

How the National Records of Scotland is ensuring Census 2021 is trustworthy, high quality and of value to users.

Phase 1 National Statistics Accreditation Report

Version 5.0, June 2019

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Executive Summary

The National Records of Scotland (NRS) will carry out Scotland's next census on 21 March 2021.

This document sets out how Scotland's Census 2021 meets the requirements of the Code of Practice for Statistics. The Code provides producers of official statistics with the detailed practices they must commit to when producing and releasing official statistics.

The Code ensures that the statistics published by government serve the public. When producers of official statistics comply with the Code, it gives users of statistics and citizens confidence that published government statistics are of public value, are high quality and are produced by people and organisations that are worthy of trust.

The evidence contained in this document will be assessed by the Office for Statistical Regulation (OSR) - the regulatory arm of the UK Statistics Authority - against the Code. If Scotland's Census 2021 meets the requirements for trustworthiness, quality and value we will retain our badge of National Statistics Accreditation, which we achieved for the last census in 2011.

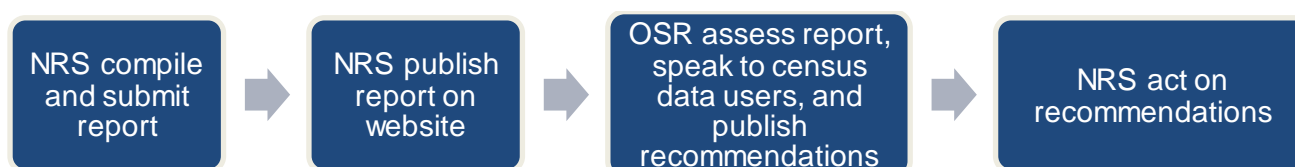
① For more information on the Code of Practice for Statistics click [here](#).

How will Scotland's Census 2021 be assessed?

The whole of Scotland's Census 2021 programme will be assessed. This includes the initial planning stages that started in 2014, through to the production of the last standard outputs sometime in 2024.

The assessment is split into three phases during which Scotland's Census 2021 must demonstrate how it is being trustworthy, of high quality and of value to users.

Each phase of the assessment occurs as follows:



This process is repeated for all three phases of the assessment.

At the end of the Phase 2 assessment period, OSR will consider whether Scotland's Census 2021 has done enough to retain the badge of National Statistics Accreditation. If we are successful, our accreditation will be confirmed before the first census outputs are released in March 2022.

Undertaking the National Statistics Accreditation and laying out our processes, procedures and practices for assessment by OSR allows us to continually improve and ensures we are held to the highest levels of trustworthiness, quality and value. It also ensures the people of Scotland can have complete confidence in Scotland's Census 2021.

How are we trustworthy, providing high quality data and value to our users?

Here, we highlight some of the key work being done across the census programme to ensure that Scotland's Census 2021 remains trustworthy, of high quality and of value:

- **Open and Transparent data**

- We published our General Report after the 2011 census, reviewing the successes and lessons learned.
- The design of Scotland's Census 2021 draws on experience from previous censuses, particularly in 2011, as well as consideration of technological and societal changes.
- We published our Plans for Scotland's Census 2021, which details the aims, processes, and procedures that will underpin Scotland's Census 2021.
- We are undertaking the National Statistics Accreditation.

① For more information on how we are being open and transparent, please see [section 3.8 to 3.21](#) of this document.

- **User Needs**

- We have undertaken extensive consultation with stakeholders to better understand what data our users need from the census in 2021 and what questions will best capture this data.
- We are currently proposing the inclusion of two new voluntary questions on sexual orientation and trans status for 2021, and continue to consult widely on this, including with women's groups.

- We are holding ongoing conversations with census data users and stakeholder groups focussing on question and output development for 2021 to best meet user needs.
- ① For more information on how we are engaging with users see [sections 3.22 to 3.29](#), [sections 4.4 to 4.20](#), and [sections 5.4 to 5.11](#) within this document.
- ① For more information on the proposed new questions see [sections 3.27 – 3.29](#) within this document.

- **Protecting People's Privacy**

- We have stringent security measures in place to keep people's information secure and confidential for 100 years.
 - Statistical Disclosure Control methods are being developed to make sure no individual or household can be identified from census data.
 - Access to personal census data is kept to a minimum.
 - The Census Act 1920 made it a criminal offence to unlawfully disclose confidential census data and the Census (Confidentiality) Act 1991 extended this to people and businesses working on census.
 - We have published the first version of Scotland's Census 2021 Data Protection Impact Assessment (DPIA).
 - NRS staff undertake mandatory annual data protection training.
- ① For more information on how we are working to protect people's privacy, please see [sections 3.45 to 3.56](#) within this document.

- **Quality Assurance**

- We are adopting quality assurance procedures in line with the latest international best practices to ensure the highest possible quality of data is being collected and used to produce high quality results.
- Our data outputs will contain a note informing users when statistical disclosure controls have been applied to data.
- A Census Coverage Survey (CCS) will take place shortly after Census Day and inform a Coverage Assessment and Adjustment (CAA) methodology that will be used to adjust census estimated data.
- A Quality Management Strategy and ongoing assurance practices will be operated continually throughout all of the programme's work.

- ① For more information on how we assure ourselves of the Quality of Scotland's Census, see [section 4](#) within this document.

- **Value For Money**

- The cost of collecting and processing data is always considered. In particular, the census should only seek to collect information for which there is no other viable source.

- ① For more information on how we ensure Scotland's Census is good value for money, see [section 1.5](#), [sections 3.16 to 3.17](#), [section 4.9](#), and [section 4.13](#) within this document.

- **Digital First**

- The next census will be a Digital First census meaning it will be conducted primarily online.
- We are aiming for an 80% online completion rate and we will support people in achieving this, as well as providing alternative ways to complete the census where needed.
- As we are aiming for the majority of respondents to complete questionnaires online, we will assist people with this through a telephone contact centre, social media, web chat, a dedicated website and face-to-face support hubs throughout the country.
- An independent assessment team will ensure we meet the required standards of a Digital First Census.

- ① For more information on how we ensure Scotland's Census will meet the criteria for Digital First, see [section 2.5](#), [section 3.30](#), [sections 4.18 to 4.20](#), [sections 4.65 to 4.71](#), and [section 5.12](#) within this document.

- **UK Harmonisation**

- We are working closely with the offices responsible for the England and Wales Census and the Northern Ireland Census to ensure the three UK censuses are harmonised where possible.
- Where possible, we will produce UK harmonised outputs to contribute to UK-wide Census outputs.

- ① For more information on how we ensure Scotland's Census will be comparable with the other UK censuses, see [sections 2.6 to 2.17](#), [sections 2.50 – 2.57](#),

[section 4.17](#), [section 4.23](#), [sections 4.46 to 4.47](#), [section 5.44](#) and [section 5.47](#) within this document.

The main objectives for Scotland's Census 2021 are:

- to produce high quality results
- to generate outputs that meet the needs of users
- to maximise online response rates for the census
- to produce timely outputs to maximise benefits
- to protect, and be seen to protect confidential information
- to do so in a cost effective way
- and to make recommendations for the approach to future censuses in Scotland

① For more information on how we are preparing for Scotland's Census 2021, see [Plans for Scotland's Census 2021.pdf](#).

The remainder of this document sets out in detail the ongoing work that demonstrates how Scotland's Census 2021 continues to be of public value, produces high quality data, and is produced by people in an organisation that is worthy of trust.

1. Introduction

Scotland's Census Overview

1.1 Scotland's Census is the official estimate of every person and household in Scotland. The census has collected information about the population every 10 years since 1801 (except in 1941 when no census was taken due to the Second World War).

1.2 Detailed statistics from the census describe the characteristics of an area, such as how many men, women and children there are and their ages, ethnic group, education level and a broad range of other characteristics. The statistics provide a rich picture of Scotland's population by understanding the similarities and differences in the population's characteristics locally and nationally.

1.3 Census information is needed to help the government develop policies and initiatives, and for local authorities to plan services and to make effective use of resources that benefit the people of Scotland. Key users of census information also include academia, research organisations, the private and voluntary sectors, the media, and the general public. Decisions are taken every day using census statistics. For example, the planning of school spaces, houses, care homes, hospitals and fire services are all influenced by the census.

