informally as a web address.
URL	Uniform Resource Locator - a reference (an address) to a resource on the Internet. For example a URL could be the name of a file on the World Wide Web because most URLs refer to a file on some machine on the network such as an XML Schema. However, URLs also can point to other resources on the network, such as database queries and command output.
XML	Extensible Markup Language. A set of rules for encoding documents in machine-readable form.

[2] http://databases.about.com/cs/specificproducts/g/foreignkey.htm

Contents

1 About this Document

1.1 Scope of Document

This paper provides guidance for users of Health and Social Care Organisation Reference Data.

1.2 Associated Documents

Reference	Content
Management Summary_ DCB0090 Amd 24-2015 v 1.0.docx	High-level overview of the change from the legacy state to the new, for existing users that must transition
Requirement Specification_DCB0090 Amd 81-2017	Fundamental Standard for Health and Social Care Organisation Reference Data (for new users)
Change Specification_DCB0090 Amd 81-2017	Describes the changes made to legacy ODS products to establish the Fundamental Standard DCB0090, as well as a subsequent update to the standard regarding the release mechanism and frequency of updates to the XML data.
Full Business Justification_DCB0090 Amd 24-2015 v 2.0.docx	Details the drivers for the changes made to legacy products to establish the Fundamental Standard SCCI0090 (for existing users of data prior to February 2017 only)
XML Organisation Data Products Web Pages[3]	Additional web resources supporting transition from legacy products to the Fundamental Standard, published on ODS pages of the NHS Digital website. Includes the Technical Specification which provides the technical information required to understand XML Organisation data products.

1.3 Document Conventions

Throughout this document, the phrase ‘Health and Social Care Organisation Reference Data’ or ‘Organisation Reference Data’ is used to refer to all in-scope data, including both Organisation and Organisation Site data.

Note that the previous name for this standard was ‘Organisation Data Service’.

[3] https://digital.nhs.uk/Organisation-data-service/XML-Organisation-Data-Products

2 How to Use this Guidance

As detailed in management summary, DCB0090 performs two tasks. It both describes a range of changes to a set of legacy Organisation data products, and establishes the new data products in their post-change state.

As with the structure of the information standard this guidance is divided into sections, tailored to users based on when they first implemented the data:

- Guidance for ALL Users – a universal set of requirements that all users of the standard should consider regardless of the nature of their implementation of Health and Social Care Organisation Reference Data.

This should then be followed by consideration of **one** of the two remaining sets of guidance:

- Guidance for New Users – for stakeholders using Organisation Reference Data in a new implementation post-February 2017;
- Guidance for Existing Users – for consideration by stakeholders with an existing dependency on Organisation Reference Data that has been in place since before February 2017.

Note it is intended to continue to develop and iteratively release updates to the guidance for existing users over time. This will allow additional guidance to be incorporated, as more and more detailed evidence is gathered from users about the obstacles, risks, issues and impacts they face during transition, and allow the wider user base to benefit from the lessons learned. More information about this approach is provided in section 6.

3 Guidance for ALL Users

3.1 XML Release Scope

Internal development commitments within the issuing authority mean that the early XML releases following the implementation start date of 24 February 2017 cannot include the full range of products and data content. Although every effort will be made to minimise the degree to which it occurs, some elements, attributes, Roles and files may be omitted from the first live publications. Any excluded components will be introduced incrementally over time.

An XML Product Scope Timetable is provided alongside the XML release products to make it absolutely clear to users what content is included and what is excluded in any given release. This lists the entire XML product suite including individual files, Primary Roles, and elements and attributes for the schema, with an indication of whether they are in or out of scope for the current release. Where a component is out of scope, a projected date for its introduction will be provided as soon as it is known. This is a 'live' product and will be updated with information as detail emerges and a new version will be released whenever necessary. Notice will also be given through the ODS communications channels prior to any new release.

Users should note that although the products in some of the early releases may not hold the full, final scope, the Technical Specification and Data Item Catalogue *are* based on the full scope. Care should therefore be taken when using these documents with early live releases, because they may reference components that are yet to be introduced to the products. Until the full release scope is achieved the XML Scope Timetable should be consulted each time products are refreshed, in order to determine the content of the current release.

3.2 Requirements

ID	Implementation Date	Requirement
1	From 24 February 2017	Stakeholder representatives **MAY** attend the Organisation Reference Data User Group meetings. Request addition to the invitee list by raising a log with Exeter.helpdesk@digital.nhs.uk or 0300 303 4034
2	From 24 February 2017	Stakeholder representatives from your organisation **MAY** join the Organisation Reference Data User Reference Panel. Information is available at http://systems.digital.nhs.uk/data/ods/userrefpanel
3	From 24 February 2017	From the point that Organisation Reference Data is first acquired, stakeholders **MUST** assess all newsletters, email bulletins and user group minutes within one week of their issue. All changes **MUST** be impact assessed, and when necessary responses **MUST** be prepared and implemented to the timescales defined in the communication
Conformance Criterion		Analysis of and response to all newsletters, email bulletins and user group minutes are recorded and logged within one week of their issue as part of business as usual audit and planning processes
		Actions resulting from newsletters, email bulletins and user group minutes are incorporated into business as usual planning and development activities