National Statistics Accreditation

1.4 As a producer of official statistics, National Records of Scotland (NRS) was responsible for the planning, conduct and dissemination of outputs from Scotland's Census 2011. The entire census operation was subject to assessment and monitoring by the Office for Statistics Regulation (OSR) and as a result Scotland's Census 2011 was awarded the badge of "National Statistics". This accreditation process confirmed that the 2011 census adhered to the Code of Practice for Statistics¹ by providing public value, producing high quality data and being produced by people and an organisation that were worthy of trust.

1.5 NRS will again be responsible for the planning, conduct and dissemination of outputs for Scotland's next census on 21 March 2021. The strategic aims for Scotland's Census 2021 are to provide complete, accurate and accessible

¹ <https://www.statisticsauthority.gov.uk/code-of-practice/the-code/>

population statistics which meet user requirements; to build public confidence and encourage participation in the census; to protect confidential personal census information; and to provide value for money whilst building on the successes and lessons learned from previous censuses.

1.6 In March 2014, NRS announced that it would focus on planning for a census in 2021 which would be primarily online, while offering alternative modes of completion where necessary. Scotland's Census is being designed and managed by NRS in Scotland, to best meet the needs of its users. It also aims to make best use of technology and administrative data in its design, building on the online approach used successfully in Scotland's last census in 2011.

1.7 To retain the badge of "National Statistics", the Office for Statistics Regulation (OSR), will continue to assess the entire census operation to ensure that Scotland's Census 2021 remains trustworthy, is of high quality and provides value for the users of the statistics produced.

1.8 OSR are undertaking the assessment of the UK Censuses 2021, produced by the Office for National Statistics (ONS), the National Records of Scotland (NRS) and the Northern Ireland Statistics and Research Agency (NISRA). They will be assessing the extent to which the censuses meet the professional standards set out in the statutory Code of Practice for Statistics¹. The assessment process considers evidence from a variety of sources including from OSR's research, information given by the producers and importantly feedback from users and stakeholders connected with the census.

1.9 The Code of Practice¹ covers a wide range of principles around meeting the 'public good' such as the quality of the statistics and their need to add value and insight to users. Capturing the views of users and potential users forms an important part of OSR's judgment about the statistics, including how they could be improved. If you would like to feedback or speak to OSR please see detail of the assessment on its website².

1.10 This report consists of NRS's Phase 1 submission to OSR for National Statistics Accreditation. Chapter 2 discusses in detail the response from NRS to the

² <https://www.statisticsauthority.gov.uk/osr/what-we-do/assessment/current-future-assessments/assessment-2021-censuses-uk-phase-1/>

recommendations made by the OSR at the end of the 2011 census³. In the subsequent chapters, we explain how the practices, processes and procedures of Scotland's Census 2021 has, and will continue to, meet the pillars of Trustworthiness (chapter 3), Quality (chapter 4) and Value (chapter 5), including links to the large body of evidence that supports this.

³ https://www.statisticsauthority.gov.uk/wp-content/uploads/2015/12/images-assessmentreport3182011censusphase_tcm97-45033.pdf

2. Response to recommendations from the UK Statistics Authority's Special Assessment of the 2011 Censuses in the UK: Phase 3 report³.

2.1 Phase 1 of the National Statistics Accreditation requires NRS to respond to recommendations made by the OSR in the Special Assessment of the 2011 Censuses in the UK: Phase 3 report³. This report reviewed the statistical practices of NRS in three main areas: user engagement, dissemination and accessibility of the data and statistics. The key outcomes of the review, informed by feedback about the experiences of both users and the statistics producers, as well as from the published documentation and census outputs, concerned:

- effectiveness of engagement with users
- collaboration and partnership
- accessibility and dissemination
- coherence across the UK

2.2 The remainder of chapter 2 sets out how NRS have addressed OSR's recommendations in the planning of Scotland's Census 2021.

Recommendations

2.3 The OSR recommended³ that NRS:

- R1 Share their experiences of effective engagement gained on the 2011 census with other statistical teams (para 1.12).
- R2 Further develop partnerships with key users and census data distributors to:
- a) facilitate the wider use of the data and statistics by other users, such as through collaboration with, and support provided to, voluntary sector groups, local government, census data resellers and data application developers
 - b) consider secondments to develop knowledge and a common understanding between the statistical producer, data suppliers and user organisations
 - c) identify opportunities for data suppliers and users to contribute to the quality assurance of official statistics and the development of outputs (para 1.18).
- R3 Discuss with users the potential for:

- a) enabling the quicker release of data, including for small areas such as the travel to work data
 - b) widening access to anonymised samples such as by users in the commercial and local government sectors
 - c) greater flexibility in creating univariate and multivariate tables for bespoke geographies and population groups (para 1.26).
- R4 Each statistical producer should implement ways of informing users of substantive revisions alongside the statistics in the context of the developments in online dissemination (para 1.27).
- R5 Identify (together with Welsh Government (WG))
 - a) areas of success and how to build on them
 - b) areas of practice where alternative approaches would strengthen the delivery of the census in each country, as well as the delivery of comparable and consistent UK census data and statistics
 - c) the needs of users in relation to cross-UK census data and how well these were met by the 2011 Census (para 1.32).

Response to Recommendations

R1. Share their experiences of effective engagement gained on the 2011 Census with other statistical teams (para 1.12)³.

2.4 Engagement with census data users is critical in helping to shape Scotland's census. For the 2011 census, NRS focussed heavily on the needs of census data users and will continue to build on the high calibre user events and excellent relationships built with stakeholders throughout the 2021 census process. Sharing successful engagement and best practice techniques is vital if NRS is to continue to enhance our relationship with census users and provide a service that is focussed on user needs.

2.5 Following the extensive stakeholder engagement activities that took place during the planning and delivery of Scotland's Census in 2011, NRS is undertaking similarly rigorous and extensive stakeholder engagement for the upcoming census in 2021. For example, NRS held a Topic Consultation⁴ between October 2015 and

⁴ <https://www.scotlandscensus.gov.uk/consultation-2021>

January 2016 which identified a number of areas where stakeholders requested changes to existing questions, or proposed new questions for the 2021 census. Following this, stakeholder engagement focussed on identifying specific user needs and considered how Scotland's Census 2021 could best meet these needs. Holding a Digital First⁵ census for 2021 provides NRS with opportunities to improve question design, and for a number of areas, question development has focussed on alternative online designs to understand any impacts this may have on data quality. Following the publication of the Plans for Scotland's Census 2021⁶, stakeholder events were held in Edinburgh, Glasgow and Aberdeen to present and get feedback from stakeholders on the progress NRS has made to date, highlighting where there have been changes to questions, what new questions have been added, and where online questions will have a different format than the paper versions⁷.

2.6 NRS has taken several steps to ensure that effective engagement experiences gained during the 2011 census, and the ongoing learning from effective engagement in advance of the 2021 census have been, and will continue to be, shared with other statistical teams. For example, as occurred for the 2011 census, the three census offices (NRS, the Office of National Statistics (ONS), and the Northern Ireland Statistics and Research Agency (NISRA)) signed a statement of agreement⁸ about the conduct of the 2021 census with the aim to work in unison and share skills and experiences to ensure the 2021 census meets user needs.

2.7 Further to the statement of agreement⁸, there is a user demand for consistent, coherent and accessible statistics for the UK, for each country and for geographic areas within each country. To promote UK harmonisation, every effort will be made to achieve harmonisation for the outputs from each country, the census procedures that each country adopts and governance of each census programme. To maximise the sharing of intelligence, resources and best practice across the UK, the UK Census Committee (UKCC) presents, discusses and agrees harmonisation aspects of the UK censuses. The UKCC is chaired by John Pullinger, the National Statistician and has a membership that includes Siobhan Carey, the Chief Executive and Registrar General for Northern Ireland; Paul Lowe, the Registrar General and Keeper of the

⁵ Digital First is a term used across government as a means of focusing transformational projects towards online service provisions. The services are designed to be so straightforward and convenient that all those who can use them will choose to do.