ID	Implementation Date	Requirement
4	From 24 February 2017	From the point that they first acquire Organisation Reference Data, stakeholders **MUST** be in receipt of all notifications of changes to DCB0090
Conformance Criterion		Your organisation is subscribed to: http://www.digital.nhs.uk/isce/contact-us.
5	From 24 February 2017	Stakeholders **MUST** assess all changes to SCCI0090 within one month of the publication of a related Information Standards Notice. If necessary changes **MUST** be applied to all dependent systems and services within the timescales defined in the Information Standards Notice.
Conformance Criterion		Analysis of and response to all Information Standards Notices concerning DCB0090 are recorded and logged within one week of their issue as part of business as usual audit and planning processes
		Actions resulting from Information Standards Notices concerning SCCI0090 are incorporated into business as usual planning and development activities
6	From 17 August 2016	Any changes to your organisation that need to be reflected in its record within Organisation Reference Data **MUST** be advised to the issuing authority by raising a log with mailto:exeter.helpdesk@nhs.uk or 0300 303 4034
Conformance Criterion		Your own organisation's record within Organisation Reference Data is confirmed as accurate
7	From 24 February 2017	Stakeholders **MAY** submit any Risks and Issues identified that are associated with Organisation Reference Data to the issuing authority at mailto:exeter.helpdesk@nhs.uk at the time they arise
8	From 24 February 2017	The technical characteristics of Organisation Reference Data as defined in the XML Supporting Products[4] **MUST** be incorporated into any dependent systems' architecture from its conception
Conformance Criterion		Organisation Reference Data is successfully imported into and used by the system
9	From 24 February 2017	The data within a system **MUST** be maintained in an ongoing fashion, with repeated application of the most recently released data at an update frequency agreed with primary stakeholder, from initial go-live until the system is decommissioned.
Conformance Criterion		Following data content changes, the system holds the most current version of data content, within the update frequency timeframe agreed with the primary stakeholder
10	From 24 February 2017	Any changes to DCB0090 notified within an Information Standards Notice **MUST** be incorporated within the system's architecture, on or before the implementation completion date it specifies
Conformance Criterion		Organisation Reference Data continues to be successfully imported into and used by the system following the implementation completion date specified by any Information Standards Notice that notifies a change to DCB0090

[4] https://digital.nhs.uk/Organisation-data-service/XML-Organisation-Data-Products

ID	Implementation Date	Requirement
11	From 24 February 2017	Data content **MAY** be validated against the technical parameters detailed in the XML Supporting Products[5] during every import of data
12	From 24 February 2017	XML products **MAY** be validated against the XML schema prior to import to ensure the data complies with the schema
13	From 24 February 2017	The file version within the manifest component of the XML **MAY** be validated during every import of data, by comparing it against the file version of the most recent previous import to ensure they are importing a more current version
14	From 24 February 2017	The file content within the manifest component of the XML **MAY** be validated during every import of data, to ensure they are importing the desired range of Organisations (defined by Primary Role)
15	From 24 February 2017	The date of issue within the manifest component of the XML **MAY** be validated during every import of data, to ensure they are importing the most recent release of data
16	From 30 April 2018	Stakeholders **MAY** make use of the ODS API Suite to access weekly / daily updates of Health and Social Care Organisation Reference Data.
17	From 30 April 2018	The current status of the data provided via the ODS API Suite **MAY** be obtained using an appropriate API query.

Table 1 – Requirements for all users

[5] https://digital.nhs.uk/Organisation-data-service/XML-Organisation-Data-Products

4 Guidance for New Users

New users do not need to take account of information that focuses on the changes from the legacy state and transition to the new approach. Providing Organisation Reference Data is being used for the first time *on or after 24 February 2017* then implementation can make sole use of the XML products and assume that identifiers have a unified structure.

The information needed to understand the XML products is supplied within the supporting information that accompanies each release and the Technical Specification[6] document. There are also some general notes supplied below.

New users should not need to take account of the Change Specification document as this addresses the transition from the old to the new approach. The notes below should provide enough background on the pre-change state where required to provide context for those designing a new implementation, without causing confusion.

4.1 General

4.1.1 Future Change

All new users making use of Organisation data must make efforts to regard all DCB standards which will, going forward, continue to be the primary route by which the issuing authority communicates any substantive change to Organisation data to end-users.

Stakeholders are also encouraged to take notice of the issuing authority's general communications. These are issued through an email distribution list which can be subscribed to at the bottom of this web page:

https://digital.nhs.uk/organisation-data-service#newsletters

Any less substantive changes and updates are disseminated through these portals.

In addition, more focused user engagement is facilitated through a user reference panel, consultations and regular user group meetings. More information on all these initiatives can be found at https://digital.nhs.uk/organisation-data-service/news-and-updates/user-reference-panel

4.1.2 Release Format

The primary release format for Organisation data is Extensible Markup Language (XML). *All* users implementing Health and Social Care Organisation Reference Data for the first time, and/or within a brand-new environment, should make immediate use of the XML release products.

Stakeholders should ensure users are familiar with XML at a level commensurate with their role. This may necessitate varying levels of technical support, from tools that enable manipulation, validation and loading of the XML files, to those that simply allow a raw XML file to be easily interrogated.

It should be noted that one of the advantages of releasing data in an XML format is the ease with which it may be transformed into other formats. Simple tools and guidance to aid transformation of the XML data will be released through the usual communications channels as and when they become available.

[6] https://digital.nhs.uk/Organisation-data-service/XML-Organisation-Data-Products

Any users that already implement the legacy CSV products should consider themselves 'Current Users' and reference the user guidance in section 2 instead.

4.1.3 Human Behavioural Impacts

New users should be aware that Organisation data historically made use of identifiers with a meaningful structure, which indicated the type of the Organisation in question (referred to as a 'Code Frame').

Although not a design consideration within a genuinely new implementation, end-users of systems and applications are likely to have some residual behavioural dependencies on the old approach for some time following the implementation start date of this standard.