⁶ https://www.scotlandscensus.gov.uk/documents/census2021/Plans_for_Scotlands_Census_2021.pdf

⁷ <https://www.scotlandscensus.gov.uk/node/678>

⁸ <http://www.ons.gov.uk/ons/guide-method/census/2021-census/progress-and-development/legislation/the-conduct-of-the-2021-censuses-in-the-uk.pdf>

Records of Scotland; and Glyn Jones, the Chief Statistician for the Welsh Government. Together, the UKCC advise on census harmonisation across the UK.

2.8 In line with the harmonisation agreement and the UKCC, ONS, NISRA and NRS has set up a UK Harmonisation Working Group (HWG) which takes a high level approach to harmonisation for all aspects of the UK census operations. The HWG discusses the individual operations of each of the three UK Census programmes and looks to harmonise work where appropriate in terms of operational approaches, workstreams and agendas.

2.9 Feeding into the UK HWG are multiple UK harmonisation working groups covering major aspects of the planning and outputs for the 2021 census. These groups hold regular meetings to ensure effective experiences are shared across the UK census offices and work is harmonised where possible. For example, the Outputs and Dissemination Harmonisation Working Group⁹ meet on a monthly basis to ensure census methods, approaches and outputs are harmonised as much as possible and best practice is shared between the three census offices.

2.10 NRS is also a member of the International Census Forum (ICF). This is a group of eight census organisations from Australia, New Zealand, Canada, the United States of America, England and Wales, Scotland, Northern Ireland and Ireland who meet on a yearly basis to share experiences, research and best practice. These meetings allow the member countries to build on each other's knowledge and experience, particularly with countries who take their census at different times. Some working groups have been formed as a result of the ICF, including a communication and engagement group and a field force follow up group, led by different organisations, and correspond via email or phone meetings.

2.11 Microdata products were a key output produced from the 2011 census that have resulted in ongoing user engagement for the 2021 census. The microdata products are small samples of data for whole households and individuals, which include some associated census characteristics but no information that could identify a household or individual. Microdata products enable researchers to look at combinations of characteristics that are not generally available from the standard census tables and to perform different types of analyses not possible from standard tabulations. However, after the 2011 census the Microdata products were later in being produced and released to users and did not sufficiently meet user needs. As a

⁹ Appendix 1. An example of Terms of Reference for a working group: Outputs and Dissemination Harmonised Working Group.

result, the 2021 Census Microdata Working Group was set up to advise NRS and the other UK census offices on the design, creation, storage and dissemination of microdata products that will follow the 2021 census. This will be achieved by bringing together members from the ONS census directorate, the census outputs teams of both NISRA and NRS, and the microdata user community. This group will seek to ensure that future census microdata products meet user needs and are made available in a timely manner.

2.12 Inevitably, during the completion of the 2021 census some people will be missed or counted twice. It is necessary to estimate the coverage of the three UK censuses and adjust counts where needed to give the best estimate of actual population totals. The Coverage Assessment and Adjustment Working Group (CAAWG) was established in August 2018 to provide advice, quality review and to steer work associated with developing the coverage assessment and adjustment methodology for the 2021 censuses in Scotland, Northern Ireland and England & Wales. In addition, CAAWG will provide methodological assurance that the coverage assessment and adjustment research plan and the developed methodologies are sound.

2.13 People completing census forms can sometimes make mistakes or accidentally leave questions unanswered. After completion, bad handwriting or dust on the forms can cause errors in optical scanning of the paper census forms. In a Digital First census, the risk of mistakes are reduced due to validation rules¹⁰ applied to the online collection instrument. However some people may still answer incorrectly or miss out questions that should be answered.

2.14 In 2011, users of census data did not wish to fill in gaps in tables containing "not known" responses by making estimates themselves for missing values, nor did they wish to have to cope with inconsistencies within or between tables caused by mistakes. There was a danger that different users would make estimates for the complete population in different ways, creating inconsistencies between their results. Consequently, the UK Census offices put in place an Edit and Imputation (E&I) strategy, with the aim of estimating for all missing data and resolving inconsistencies in responses.

¹⁰ To help obtain high quality data, responses to census questions online are automatically validated at point of data entry to ensure they are within a question's required parameters (for example, that a letter has not been entered where a number is expected). If the response fails validation, an error message usually informs the user that there was a problem with the answer. Alternative forms of validation act as prompts for the respondent to check if the information they have entered is correct.

2.15 The Census Edit and Imputation Working Group (CEIWG) was set up to guide and contribute to the design and development of the E&I strategies and methods that will be implemented in the 2019 census rehearsal and the 2021 census. CEIWG will also ensure that the 2021 E&I strategy builds on that implemented in 2011 wherever possible, with a general aim to improve methods, implementation, quality assurance, and outputs. The CEIWG will provide a central point of communication that promotes the harmonisation of the design and development of the 2021 census E&I strategies and methods across all UK census offices where this has been agreed by the harmonisation groups. CEIWG will also provide assurance that the design and development of the 2021 E&I strategies and methods are based on sound research and principles, and are supported by the group.

2.16 The Tripartite Security Working Group was established to provide a harmonised focus on census security for the three UK census offices. The working group shares expertise and knowledge across the census offices, identifies and discusses solutions to potential risks to census security and investigates how best to avoid or respond to a security attack on any of the census offices. Meetings are held via monthly conference calls and quarterly face to face meetings with minutes and actions circulated for each meeting.

2.17 In addition to sharing effective engagement between and within the three UK census offices, NRS regularly hosts the Population and Migration Statistics Committee – Scotland (PAMS)¹¹, which acts as the Census Advisory Group for Scotland. At these meetings, NRS regularly presents updates on the 2021 census programme and seeks feedback from PAMS members on the engagement events held. For example, at the PAMS meeting in May 2018, staff from Scotland's Census 2021 presented and sought feedback on the user events NRS had held to date on the topics of question development and output strategy for 2021¹².

2.18 The Statistical Disclosure Control and Outputs Working Group was put into action after being suggested at the PAMS committee. This was a short-life working group aimed at providing user input into the development of a consultation paper that proposed outputs for Scotland's Census 2021. The consultation paper included statistical disclosure control methodology, proposed output methodology, geography methodology, and a draft list of key outputs with suggested time scales based on

¹¹ <https://www.nrscotland.gov.uk/statistics-and-data/statistics/user-consultations-groups-and-seminars/the-population-and-migration-statistics-committee-scotland-pams>

¹² <https://www.nrscotland.gov.uk/files/statistics/Events/pams-30-5-18/pams-may-18-3.pdf>

user needs and uses of data from the 2011 census. Members of this group included local authorities, the University of Edinburgh, the Church of Scotland, members of PAMS and Glasgow Council to name a few. The successes of this working group were then shared with ONS and NISRA.

2.19 The Security Working Group is an advisory group that exists to establish a common understanding, across the NRS Census Programme, of the level of information security controls required for processing census returns data and census data. It is required to:

- Examine wider legal and industry events and trends and determine their impact on the census programme or specific elements.
- Document and maintain the census understanding of good commercial practice in accordance with the Cabinet Office guidance on Managing Information Risk at OFFICIAL.
- Ensure that the Census Programme is properly informed of new attack methods and trends, government and other industry controls guidance and changes in established controls.
- Maintain the Census Technical Security Standard in accordance with the above.

2.20 Another significant opportunity to share successful user engagement and statistical best practice occurs at the quarterly Assistant Statistician meetings which are attended by statisticians, analysts, economists and researchers employed by the Scottish Government and wider organisations in Scotland such as the NHS. These meetings provide an opportunity to share experiences and successes across multiple and varied statistical teams.

R2a. Further develop partnerships with key users and census data distributors to facilitate the wider use of the data and statistics by other users, such as through collaboration with, and support provided to, voluntary sector groups, local government, census data resellers and data application developers (para 1.18)³.

2.21 There is a myriad of key users and census data distributors who use the data from Scotland's census. For example, the UK Data Service (UKDS) is a distributor of Scotland's contemporary census data ranging from 1971 to 2011 and is composed of data specialists who focus on making a wide range of census data as accessible as

possible¹³. In addition, the UKDS and Scotland's Census 2021 are in discussion about the feasibility of using Application Programme Interfaces (APIs) to allow users to pull data from one website to another and view data from multiple sources in one place.