It is recommended that all user interfaces that are required to display information about an Organisation entity (e.g. user interface display screens, forms, labels etc.) make provision to include descriptive information about that entity such as the name, Primary Role etc. in addition to the identifier. A range of this sort of information is made available within the XML schema.

Further detail on the legacy approach is available for those users that require it, within the Change Specification document.

4.1.4 Design Recommendations

Stakeholders are advised to 'design for change' and avoid hard-coded, rigid hierarchies for organisations within the architecture of their systems and processes. For example, defining rules that state certain transactions can only be initiated by Organisations of a certain Primary Role, or that Organisations of one particular Role MUST be related to Organisations of another particular Role, are likely to result in difficulties for the host system in the event of future reconfigurations and changes to commissioning frameworks and service design. Such reconfigurations are generally imposed upon the service and the data must simply reflect the new state; the ability of consuming systems to absorb such changes and reflect new structures is not an influencing factor.

Accordingly, the data model outlined within this standard and represented in the XML releases enables relationships between entities to be very flexibly represented; it allows any entity to be linked to any other. This is thought likely to be increasingly required, if the data is to truly represent the operational links between entities within health and social care.

Stakeholders should consider baselining with the XML products and updating using the ODS API Suite to maintain records in local data stores[7].

4.2 Technical

4.2.1 Identifier Structure

Organisation and Organisation Site identifiers should be treated as random codes with a single, unified standard structure of 5 alternating alphabetic and numeric characters (ANANA) with no inherent meaning. All additional information about an Organisation must be derived from meta-data elsewhere in the record.

Even new users however, should be aware that identifiers using a legacy 'Code Frame' approach, where an Organisation's type is indicated by the structure of its code, will persist until closed naturally to avoid any need for wholesale replacement of data in existing user's systems.

[7] https://digital.nhs.uk/organisation-data-service

This is not of concern to new users implementing the XML as meta-data allows *all* identifiers to be treated as though they exhibit a unified structure. However it does mean the data will display a range of different lengths and apparent formats for an indeterminate period of time.

4.2.2 Referential Integrity / Load Order

No specific ordering is applied to data within any of the XML release products and there is no attempt to cater for referential integrity in terms of record order. However all Target entities which are included in Relationships or Succession elements of subject records will be included in the full XML file – see the Technical Specification for more detail.

4.2.3 Frequency of Release / Update

To avoid confusion over which version of data is loaded within a system, and which should be used next, or was used last,users are encouraged to make full use of the scope, publication and sequence information in the manifest which makes this clear. By the end of April 2018, an ODS API Suite will be available which includes an ODS Organisation Reference Data (ORD) API aligned to the standard. This API will allow consumers to synchronise changes into a local data store on a daily basis if required. The API will return data in JSON or XML format to meet user requirements. Further information is available within the Change Specification_DCB0090 Amd 81-2017 v4.1 and the Products Guide available on the issuing authority's website.[8]

4.2.4 .Additional Attributes

When new values need to be included within Organisation Reference Data that require changes to the XML schema, the Information Standards process must be followed to approve and publish the detail to users and system suppliers, in order that the new information can be used in the required fashion.

However, the Information Standards process necessarily takes time in order that the appropriate assurances can be undertaken (6 month's lead-in is usually required and this does not take account of work to draft the standards paperwork and undertake the earlier stages of the development). If the end-user requirement is urgent or unexpected this can mean it remains unmet for a period of time.

The Additional Attributes element has been incorporated to the XML to address this. Should a new requirement be urgent enough, the issuing authority may choose to include new content within the Additional Attributes element, in lieu of information standard change processes being undertaken to update the schema as required, and later, properly incorporate the new information in the data set going forward (through a schema change if necessary).

However it must be stressed that any information included in this element, by definition, will not have been formally assured outside of the issuing authority (i.e. by DCB or similar/associated bodies) and as such is used at the stakeholder's own risk; no information standards will be released to inform end-users of new content in this component, additions can be made at short notice, and they will only be advised through general communications channels.

This can only work if systems and processes are configured to ignore the content of this component by default. Suppliers should only process information published here when explicitly requested to by end-users; this will likely be outside of normal contractual obligations. This will allow the issuing authority to introduce new values to the data at short

[8] https://digital.nhs.uk/Organisation-data-service/XML-Organisation-Data-Products

notice and react to new requirements quickly, without the lead-in of a formal information standard that would be required to amend the schema.

More information is available within the Technical Specification[9].

[9] https://digital.nhs.uk/Organisation-data-service/XML-Organisation-Data-Products

5 Guidance for Existing Users

Existing users of Health and Social Care Organisation Reference Data must plan and execute a transition to the new XML-format release products, and identifiers that use the new unified identifier structure, within all the areas of their enterprise that a dependency exists.

The information needed to understand the XML products is supplied in the supporting information that accompanies each release of the data, in particular the Technical Specification document.

For users of the current products, general notes are also provided in the rest of this section which will help in understanding the transition from the current state to the new. Note that the detailed individual changes and the implementation timescales are described in the Change Specification.

5.1 Future Guidance for Transition

Note that the guidance for existing users that follows is intentionally light-touch. It does not attempt to go into detail that is specific to any particular type of implementation, simply because there is not yet enough detailed, reliable information to allow such guidance to be drafted by the issuing authority. However it is planned for this to be address in the future.

One of the key recommendations made by SCCI (now superseded by the DCB) during appraisal of this information standard was for its implementation to be elevated to programme status. Accordingly steps have been taken to establish a stand-alone programme of work to oversee transition in the wider service, which is running alongside the changes for the entire duration of the transition. During this time it will gather comprehensive information directly from stakeholders about their experiences in implementing the standard, with the aim of ensuring a safe transition. More information on the new programme is provided in section 6.

As more detailed information emerges from the programme, it is intended to work it into updated user guidance, sharing the experiences and advice of individual users and particular obstacles they have come across.

Production and publication of the updated guidance will fall to the new programme which is in Phase 1 Engagement at the time of writing, so it is not yet possible to outline exactly what form it will take; however there is likely to be distinct sets of guidance tailored to stakeholder groups (e.g. systems suppliers, NHS Trusts, data set owners, etc.). One of the Phase 1 objectives of the new programme is to exhaustively identify and engage with all stakeholders of Organisation Reference Data, so whilst the issuing authority will undoubtedly distribute the new guidance through its own communication channels, it is also likely to be possible to distribute it to stakeholders directly.

5.2 Implementation Plan

5.2.1 Approach

The approach to change must keep costs for existing end-users as low as possible. Accordingly, the implementation plan outlined within this document aims to extend support for the existing products for a long as possible; the XML is dual run with the CSV products for a substantial period, and implementation ‘completion’ (i.e. the deprecation of existing CSV products) is not scheduled until the end of 2021 – four years and 9 months from the anticipated implementation start for the standard. Furthermore, transition to the new identifier structure – which consultation identified as the key change most likely to have a significant

impact on end-users – is not scheduled until early 2020. It is hoped that this approach will provide enough time for end-users with a dependency on the legacy approach to plan any required changes into their business as usual development or re-procurement activities, and increase the likelihood that additional unplanned funding can be avoided.

The approach also allows for new users to start from a point where the new approach is available as soon as possible; even though the legacy products will persist for a significant period, this is not at the expense of the new ones. XML releases began in November 2015 – although in beta form, a full six years before the CSV files are withdrawn. Similarly, as soon as XML and the new meta data for Organisation Roles is available for live use (i.e. from the implementation start date), it will be perfectly possible to implement Organisation Reference Data without regard for any multiple-format structure in the identifiers, even though the new unified structure will not be introduced for another four years. This is reflected in the user guidance in this document, which advises new users to make immediate use of XML and not to rely on identifier structure to derive any meaning.

Each aspect of this transition approach is detailed further, below.

5.2.2 Beta XML Release

A beta version of the XML was published for the first time on 30 November 2015, well in advance of the implementation start date for this standard which was scheduled for 24 February 2017. The beta products were available until this point.

Note that the products will not encompass their full scope from the very first release; see section 3.1 for detail.

5.2.3 XML and CSV Dual Running

The first, full version of the XML products suitable for use in live environments was released on the implementation start date for this information standard of 24 February 2017. Any data that has been available from the legacy CSV products will be included within the new suite of XML files.

The legacy CSV products was *not* withdrawn at this point; instead the two product sets are being dual run for a period of nearly 5 years until the CSV files are discontinued in November 2021.

A mixed-economy of formats used by stakeholders during dual running will not cause problems with interoperability; all users will still be accessing the same data – only the processes required to import the data will need to change. Once imported into a system or any other form in which the data is used to interoperate between stakeholders there should be no differences.

Note: simple tools and guidance to aid transformation of the XML data will be provided – more information on these can be found in the Technical Specification[10].

[10] https://digital.nhs.uk/Organisation-data-service/XML-Organisation-Data-Products

5.2.4 Transition to New Identifier Structure

As outlined in the Business Justification, the Transition to the new identifier structure is being delayed for as long as possible, to allow existing users time to transition.

The new structure will start being allocated to new records from 1 April 2020. This date is based on analysis of the remaining viable codes in the existing multiple-frame identifiers, and the historic rate of usage, to define the longest delay possible before the risk of code exhaustion becomes too great.

Note however that this is not a dual-running approach

The new unified identifier structure will only be applied to new records created on or after 1 April 2020. From 1 April 2020:

- All new codes will use ANANA
- All existing codes will remain the same

No legacy identifiers will be re-coded at any point.

There is therefore no requirement to replace existing codes and no mapping exercise is required – existing codes will simply persist indefinitely until naturally closed.

Nevertheless, from 1 April 2020 ***all*** identifiers should be treated the same (i.e. it should be assumed that their structure does not imply any meaning).

This will introduce a mixed economy into the data from April 2020 onwards; all codes allocated up to and including 31 March 2020 will exhibit one of the multiple-frame identifiers, whilst those introduced to the data from 1 April 2020 onwards will exhibit the unified structure. However this does not make transition, or implementation, more complex; guidance stresses that from 1 April 2020 ***all*** identifiers should be treated the same (i.e. that their structure does not imply any meaning).

This also means that guidance for new users is simple; the XML includes meta-data identifying Organisation Roles and will be available from implementation start, so the guidance advises its use – the structure of the identifiers is irrelevant and is not mentioned.

Although there are some type of Organisation that are retaining their legacy structures (see the Change Specification for full detail) this does not impact the approach. Providing this standard is implemented according to the guidance, systems and processes will see no qualitative difference between new instances of these identifiers and the legacy codes that persist from prior to the transition, as they should all be treated in the same way.

5.2.5 Key Milestones

The implementation start date for this standard of 24 February 2017 marked the point at which the XML products and other changes were endorsed by SCCI (now DCB). The first complete XML release for live use was published on this date.

The diagram below shows this and four further key milestones in the transition to the new interface, highlighting the staggered approach.

It should be noted that whilst these key milestones are natural points to focus on and organise the implementation around, each one triggers or enables a number of further changes which it is not practical to signpost on the diagram. The changes are summarised in full within the Change Specification document.