2.22 NRS has continued to develop partnerships with external organisations and key users to better facilitate the wider use of Scotland's Census data. For example, through the partnership developed between NRS and the University of Glasgow (a registered charity), the Scottish Learning Disability Observatory¹⁴ has developed a website with interactive infographics and analytical reports¹⁵ representing the people in Scotland with learning disabilities or developmental disorders. In addition to this, a partnership established between NRS and the Scottish Gaelic Research Network (Soillse) produced analytical reports¹⁶ outlining data on the use of Scottish Gaelic from Scotland's Census 2011 and 2001.

2.23 DataShine Scotland¹⁷, part of the ESRC BODMAS project at University College London and funded by NRS, uses the DataShine framework to map selected Quick Statistics and Key Statistics from Scotland's Census 2011. There are two main sites:

- DataShine Scotland¹⁸ with over 1000 Quick/Key Statistics for Scotland, mapped at Output Area and Ward levels.
- DataShine Scotland Commute¹⁹ with travel-to-work-flows between each Intermediate Zone, split out by direction and mode of transport. There is additionally a version which shows the flows between each Council Area.

2.24 The wider use of census data is also facilitated by NRS producing commissioned tables on top of the standard outputs produced from the 2011 census data. Specifically, as of September 2018, NRS had produced 352 commissioned tables from 2011 census data as requested by users²⁰. Some uses of census data made possible by commissioned outputs includes the Scottish Council of Jewish Communities being able to demonstrate the distribution of Jewish people across the

¹³ <https://census.ukdataservice.ac.uk/>

¹⁴ <https://www.sldo.ac.uk/census-2011-information/learning-disabilities/>

¹⁵ [https://www.scotlandscensus.gov.uk/documents/analytical_reports/Scottish Learning Disabilities Observatory-summary_of_analytical_reports.pdf](https://www.scotlandscensus.gov.uk/documents/analytical_reports/Scottish_Learning_Disabilities_Observatory-summary_of_analytical_reports.pdf)

¹⁶ [https://www.scotlandscensus.gov.uk/documents/analytical_reports/Report part 2.pdf](https://www.scotlandscensus.gov.uk/documents/analytical_reports/Report_part_2.pdf)

¹⁷ <http://blog.datashine.org.uk/about-scotland/>

¹⁸ <http://scotland.datashine.org.uk/#>

¹⁹ <http://scotlandcommute.datashine.org.uk/#>

²⁰ <https://www.scotlandscensus.gov.uk/ods-web/data-warehouse.html#additionaltab>

country²¹, Marie Curie Cancer Care using census data to plan and commission palliative and end of life care services²¹, and KnowFife Dataset using Scotland's Census 2011 data to include interactive maps, charts and data tables on their website²¹.

2.25 NRS will continue to support and develop partnerships with key users and external organisations throughout the delivery of Scotland's Census 2021. A vital component of sourcing potential partners and collaborators will be NRS's ongoing engagement with the PAMS¹¹ committee to ensure the needs of census data users are fully met and partnership opportunities can be fully developed.

R2b. Further develop partnerships with key users and census data distributors to consider secondments to develop knowledge and a common understanding between the statistical producer, data suppliers and user organisations (para 1.18)³.

2.26 NRS has undertaken work to support people from various organisations in accessing data they would otherwise not have been able to access. This has proved vital in the development of knowledge and a common understanding between NRS, data suppliers and user organisations. NRS has supported multiple people from international census organisations, including Statistics New Zealand. External, non-census organisations have also been instrumental in helping NRS to develop knowledge and understanding of how and why the data from Scotland's census is used, with NRS staff working alongside external data users. For example, NRS supported a member of staff from Renfrewshire Council who worked on the Small Area Population and Household Projections project and a prominent academic was also engaged to provide advice on the methods used and the use of census data within them.

2.27 The Communities Analytical Service team in the Scottish Government has had several people working with NRS to utilise the data from Scotland's Census 2011. For example, an analysis of equality data²² from the 2011 census that included looking at Ethnicity, Gypsy/Travellers, Religion, Disability and British Sign Language (BSL) was conducted. Other research conducted by a person from the Scottish Government examined differences in the health of ethnic groups in Scotland and

²¹ <https://www.scotlandscensus.gov.uk/using-census-data>

²² <https://www.gov.scot/publications/analysis-equality-results-2011-census-part-2/>

used census health data to identify variations between groups²³. Another person produced a report in conjunction with NRS that brings together analysis previously published to provide a comprehensive and wide ranging evidence base on Scotland's Gypsy/Travellers²⁴. This report also presents analysis of key areas such as health, education, housing, transport and economic indicators to reveal important information on the lives and life chances of Gypsy/Travellers in Scotland²⁴.

2.28 Other people who have been supported by NRS in accessing data from Scotland's Census 2011 have produced reports and research focussing on, for example, people not in employment, education or training²⁵. A report on Migration in Scotland²⁶ was also produced as part of an opportunity developed with the Migration Matters Scotland project, which was run by the Convention of Scottish Local Authorities (COSLA) Strategic Migration Partnership and funded by the European Integration Fund.

2.29 Opportunities for NRS to develop partnerships with key users and census data distributors is essential for securing the valuable partnerships mentioned above, without which the aforementioned research would have been unlikely to have been completed.

R2c. Further develop partnerships with key users and census data distributors to identify opportunities for data suppliers and users to contribute to the quality assurance of official statistics and the development of outputs (para 1.18)³.

2.30 NRS has continued to develop partnerships with key users and census data distributors to identify data suppliers and users that can contribute to the quality assurance of the statistics produced by Scotland's Census 2021.

2.31 PAMS is one of a number of committees covering the whole range of official statistics¹¹. PAMS discusses the characteristics, structure and dynamics of the population and assesses how this information can be extended and improved. It also acts as the Census Advisory Group for Scotland¹¹. NRS regularly use the expertise of the PAMS committee to ensure the statistics produced by Scotland's census

²³ <https://www.gov.scot/publications/ethnic-groups-poorest-health/>

²⁴ <https://www.gov.scot/publications/gypsy-travellers-scotland-comprehensive-analysis-2011-census/>

²⁵ <https://www2.gov.scot/Resource/0048/00487879.pdf>

²⁶ https://www.scotlandscensus.gov.uk/documents/analytical_reports/Migration_Matters_Scotland_Census2011_Statistical_Report.pdf

undergoes rigorous Quality Assurance. For example, NRS requested feedback from the PAMS committee after presenting a programme wide update^{27,28} for Scotland's Census 2021. NRS also sought feedback on a paper outlining the current proposals for how data from census responses will be grouped during coverage adjustment for the 2021 census²⁹.

2.32 In addition to the PAMS committee, for 2011, NRS established a Census Data Quality Advisory Group (CDQAG)³⁰ comprising staff from NRS and local authorities. The group involved organisations external³¹ to NRS in census data quality assurance, utilising local knowledge and data sources. The work of the group formed a central part of the quality assurance and finalisation of the results from Scotland's Census 2011. The aim is to form a similar group for Scotland's Census 2021.

2.33 NRS also seeks the views of census stakeholders and users to help with quality assurance where applicable. For example, Scotland's Census 2021 has, and will continue to, regularly invite census users and stakeholders to participate in consultations advertised on Scotland's Census consultation website⁴. Census data users and stakeholders also played a significant role in the development and quality assurance of outcomes from the topic reports³².

R3a. Discuss with users the potential for enabling the quicker release of data, including for small areas such as the travel to work data (para 1.26)³.