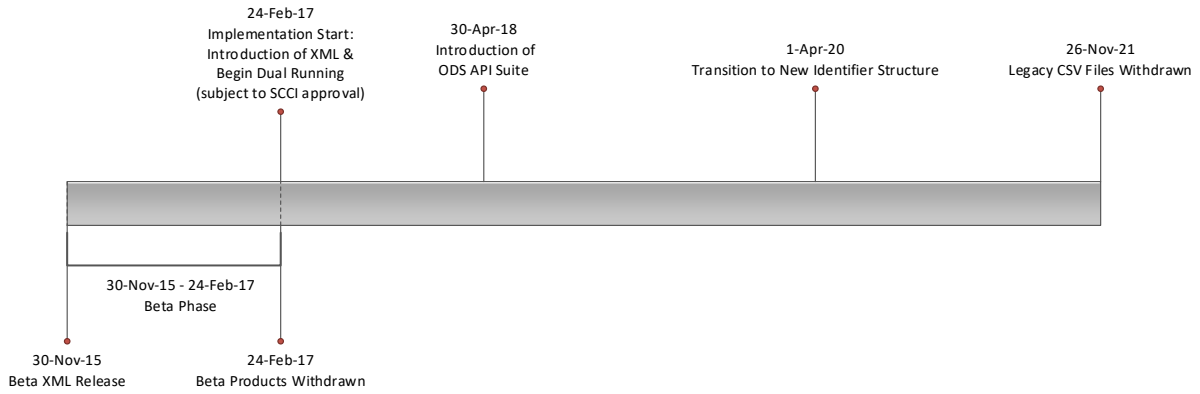

Figure 1 – Implementation Milestones

5.3 General

5.3.1 Future Change

All users making use of Organisation data must ensure they monitor all DCB standards which will, going forward, continue to be the primary route by which the issuing authority communicates any substantive change to Organisation Reference Data to end-users.

Stakeholders are also encouraged to take notice of the issuing authority's general communications. These are issued through an email distribution list which can be subscribed to at the bottom of this web page: https://digital.nhs.uk/organisation-data-service/news-and-updates. Any less substantive changes and updates are disseminated in emails and newsletters sent to this list.

In addition, more focused user engagement is facilitated through a user reference panel, consultations and regular user group meetings. More information on all these initiatives can be found at https://digital.nhs.uk/organisation-data-service/news-and-updates/user-reference-panel

5.3.2 Release Format

Current users will have a reliance on existing CSV products and must transition from these to the new XML products.

To support transition, stakeholders should ensure users are familiar with XML at a level commensurate with their role. This will necessitate varying levels of technical support, from tools that enable manipulation, validation and loading of the XML files, to those that simply allow a raw XML file to be easily interrogated.

It should be noted that one of the advantages of releasing data in an XML format is the ease with which it may be transformed into other formats. Simple tools and guidance to aid transformation of the XML data will be provided under an open source license that allows and indeed encourages end-users to build upon them further. No concrete future plans or development schedules exist currently and it is likely that such provision will build organically in response to requirements raised by users over time. As such, detailed information on these transformation tools does not form part of this information standard; however, at least one such tool which transforms the XML into a simplified CSV format will be available from the first release, developed based on feedback from early users of the beta XML in the run up to go-live.

Future provision of this type of product will be notified through the usual communications channels as and when they become available.

By the end of April 2018, an ODS API Suite will be available which includes an ODS Organisation Reference Data (ORD) API aligned to the standard. This API will allow consumers to synchronise changes into a local data store on a daily basis if required. The API will return data in JSON or XML format to meet user requirements. Further information is available within the Change Specification_DCB0090 Amd 81-2017 and the Products Guide available on the issuing authority's website[11].

5.3.3 Transition

It is recognised that impacts may be significant, and users are fully expected to make use of time that has been built into the implementation approach to help ease these pressures:

- XML is dual run with CSV until 26 November 2021. Although it is recommended that transition to the XML products is addressed as soon as possible, it is not essential until this point;
- The new unified identifier structure will not start being allocated until 1 April 2020 – changes that remove dependencies on the existing Code Frame approach are therefore not essential until that point;
- The new identifier structure will only be applied to new records created on or after 1 April 2020. There is therefore no requirement for users to replace existing codes, which will remain in use in their current form.
- The new ODS API Suite will be available by the end of April 2018, to allow users to obtain daily updates of organisation data if required.

This said, it is recommended that all aspects of transition be undertaken as soon as possible.

The implementation approach of dual-running and extended support for the legacy products is fully intended to support stakeholders that are unable to resource adoption of the XML in the short term. It should however be highlighted that, although they will continue to be supported in their current form, the CSV products will cease to be developed from the implementation start date, unless absolutely business-critical. For example, should core new Organisations be introduced (perhaps as part of a reorganisation or new legislation) these would be included in the CSVs (using an Information Standards Notice if necessary) but any non-critical additions will not. For example new attributes such as UPRN, new but non-core Organisations and any cosmetic enhancements (such as the use of mixed case rather than all-upper case text) will very likely be introduced to the XML products only. Taken in conjunction with the ability of the XML to express more complex information (e.g. multiple, named relationships) it can be seen that the XML will diverge from the CSV products over time and evolve to offer a much richer product, and stakeholders are encouraged to transition at the earliest opportunity.

5.3.4 Implementation Timescales

Many organisations are known to host large volumes of disparate systems that are dependent on Organisation Reference Data, and besides the detail of the work itself, the volume of changes required to prepare systems across an entire organisation may bring additional concerns around timescales.

If such concerns arise, they should be notified to the issuing authority at the earliest possible opportunity as there is some scope for the date of transition to be pushed back – although it should be noted that this will bring additional risks; the 2020 date is based on analysis that forecasts key existing code frames will be approaching exhaustion around this time. Whilst it

[11] https://digital.nhs.uk/Organisation-data-service/XML-Organisation-Data-Products

is possible to extend this date, doing so will make it more likely that some of the known issues will become acute.

For example; changes might need to be made to existing code frames to increase the number of identifiers available, whilst still retaining a length of 3 characters. This will require interim information standards to be drafted, approved and released by the issuing authority, and for end-users to make changes to their systems and processes accordingly. Such changes will become more frequent and code frames will become increasingly convoluted the longer that their use is extended.

It is also worth noting that human users' tacit knowledge of the legacy multiple-frame identifier structures (and their meanings) is, ironically, likely to be disrupted by the very action of *retaining* identifier structure. In order to extend the number of codes available in a code frame without increasing its length, multiple leading characters would be required instead of just one or two. This would make the code frame much more difficult to memorise.

Nevertheless, none of these considerations preclude one or more of the identified implementation milestones being pushed out to a later date to provide stakeholders more time to prepare. Providing there is a compelling case to do so and appropriate plans are put in place by the issuing authority, this is a viable option.

5.3.5 Human Behavioural Impacts

Stakeholders are encouraged to ensure that any impact on people is taken into account – that is, the tacit knowledge held by individuals of the meaning of organisation code frames.

Anecdotal evidence indicates there are many processes across health and social care that are driven by individuals who rely, to varying extents, on 'knowing' and recognising the types of Organisations whose identifiers are included in data flows, submissions, etc. through memorisation of the relevant code frames.

When identifier structures become opaque and cease to indicate the type of the entity they refer to, users will no longer be able to rely on this tacit knowledge and this may have some significant, yet easily disregarded, impacts on the processes in question – not least in terms of the speed and efficiency of processes that rely on Organisation identifiers.

The change has an impact on day-to-day use by non-technical staff as the data cannot be accessed via standard software products, unlike the legacy CSV products that can be easily read and manipulated using text-editing or spreadsheet software. This is because the XML doesn't contain fixed length records and therefore cannot be rendered efficiently by applications such as Microsoft Excel.

Impacts of this nature should be mitigated by making new tools available to affected users. This may take the form of new software that is capable of reading the XML (it should be noted this does not have to bring a cost implication as reliable free applications are available). In addition, the issuing authority will provide some simple tools and guidance to aid transformation of the XML data which will be of use in this context (see section 5.3.2 for more detail).

Consideration should also be given to adjustments that may be made to user interfaces and screens in order to provide the Primary Role name for an Organisation, as unambiguously defined in the reference data supplied in the XML, as opposed to the identifier in isolation.

5.3.6 Design Recommendations

Stakeholders are advised to 'design for change' and move away from any hard-coded, rigid hierarchies for organisations within the architecture of their systems and processes.

For example, defining rules that state certain transactions can only be initiated by Organisations of a certain Primary Role, or that Organisations of one particular type MUST be related to Organisations of another particular type, are likely to store up difficulties for the host system in the event of future reconfigurations and changes to commissioning frameworks and service design.

Past experience has shown that the structure of the Organisations that make up the Health and Social Care landscape can and does change drastically. Hard-coding dependencies on Organisation relationships or types of Organisation will expose the host system to the risk that it will be unable to operate in the event of a change to the Organisation Reference Data to reflect changes in hierarchy or business process in the NHS. Such reconfigurations are generally imposed upon the service and the data must simply reflect the new state; the ability of consuming systems to absorb such changes and reflect new structures are not an influencing factor.

A simplified theoretical example could use the Health and Social Care Act 2012, and the legacy Primary Care Trust (PCT) organisations as its basis. There are many ways in which a system could be designed to be reliant on PCT codes. One might have been required to submit certain reports; a GP Practice might be required to have a relationship to a PCT as its commissioner; a system may harvest data on GP Practices, Dental Practices, Pharmacies and other entities with a relationship 'from' a PCT. Many more potential scenarios exist and all of them would likely be enforced within IT system operations through coded business rules that reject messages and otherwise prevent transactions from being completed, if the appropriate codes are not received, entered or otherwise made available as expected.

The Health and Social Care Act 2012 closed all PCTs, effectively replacing them with Clinical Commissioning Groups (CCGs) from the 1 April 2013. Two years notice of this change was provided. The change was reflected in the Organisation Reference Data with the closure of PCT codes and creation of new CCG codes, with a different structure.

Should a given IT system contain the types of business rules outlined in the above examples, and should they be set up in such a way that renders them difficult, expensive or complex to change, shifts in the Organisational landscape like the closure of PCTs will cause significant difficulties for the system owner.

The data model outlined within this standard and represented in the XML releases enables relationships between entities to be very flexibly represented; it allows any entity to be linked to any other and for new structures to be introduced at relatively short notice. It is anticipated that this level of complexity will be required in the future and the data will accurately represent the operational links between entities within health and social care. The removal of multiple-frame identifier structures also makes it more difficult to enforce restrictive business rules of the kinds described above (as well as removing some of the temptation to do this), but it is still worthwhile emphasising that all future design should aim for flexibility and ease of change in terms of Organisation relationships, meta-data and any dependent business rules.

Stakeholders should consider baselining with the XML products and updating using the ODS API Suite to maintain records in local data stores[12].

[12] https://digital.nhs.uk/organisation-data-service

5.3.7 Information Standards

Many existing information standards and data sets will specify the use of Organisation identifiers and as such may be subject to changes to ensure they are compatible with the new unified identifier structure.

For example, the information standard governing a given data set may require the mandatory population of an Organisation identifier in a field. The standard owner will have to ensure this standard is assessed to ensure its specification does not enforce any restrictions on the length or structure of the field that would preclude it from being populated with an identifier structure with the new structure.