2.34 A major factor in the timing of data being released is the process of Statistical Disclosure Control and the time it takes NRS staff to build and security check individual tables. NRS held a stakeholder event³³ in June 2017 to update interested parties with information about the current plans for Statistical Disclosure Control and the plans for 2021 census outputs. A key change from the 2011 census will be the

²⁷ <https://www.nrscotland.gov.uk/files/statistics/consultation-groups/pams-31-may-17/paper2-programme-wide-update-pams-may17.pdf>

²⁸ <https://www.nrscotland.gov.uk/files/statistics/consultation-groups/pams-15-nov-2017/paper-12-scotlands-census-2021-programme-update.pdf>

²⁹ <https://www.nrscotland.gov.uk/files/statistics/consultation-groups/pams-31-may-17/paper3-grouping-data-pams-may17.pdf>

³⁰ <https://www.scotlandscensus.gov.uk/census-data-quality-advisory-working-group-cdqawg>

³¹ <https://www.scotlandscensus.gov.uk/documents/cdqawg/cdqawg-list-of-members-may-2013.pdf>

³² https://www.scotlandscensus.gov.uk/documents/census2021/Scotlands_Census_2021_Topic_Consultation_Report_August_2016.pdf

³³ <https://www.scotlandscensus.gov.uk/statistical-disclosure-control-and-outputs-event>

proposed introduction of a flexible table builder where users can make their own tables using their own chosen variables. The event began with a presentation and attendees were then invited to try out a website which demonstrated the approach that might be taken with 2021 census outputs. If the flexible table builder goes ahead this will drastically reduce the number of tables the census team create as standard and statistical disclosure controls will be a built in feature of the flexible table system, thus allowing the faster release of data.

2.35 NRS also held a series of stakeholder events in February and March 2018³⁴, discussing Scotland's Census 2021 Outputs Strategy³⁵ that was published in February 2018. The outputs strategy detailed the proposed release schedule for the 2021 outputs, including when small area data such as travel to work data is scheduled to be available to users. In total, 43 stakeholders attended four sessions, representing a range of areas including local government, academics, special interest groups and members of the public. At the events we discussed with users the potential for enabling the quicker release of data by reducing the number of standard tables NRS produce but allowing users to create their own data tables through our online flexible table builder³⁶.

R3b. Discuss with users the potential for widening access to anonymised samples such as by users in the commercial and local government sectors (para 1.26)³.

2.36 NRS is responsible for maximising the benefits from Scotland's Census and is committed to making data available as widely as possible. As part of this, NRS has released several different microdata products which seek to strike a balance between detail and security, allowing a flexible tool set for casual users as well as professional researchers³⁷. For example, NRS provides an open access Teaching Microdata file containing anonymised records on a limited set of variables for a random one per cent sample of people from the 2011 census output database for Scotland³⁸. Output categories are generally collapsed to high levels, and no information on a person's place of usual residence is included other than that they

³⁴ https://www.scotlandscensus.gov.uk/documents/census2021/Scotlands_Census_2021_Outputs_Strategy_presentation.pdf

³⁵ https://www.scotlandscensus.gov.uk/documents/get-involved/Scotlands_Census_2021_Outputs_Strategy.pdf

³⁶ https://www.scotlandscensus.gov.uk/documents/census2021/Scotlands_Census_2021_Outputs_Strategy_Stakeholder_event_summary.pdf

³⁷ <https://www.scotlandscensus.gov.uk/microdata>

³⁸ <https://www.scotlandscensus.gov.uk/microdata-teaching-file>

live somewhere in Scotland. The 2011 Teaching Microdata file is publicly available to download from Scotland's Census website.

2.37 In addition, NRS provide Safeguarded Microdata Files³⁹ consisting of two (non-overlapping) random samples, each of 5 per cent of anonymised individuals in the 2011 census output database for Scotland:

- a file at Scotland level with 82 variables for over 267,000 individuals; and
- a file at grouped council area level with 75 variables for over 267,000 individuals, which generally contains less detail for variables compared with the Scotland level file.

The UK Data Service (UKDS)¹³ provides access to the Safeguarded data. Furthermore, the UKDS provides assistance in producing research from the safeguarded microdata and, following discussion with data owners, has recently changed its terms and conditions⁴⁰ making it more accessible to casual users and researchers.

2.38 Approved Researchers⁴¹ are able to access secure anonymised microdata files⁴² consisting of two (non-overlapping) random samples of 10 per cent of anonymised people and households in the 2011 census output database for Scotland. The two Secure Microdata files are:

- an individual file which includes person level data on 146 variables for over 534,000 individuals. The lowest level of geography available is council area. Records include those resident in households and communal establishments.
- a household file which includes person and household level data on 220 variables for over 524,000 individuals within more than 247,000 households.

2.39 The UK Secure Microdata Files are accessible only under specific terms and conditions to Approved Researchers via the ONS' Secure Research Facilities. Researchers based in Scotland do not have easy access to the Secure Microdata Files due to the facilities being located in England with only one Safe Setting located in Glasgow. As a result, NRS is working with the Administrative Data Research Centre Scotland (ADRC-S)⁴³ with the aim of making the Scotland's Census Secure

³⁹ <https://www.scotlandscensus.gov.uk/safeguarded-microdata-files>

⁴⁰ <https://www.ukdataservice.ac.uk/get-data/how-to-access/conditions>

⁴¹ <https://webarchive.nationalarchives.gov.uk/20160106113613/http://www.ons.gov.uk/ons/about-ons/business-transparency/freedom-of-information/what-can-i-request/approved-researcher-accreditation.html>

⁴² <https://www.scotlandscensus.gov.uk/secure-microdata-files>

⁴³ <https://adm.ac.uk/about/network/scotland/>

Microdata Files more widely accessible to Scottish researchers through ARDC-S' network of five regional Safe Settings⁴⁴, for access to the eDRIS Scottish National Safe Haven.

2.40 ADRC-S will aim to provide a single point of contact to assist in the completion of applications and to assist researchers in study design, approvals and access to data inside one of ARDC-S' regional Safe Settings. ADRC-S is supported by the electronic Data Research and Innovation Service (eDRIS)⁴⁵, part of NHS National Services Scotland, which provides the secure technical infrastructure of the National Safe Haven. Research outputs from the Secure Microdata Files are subject to statistical disclosure control before they can be removed from the National Safe Haven or ONS' Secure Research Facility.

2.41 Approved Researchers⁴¹ can also request access to custom extracts of census microdata through ADRC-S or eDRIS, usually in order to link census records with other administrative or survey datasets. Data linkage allows for a wealth of information to be brought together to answer a research question or produce statistics that could not be produced using a single data set. Custom census microdata extracts can be accessed only within the National Safe Haven by Approved Researchers with appropriate approvals in place. Research outputs from custom census microdata extracts are subject to statistical disclosure control by both eDRIS and NRS staff before they can be removed from the National Safe Haven.

2.42 The 2021 Census Microdata Working Group has been set up to advise NRS and other census offices on the design, creation, storage and dissemination of microdata products that will be produced from the 2021 census. This working group will ensure Microdata is produced and released in a timely manner and is developed to best meet the needs of users, as advised by the group.

R3c. Discuss with users the potential for greater flexibility in creating univariate and multivariate tables for bespoke geographies and population groups (para 1.26)³.

2.43 For Scotland's Census 2021, NRS is planning to reduce the number of standard tables they produce but allow users to create their own tables using a flexible table builder. Stakeholders were asked what they thought of the proposed

⁴⁴ <https://adm.ac.uk/policies-procedures/secure-access/>

⁴⁵ <https://www.isdscotland.org/Products-and-services/Edris/FAQ-eDRIS/>

reduction in standard outputs, and the ability to create their own tables in 2021, at a series of stakeholder events³⁵. Within the functionality of the flexible table builder there will be the ability to create bespoke geographies by grouping together Output Areas or other small geographies.

2.44 As part of NRS's ongoing user-centred development, an example of what the flexible table builder might look like and how it might operate was made available to stakeholders with a one percent sample of the 2011 census data. This provided stakeholders the opportunity to test out the flexible table builder and provide feedback⁴⁶.

2.45 Overall, most attendees were happy with the flexible table builder, particularly if the data will be available earlier³⁶. It was felt that the flexible table builder would save time as users would not have to wait for a commissioned table but instead they could create a table including their own specific variables and in the format needed from the start.

R4. We suggest that each statistical producer implement ways of informing users of substantive revisions alongside the statistics in the context of the developments in online dissemination (para 1.27)³.

2.46 All NRS and Scottish Government official statistics are governed by the Code of Practice for Statistics. One of the practices of the code is to publish "a Revisions Policy⁴⁷ for those outputs that are subject to scheduled revisions", and where applicable, to "correct errors discovered in statistical reports, and alert stakeholders promptly".

2.47 To keep users alerted to any revisions or updates, Scotland's Census 2011 produced a revisions and corrections page⁴⁸ on our website to ensure all revisions and corrections were publicly available as soon as they occurred.