If such restrictions are present, the information standard will need to be changed accordingly. However the impact will not end here; it has to be assumed that any restrictions in the original information standard have been enforced by downstream users – each of these stakeholders will have to take notice of the change and reflect it in any systems and processes affected.

5.4 Technical

5.4.1 Identifier Structure Transition

It is anticipated that existing dependencies on the structure of identifiers will be the source of the most serious impacts (i.e. potentially the inability to consume Organisation data).

Therefore, where usage of Organisation data is identified, assessment work should first and foremost establish whether there is any dependency on the existing identifier structures. Specifically: restrictions on the length of identifiers to 5 characters; and/or functionality that derives information from the format of identifiers. Where these dependencies are identified, change will be required to:

- increase or remove field length restrictions;
- make use of new Organisation Role meta-data to derive the ‘type’ of an entity

Beginning from the 1 April 2020, all *new* Organisation and Organisation Site identifiers will be allocated within the new approach, with no intelligence in the code. All additional information about an Organisation must be derived from meta-data elsewhere in the record.

Identifiers using the legacy multiple-frame structure will persist until closed naturally, meaning identifiers that use the unified structure – although intended to replace them – will co-exist with them from 1 April 2020 onwards. In addition, data for a number of types of Organisation supplied by third parties has been excluded from adoption of the unified structure and will continue to exhibit existing formats until further notice (see the Appendix in the Change Specification for detail).

This approach avoids any need for wholesale replacement of existing data and alleviates or mitigates impact on some third party data suppliers. This results in the legacy codes continuing to be published and means a mix of identifier structures will exist for an indeterminate period of time, **active use of identifier structure to derive Organisation type is *not* supported post April 2020.**

Users should assume that all data uses identifiers with the unified structure from 1 April 2020; from this point, *all* codes MUST be treated accordingly.

5.4.2 Referential Integrity / Load Order

Many database designs are known to implement relatively rigid hierarchical structures and this is encouraged by the hierarchical nature of the relationships held in the legacy files,

which dictates that organisations at or near the top of the hierarchy must be loaded before those records below them.

Maintaining this referential order in the new approach would be very expensive in terms of processing and imply a fixed hierarchy to the NHS which is becoming less and less evident.

No specific ordering is applied to data within any of the XML release products and there is no attempt to cater for referential integrity in terms of record order. However all Target entities which are included in Relationships or Succession elements of subject records will be included in the full XML file – see the Technical Specification for more detail.

5.4.3 Frequency of Release / Update

Due to the increase in frequency of updates (monthly from July 2017 and daily via the ODS API Suite from April 2018), users are encouraged to make full use of the scope, publication and sequence information supplied in the manifest element of the XML schema. The manifest element is supplied at the top of each release file and allows the inclusion of additional contextual information within the XML products themselves, which allows consumers to interpret the content correctly. Full detail on the manifest element, what it contains and its function are available within the Technical Specification[13] document. Information provided via the ODS API Suite will also reflect the status of the data published.

5.4.4 Additional Attributes

When new values need to be included within Organisation Reference Data that require changes to the XML schema, the Information Standards process must be followed to approve and publish the detail to users and system suppliers, in order that the new information can be used in the required fashion.

However, the Information Standards process necessarily takes time in order that the appropriate assurances can be undertaken (6 month's lead-in is usually required and this does not take account of work to draft the standards paperwork and undertake the earlier stages of the development). If the end-user requirement is urgent or unexpected this can mean it remains unmet for a period of time.

The Additional Attributes element has been incorporated to the XML to address this. Should a new requirement be urgent enough, the issuing authority may choose to include new content within the Additional Attributes element, in lieu of information standard change processes being undertaken to update the schema as required, and later, properly incorporate the new information in the data set going forward (through a schema change if necessary).

However it must be stressed that any information included in this element, by definition, will not have been assured by DCB and as such is used at the stakeholder's own risk; no information standards will be released to inform end-users of new content in this component, additions can be made at short notice, and they will only be advised through general communications channels.

This can only work if systems and processes are configured to ignore the content of this component by default. Suppliers should only process information published here when explicitly requested to by end-users; this will likely be outside of normal contractual obligations. This will allow the issuing authority to introduce new values to the data at short notice and react to new requirements quickly, without the lead-in of a formal information standard that would be required to amend the schema.

[13] https://digital.nhs.uk/Organisation-data-service/XML-Organisation-Data-Products

More information is available within the Technical Specification.

5.4.5 Supplementary Role Mappings

The switch to identifiers that use the unified structure takes place in 2020, before the legacy CSV products are withdrawn in 2021.

This means that any users that remain reliant on the legacy products will be unable to derive the type of some Organisation records (i.e. their Primary Role), as there is no intention to include this meta-data outside of the XML.

This in turn may mean that a method for consuming Role is needed for those that are yet to implement XML. A simple supplementary file will be provided, giving the identifier for every Organisation mapped to its Primary Role. This will allow any users still dependent on the legacy CSV products to identify Primary Roles without having to fully adopt the XML.

This product will be introduced to the data set at an appropriate point prior to the transition to the new identifier structure. Appropriate notice will be provided through the usual communication channels used by the issuing authority. The issuing authority reserves the right not to provide this facility should it be determined that uptake of the XML is sufficiently widespread that it is not required.

6 Implementation Programme

The changes outlined in this information standard are significant and affect all NHS and many social care organisations. In recognition of this steps are being taken to establish a stand-alone programme of work with dedicated funding and resources which will oversee transition in the wider service.

The programme will gather comprehensive information directly from stakeholders about the volume and nature of the impacts the changes will have, and the costs of mitigation, and subsequently ensure the safe implementation of the changes throughout the NHS and social care.

6.1 Overview

The sheer breadth of scope of the use of Organisation Data has long posed difficulties for the issuing authority in terms of consultation and communication with its stakeholders. The data is also released under a data-warehouse type arrangement whereby users come and take what they require, so there is not always direct involvement with end-users. This means that gaining any kind of detailed understanding of how the data is used or, more importantly, what the impacts might be of any changes made to it, is extremely difficult. This is complicated further by the fact that Organisation data can tend to be invisible; its fundamental nature within systems and processes is often not immediately recognised.

This said; enough is known about the nature of use of the data to safely assume that impacts will be significant for many end users:

- The new approach is likely to require fundamental changes at a base level within systems and processes, which have the potential to incur substantial costs;
- The data drives interoperation through e.g. message routing, so impacts are likely to affect multiple systems and processes in any given organisation.

DCB approval of this Information Standards Notice reflects recognition of the fact that the changes *must* be undertaken – that the risk of not undertaking them at all (i.e. running out of codes altogether) will always outweigh the impacts that may be posed by their implementation. However, this is not justification for going ahead with implementation ‘blind’.

It is therefore crucial that sufficient knowledge of the nature and cost of impacts is gathered, and a framework put in place to oversee transition and ensure risks are monitored, managed and minimised throughout this process. This is vital to avoid reputational damage, ensure that costs are minimised as much as possible and to safeguard against the changes being imposed on a service that is not yet ready.

Whilst the issuing authority is undoubtedly best positioned to design and drive through the changes to the data products, it is not able to undertake this transition work. It must necessarily focus on the continuation of the service it provides and lacks sufficient resource either to achieve the level of direct engagement needed to capture a true understanding of the change impacts, or to assure and facilitate implementation of the changes across the service. This is what the proposed programme of work aims to achieve.

6.2 Strategic Drivers

The overriding strategic driver for making the changes to the Organisation data is to avoid the exhaustion of the existing Organisation identifiers and the impacts this will bring.

Above all, it must be recognised that Organisation data is so widely used, that it is almost ubiquitous throughout health and social care informatics and is a key part of critical NHS

infrastructure; the exhaustion of valid codes, leading to an inability to allocate new identifiers for use by the service would have a critical impact on a majority of key strategic systems and services. The proposed programme shares this driver because it is an enabler for the changes.

At a more focused level, the primary driver for the programme is to reduce the risks and impacts that health and social care organisations are exposed to, in the transition to the new approach. It will do this by identifying stakeholders, gathering information on how and why they are impacted, proposing mitigations where possible, and tracking their exposure to risk and readiness for transition.

In addition, many benefits will have longer-term value outside of the programme, in the form of direct named contacts within the vast majority of stakeholder organisations, and a much-improved understanding of the range and nature of uses of Organisation data throughout health and social care – two things that have never been fully realised in the past. Not only will these support the service into the future but they are highly likely to provide peripheral information of use to other projects, programmes and services as well.

6.3 Phase 1 Objectives

The main deliverable of the project is a report for NHS Digital Executive Management Team to be completed by the end of April 2018. This report will provide the following:

- Summarise the results of the questionnaire and any initial contact with stakeholders including known impacts to delivery of health and social care services
- Define mitigation options that aim to reduce any risk:
    - extend timescales for ORD Changes implementation
    - assign additional resources for further engagement/impact assessment
- Request a decision on next steps.

6.4 Timescales

The end to end timescales for this implementation programme must track the transition timetable for the changes to the Organisation data which it is intended to support. This is a total of 5 years (from February 2017 until November 2021). The timeline for Phase 1 is outlined below:

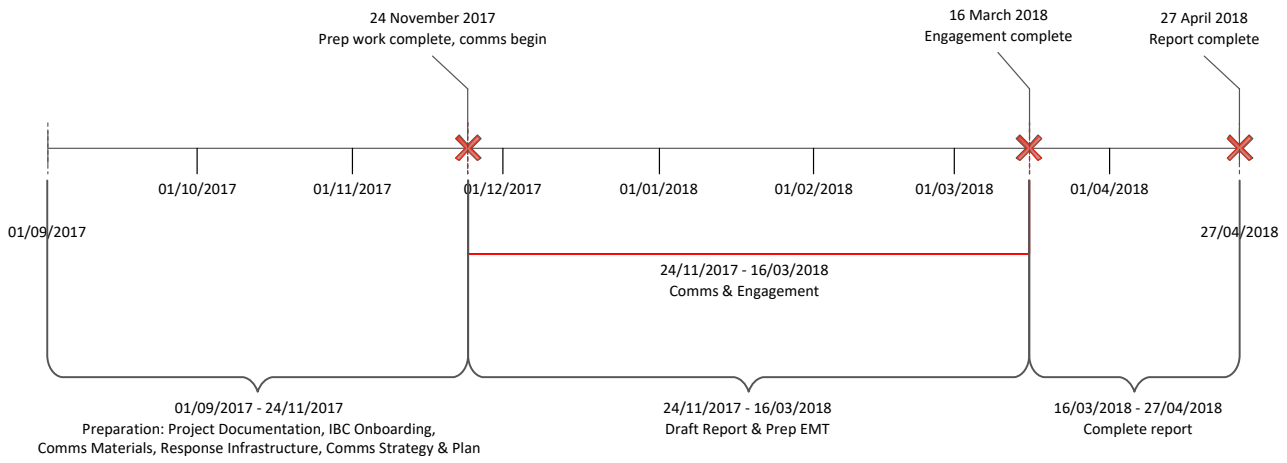

Figure 2 Timelines