⁴⁶ <https://sw2.wingarc.com.au/webapi/jsf/dataCatalogueExplorer.xhtml>

⁴⁷ <https://www2.gov.scot/Resource/0045/00457524.pdf>

⁴⁸ <https://www.scotlandscensus.gov.uk/revisions-and-corrections>

2.48 To ensure users were fully aware of any revisions and corrections as they occurred, footnotes⁴⁹ were added to any tables or data in which a revision or correction took place, telling users what changes had been made and when.

R5. Identify (together with WG):

- *the areas of success and how to build on them,*
- *the areas of practice where alternative approaches would strengthen the delivery of the census in each country, as well as in delivering comparable and consistent UK census data and statistics, and*
- *the needs of users in relation to cross-UK census data and how well these were met by the 2011 Census (para 1.32)³.*

2.49 Overall, Scotland's Census 2011 was conducted successfully in line with international best practice and provided a sound basis for understanding the nature and diversity of Scotland's population. Our approach to preparing for the 2021 census has been guided by the lessons learned from the 2011 census through an internal evaluation by NRS titled Scotland's Census 2011 General Report⁵⁰.

2.50 For the 2011 census, an increased volume of UK harmonised tables were available as outputs. The three UK Census Offices (NRS, ONS and NISRA) agreed a single point of access for UK harmonised outputs. In its capacity as the National Statistics office for the UK, ONS compiled and released census tables for the UK when the data from England and Wales, Scotland and Northern Ireland was complete⁵¹.

2.51 After the release of UK data following the 2011 census, NRS, ONS and NISRA sought feedback from UK data users to assess whether the needs of users were met by cross-UK data. The users of 2011 cross-UK data were primarily academics who wanted to minimise table building and access data via an Application Programme Interface (API) which pulls data from one source to another. One difficulty encountered by users of cross-UK data was the different formats that data was provided in by the different countries, for example in .csv, excel or bulk

⁴⁹ Appendix 2. Screen shot of a revised table including footnotes explaining a) revisions made, and b) Statistical Disclosure Controls.

⁵⁰ https://www.scotlandscensus.gov.uk/documents/censusresults/Scotland's_Census_2011_General_Report.pdf

⁵¹ <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/keystatisticsandquickstatisticsforlocalauthoritiesintheunitedkingdom/2013-12-04>

download formats. This meant users had to re-format data before it could be joined to create UK data. Similarly, small differences in how a variable was described or named, for example “Age” compared to “Aged”, or “0 - 5” compared to “0 to 5” lead to difficulties in easily joining data from each country. Having standard classifications across the UK where possible and allowing users to select geographies first in the flexible dissemination system were suggested by users to improve cross-UK data.

2.52 NRS is working closely with NISRA and ONS to deliver harmonised 2021 census outputs for the UK where possible. There is a work package currently underway which looks at providing a single point of access for UK harmonised results for areas across Great Britain and the UK. This will be possible where the data collected is consistent across the UK census offices. In recognition of the importance of providing consistent outputs across the UK, the National Statistician and the Registrars General for Scotland and Northern Ireland have signed an agreement on the conduct of the census in 2021⁸. This includes the production of harmonised statistics with specific attention being given to common questions, population bases, definitions, disclosure control methodologies and output formats.

2.53 NRS has already started work with our colleagues in England and Wales and Northern Ireland to enable the harmonisation of outputs and timely dissemination of UK data. A major part of this is the ongoing user research undertaken by ONS to fully explore the need for UK data across the four countries and how users would expect to access this data. Further work is focussing on the development of the 2011 Census Harmonisation Evaluation Criteria to assess the harmonisation of 2021 census outputs. In 2011, each question and output was considered for harmonisation and then given a high-level recommendation on output comparability using four levels: “Highly Comparable”, “Broadly Comparable”, “Not Comparable”, or “Country Specific”. This assessment was made after the census and during the compilation of outputs. For 2021, the three UK census offices propose that this framework is applied during the planning for 2021 to assess harmonisation of:

- Census questions
- Definitions, including population base
- Outputs

2.54 Each of the UK census offices have listened to the needs of users of cross-UK data after the 2011 census and are investigating the possibility of offering an API to users so that UK data can be available to them from one source. Testing the technology, security, user needs and application of an API for cross-UK data is ongoing and a decision on whether an API is the right choice for the 2021 census will be made after the evidence is reviewed.

2.55 Following on from the 2011 census, NRS, in conjunction with other UK Census Offices, explored whether there were alternative ways to produce statistics on the size and characteristics of the population. NRS had an open mind in identifying potential options; examined and compared various approaches to counting the population, both here and overseas; engaged with a diverse group of users, commentators and public bodies; and undertook qualitative and quantitative research into attitudes to the census and population statistics.

2.56 Having considered all of the evidence, NRS recommended in March 2014 that a modernised 'traditional' census was the best way to meet users' needs at this point in time. As part of the work to deliver the 2021 censuses, the three UK census offices continue to investigate the use of administrative data both to improve the current census and also as a way to deliver population statistics in the future.

2.57 Officials from the three census offices continue to meet monthly to discuss progress of the 2021 censuses. The results from consultations, research and question testing are regularly being shared across the UK. A statement of compliance with the agreement between the National Statistician and the Registrars General was published in 2015 with the aim to work in unison and share skills and experiences to ensure the 2021 census meets user needs.

3. Trustworthiness – having confidence in the people and organisations that produce statistics and data.

Principle T1. Honesty and Integrity

People in organisations that release statistics should be truthful, impartial and independent, and meet consistent standards of behaviour that reflect the wider public good¹.

3.1 The planning of Scotland's Census 2021, and the uses to which the information collected will be put, must be totally independent – and be seen to be independent – from any other initiatives involving the collection of information about the general public. For that reason, the census is carried out by the Registrar General for Scotland, who heads National Records of Scotland⁵²: a separate non-ministerial department of the Scottish Government. The purpose of NRS is to collect, preserve and produce information about Scotland's people and history and make it available to inform current and future generations. NRS is responsible for civil registration, the census in Scotland, demography and statistics, family history and the national archives and historical records. NRS was established on 1 April 2011, following the merger of the General Register Office for Scotland (GROS) and the National Archives of Scotland (NAS). For administrative purposes, NRS sits within the Scottish Government's Culture, Tourism and External Affairs portfolio.

3.2 NRS's business strategy sets out the purpose, vision and values⁵³ that underpin the organisation. The values ensure NRS staff and operations are held to a high standard and at all times remain professional, respectful, accountable and customer focussed.

3.3 In keeping with this, NRS make available their business plans to ensure the public can have full confidence in the practices and methods they employ. For example, NRS's 2018–2019 business plan⁵⁴ is publicly available from the NRS website and highlights the key focus of NRS operations over the coming years, including the undertaking of Scotland's Census 2021.

⁵² <https://www.nrscotland.gov.uk/about-us>

⁵³ <https://www.nrscotland.gov.uk/about-us/corporate-planning>

⁵⁴ <https://www.nrscotland.gov.uk/files/about-us/2018-19-nrs-annual-business-plan.pdf>

3.4 As a non-ministerial government department, NRS and its staff adhere to the Civil Service Code⁵⁵ and the behavioural standards that are expected of Civil Servants. The core values of integrity, honesty, objectivity and impartiality underpin all NRS operations and the mind-set of its employees.

3.5 All statistical outputs produced by NRS are defined as official statistics under the Statistics and Registration Service Act 2007⁵⁶ and are produced to the robust professional standards of quality and reliability. Many official statistics also achieve the designation of 'National Statistics'. These have been certified by the independent UK Statistics Authority as compliant with the Code of Practice for Statistics¹. Scotland's previous Census in 2011 was awarded the badge of 'National Statistics' and NRS is confident in retaining the accreditation for Scotland's Census 2021.

For more information on the training and confidentiality agreements undertaken by NRS staff, please see the [Principle T6. Data Governance](#) section of this report.

Principle T2. Independent decision making and leadership

Organisations should assign a Chief Statistician/Head of Profession for Statistics who upholds and advocates the standards of the Code, strives to improve statistics and data for the public good, and challenges their inappropriate use¹.

3.6 NRS is headed by Chief Executive Paul Lowe who fulfils the roles of two non-ministerial office holders – the Registrar General for Scotland and the Keeper of the Records of Scotland. The Registrar General for Scotland is the government official responsible for the census and the registration of births, deaths and marriages in Scotland.

3.7 Amy Wilson is Director of Statistical Services for NRS and assumed leadership of Scotland's Census in May 2012. She joined the Government Statistical Service in 1991 and has worked in a variety of statistical posts within Scottish Government and the Department for Employment as well as working on international development statistics at the World Bank.

3.7.1 Amy Wilson holds the role of Senior Responsible Owner (SRO) for Scotland's Census. As SRO, Amy's responsibilities include:

⁵⁵ <https://www.gov.scot/publications/civil-service-code/>

⁵⁶ <http://www.legislation.gov.uk/ukpga/2007/18/contents>

- Being accountable for the delivery of the Census Programme;
- Setting a clear vision and direction for the Programme, and representing this vision when engaging with wider NRS and External stakeholders. Defining what success of the Programme looks like;
- Agreeing a delegation framework for all decisions and budget related to the delivery of the Census Programme, within the delegations set by the Programme Sponsor;
- Appointing and chairing the Programme Board;
- Establishing the Programme Business Case, and ensuring it is signed off and updated regularly to justify the ongoing investment in the Programme;
- Ensuring the Scottish Government's Project Delivery Principles are embedded within the Programme;
- Ensuring appropriate assurance arrangements are in place, and invoking them as required;
- Ensuring that the Privacy and Data Protection requirements as prescribed by Scottish Government and in order to fulfil obligations under GDPR and the UK Data Protection Act 2018 are effectively discharged [as Information Asset Owner for Census 2021];
- Facilitating problem resolution and referring serious problems upwards to Programme Sponsor and/or Ministers and/or Suppliers as necessary, in a timely manner and in line with delegated arrangements; and
- Formally closing the Programme, including recording of all the lessons learnt within the end report.

Amy Wilson also acts as delegated Head of Profession for NRS Statistics.

Principle T3. Orderly Release

Organisations should commit to releasing their statistics in an open and transparent manner that promotes public confidence¹.

3.8 NRS is consistently open and transparent regarding the manner in which census statistics are released. The main national and local results from Scotland's Census 2021 will be released according to a pre-announced timetable, currently detailed in the Outputs Strategy³⁵, as speedily as possible once processing of the data is completed and the total population of the country has been determined.

3.9 The plan for Scotland's Census 2021 builds further on the dissemination approach used in 2011⁶. In addition to users being able to select from a set of pre-built tables, the plan is to enable users to create their own tables online (subject to a series of controls to protect confidentiality) allowing users access to the data in a more timely manner. In co-operation with the other UK census offices, comparable UK statistics are likely to be made available online, where possible and once disclosure controls have been applied.

3.10 NRS has already begun engaging with users about the content, format, timing and method for the release of 2021 census outputs and will continue to engage with users over the next few years to ensure that the outputs produced meet a wide range of user needs. For example, the Outputs Strategy³⁵ is intended as a discussion document that will be revised following further stakeholder engagement and will continue to be developed in conjunction with other UK census offices, to ensure consistent UK census outputs wherever possible. It will also follow the principles set out in the NRS dissemination strategy which is currently under development. In particular, there will be a focus on open data and Digital First⁵.

3.11 To help promote public confidence and the continued use of census data, a full list of all of the outputs published from Scotland's Census 2011 and their release dates remain available on Scotland's Census website⁵⁷. Results were published in a series of releases and as part of releases 1 and 2, statistical bulletins were published which highlighted some key points and included tables, graphs and figures to illustrate the data⁵⁸.

Principle T4. Transparent processes and management

Organisations should have effective business processes and appropriate resources to support their statistical functions and be open about their plans, priorities and progress¹.

3.12 As part of being open about plans, priorities and progress, NRS published Scotland's Census 2011 General Report⁵⁰ and laid it before the Scottish Parliament in October 2015. The report reviewed the whole of the 2011 census operation from the early planning and consultation through to the production and dissemination of outputs and evaluation. The report noted that there were some key successes and a

⁵⁷ <https://www.scotlandscensus.gov.uk/census-releases>

⁵⁸ <https://www.scotlandscensus.gov.uk/statistical-bulletins>

number of challenges and lessons to be learned for any census operation in the future. Overall however, Scotland's Census 2011 was conducted successfully, in line with international best practice, and provided a sound basis for understanding the nature and diversity of Scotland's population.

3.13 NRS is committed to operating with transparent processes and management. The next census is building on the successes of the census in 2011 and will be conducted primarily online, while offering support and alternative routes of completion where required. NRS intend to make best use of technology, digital services and other existing data to support the census process.

3.14 In planning for the next census, NRS's senior management collectively discussed what would make a 'good' census. The previous census in 2011 was assessed as a National Statistic. National Statistics are produced in line with the Code of Practice for Statistics¹ which has at its core that good statistics are those which command public confidence by demonstrating trustworthiness and providing high quality outputs that enhance public value. Therefore, the 2021 census will be considered 'good' if NRS deliver on trustworthiness, quality and value. As a result, a set of objectives were created detailing what Scotland's Census 2021 is aiming to achieve and how these align with trustworthiness, quality and value⁵⁹. Thus, the entirety of Scotland's census has been designed around the pillars of the Code of Practice for Statistics¹.

3.15 As the objectives for Scotland's Census 2021 were built around the pillars of trustworthiness, quality and value, NRS also set out the measures of success for how and when those objectives would be achieved. The objectives will be measured before, during and after the census⁶⁰ with some objectives being measured throughout, whilst others will be measured at a particular stage of the census operation. What those measures of success are was also specified⁶¹ to provide a benchmark of whether the objectives, and thus the pillars in the code of practice, have been successfully achieved. These measures will be referred to throughout the census programme to ensure NRS is successful in meeting the requirements of the Code of Practice for Statistics.

⁵⁹ Appendix 3. The objectives of Scotland's Census 2021 and how they align with the Code of Practice for Statistics.

⁶⁰ Appendix 4. When the success of Scotland's Census 2021 objectives will be measured.

⁶¹ Appendix 5. Measures of Success for Scotland's Census 2021 objectives.

3.16 The programme structure⁶² for Scotland's Census 2021 is integral to the successful planning and delivery of the next census and ensures that the appropriate resources are in place, at the right time, with the right skills. The programme is primarily structured in two parts: Collection and Operations; and Statistical Design, Processing and Outputs, with each part managed by a Project Sponsor who is responsible for the business requirements for the projects therein. Within these two parts, multiple projects operate and collaborate with each other to ensure the best possible census is achieved for Scotland. These projects include:

- Data Collection Operations;
- Data Collection Systems;
- Questions and Collection Instruments;
- Data Processing;
- Statistical Disclosure Control and Outputs;
- Administrative Data;
- Cross Cutting Products;
- Statistical Quality Assurance; and
- Communications, Stakeholder Engagement and Legislation.

Each project is managed by a Project Manager who is responsible for effective coordination of the project resources to deliver the project outputs within the agreed time, cost, and quality criteria. Statisticians are embedded in the projects and provide subject matter expertise.

3.17 The main objectives for Scotland's Census 2021 are:

- to produce high quality results;
- to generate outputs that meet the needs of users;
- to maximise online response rates for the census;
- to produce timely outputs to maximise benefits;
- to protect, and be seen to protect, confidential information;
- to do so in a cost effective way; and
- to make recommendations for the approach to future censuses in Scotland.

3.18 The design of Scotland's Census 2021 draws on experiences from previous censuses - particularly the last census in 2011 - as well as consideration of the opportunities and challenges presented by technological and societal changes⁶³.

⁶² Appendix 6. Scotland's Census 2021 Programme Structure Diagram

⁶³ <https://www.scotlandscensus.gov.uk/design-2021>

These have all shaped the scope, main objectives and design of the 2021 census as well as to help NRS consider what changes are required since the last census.

3.19 NRS published the 'Plans for Scotland's Census 2021'⁶ report on 27 September 2018. This report sets out the current plans for the next census in Scotland and includes the feedback and information gained from engaging with a wide range of stakeholders and users of census data as well as results from testing.

The Plans for Scotland's Census 2021 report:

- sets Scotland's Census in the context of the censuses planned in the rest of the United Kingdom for the same date, and its place internationally;
- describes the lessons learned from the last census in 2011, and the strategic aims for the 2021 census;
- describes the extensive consultation and testing with users and with representatives of groups with special interests that has been carried out;
- describes how Scotland's Census 2021 will be a Digital First census where each household will be encouraged to complete their questionnaire online;
- sets out plans for the census coverage survey that will follow the census to calculate the number of people who did not complete a census questionnaire;
- sets out how the completed questionnaires will be translated into statistical outputs, which will be available principally through the internet but also through a variety of media such as paper reports and electronic media;
- describes the arrangements to ensure that the personal information collected by the census remains confidential for 100 years;
- sets out the legislation required and the arrangements for the Scottish Parliament to approve the census.

3.20 NRS and Scotland's Census 2021 team are committed to sharing plans, priorities and progress for the upcoming census with the public and users of census data. One way that this is achieved is through digital and social media. For example, Scotland's Census website⁶⁴ displays a 'News' section that is regularly updated with the most recent progress, events and publications from Scotland's Census 2021.

3.21 NRS offer the opportunity for people to sign up⁶⁵ to receive newsletters⁶⁶ which are published regularly⁶⁷ with the latest 2021 census updates and information.

⁶⁴ <https://www.scotlandscensus.gov.uk/>

⁶⁵ <https://www.scotlandscensus.gov.uk/newsletters>

⁶⁶ <https://us5.campaign-archive.com/?u=125b618892d1abff1ec00914b&id=72f8614fa2>

⁶⁷ <https://us5.campaign-archive.com/home/?u=125b618892d1abff1ec00914b&id=ad5d4e3a67>

NRS also operates a blog which includes a dedicated census page⁶⁸ for wider information on past censuses and details of the planning and progress of Scotland's Census 2021. The NRS twitter account⁶⁹ also provides a valuable source of information for users on a wide range of NRS activities, which include regular tweets on the planning and progress of Scotland's Census 2021.

3.22 The success of the next census will rely on a comprehensive understanding of user needs and concerns, as well as the support and participation of the general public. As part of NRS's significant commitment to being open about the plans, priorities and progress for Scotland's Census 2021, NRS has undertaken a robust and varied programme of stakeholder engagement to ensure our plans are shared and user needs are fed back into the planning and priorities of the census programme.

3.23 An important consideration for the Scotland's Census 2021 programme over the past few years has been the development of the questions to be asked in the 2021 census. NRS held a Topic Consultation⁴ between 2015 and 2016 to introduce initial views on the topics under consideration for collection in the census in 2021. The aim was to encourage discussion with census users and to help build strong cases to justify the inclusion of topics. The consultation was a first step towards understanding what information users will need. In total, 113 responses were received to the consultation; 91 of these were from organisations and 22 were from individuals. The Topic Consultation⁴ identified a number of areas where stakeholders requested changes to existing questions, or proposed new questions for the 2021 census.

3.24 Following this, stakeholder engagement focussed on identifying specific user needs and considered how Scotland's Census 2021 could best meet these needs. In April 2017, NRS held an Ethnicity, National Identity, Language and Religion Topic event⁷⁰ to understand the views of users on specific census topics and feedback on a range of potential changes, additions and deletions to census questions. Between February and March 2018, NRS also held stakeholder events entitled 'Scotland's Census 2021 Outputs Strategy Stakeholder Event'³⁶. This strategy outlined the proposed output plans for 2021, focussing on changes and improvements from the previous census, and included a proposed release schedule for outputs.

⁶⁸ <https://blog.nrscotland.gov.uk/category/census/>

⁶⁹ <https://twitter.com/natrecordsscot>

⁷⁰ <https://www.scotlandscensus.gov.uk/ethnicity-national-identity-language-and-religion-topic-event>

3.25 Several additional focus groups were held following on from the Topic Consultation⁴ to discuss some of the terminology used in the questions. Focus groups included the 'Caribbean or Black' ethnicity focus group⁷¹ from which NRS sought the view of stakeholders on the terminology used in the ethnic group questions. NRS also held an 'African ethnic groups'⁷² focus group in March 2018 to discuss how the census can capture more detailed data to meet requirements for information about African ethnic groups. In September 2018, NRS held a 'Religion Data and Outputs'⁷³ survey online seeking census users' views on the proposed re-wording of the religion question and the subsequent changes to outputs.

3.26 A key aspect of fostering trust and openness with the users of census data is being able to demonstrate how their views have influenced the 2021 census. The final decision on the content of Scotland's Census 2021 questionnaire will ultimately be made by the Scottish Parliament. In order to ensure that the Parliament understands the evidence which support the proposed questions, NRS will be working with the lead committee throughout 2019 prior to the commencement of the required subordinate legislation process. An integral part of the evidence which NRS will present will come from the views of users who provided feedback during topic consultations and other stakeholder events. To demonstrate how user views will be incorporated into the proposed question recommendations for the 2021 census, summaries of how user needs and views have been implemented are available on Scotland's Census website for the 'Education topic event'⁷⁴, 'Labour market topic event'⁷⁵, and a 'Health and care topic event'⁷⁶.

3.27 As a direct result of listening to the needs of users during stakeholder engagement and testing of public acceptability and cognitive testing⁷⁷, some new questions are being proposed for Scotland's Census 2021. Currently under consideration for inclusion in Scotland's Census 2021 are two new questions relating to a person's sexual orientation and trans status⁷⁸. Because of the sensitivity of asking questions in the census on sexual orientation and trans status, it was

⁷¹ <https://www.scotlandscensus.gov.uk/caribbean-or-black-ethnicity-focus-groups>

⁷² <https://www.scotlandscensus.gov.uk/african-ethnic-groups-focus-group-0>

⁷³ <https://www.scotlandscensus.gov.uk/religion-data-and-outputs-survey>

⁷⁴ https://www.scotlandscensus.gov.uk/documents/census2021/Education_Topic_Event_Summary.pdf

⁷⁵ https://www.scotlandscensus.gov.uk/documents/census2021/Labour_Market_Topic_Event_Summary.pdf

⁷⁶ <https://www.scotlandscensus.gov.uk/health-and-care-topic-event>

⁷⁷ https://www.scotlandscensus.gov.uk/documents/census2021/2017_Cognitive_and_Quantitative_Testing_Methodology_report.pdf

⁷⁸ https://www.scotlandscensus.gov.uk/documents/census2021/Sexual_Orientation_Topic_Report.pdf

proposed that these questions be included on a voluntary basis. To be included as voluntary questions, the Census (Amendment) (Scotland) Bill seeks to amend the Census Act 1920⁷⁹ to enable particulars about trans status and sexual orientation to be gathered voluntarily. This Scottish Government Bill⁸⁰ was introduced to the Scottish Parliament by the Cabinet Secretary for Culture, Tourism and External Affairs, Fiona Hyslop MSP, on 2 October 2018. The Bill has now passed at Stage 1.

3.28 In response to the Bill, the Culture, Tourism, Europe and External Affairs Committee published the Stage 1 Report⁸¹ on the Census (Amendment)(Scotland) Bill. The Stage 1 report contains a recommendation on the process of consultation which underpins policy development on questions regarding sex, sexual orientation and trans status. As question development for Scotland's Census 2021 is ongoing, further consultation is continuing, including with women's groups.

3.29 It is important to recognise that the development of Scotland's Census sits within a wider Scottish Government context. NRS has worked closely with colleagues in the Scottish Government undertaking the Gender Recognition Act consultation and consultation with colleagues in Equality workstreams to ensure a cohesive approach to the census questions. Both of these work areas have generated interest in sex, sexual orientation and trans status questions. Some of the stakeholder groups who have been critical of NRS's approach were formed fairly recently and therefore have not been involved in previous consultation. NRS has begun engagement with these stakeholders to understand their views and needs for the next census. In addition, whilst NRS did not meet with organisations representing intersex people prior to 05 December 2018, NRS were working closely with Scottish Government colleagues to understand meetings that other teams were having, especially in relation to the Gender Recognition Act consultation.

3.30 Holding a Digital First⁵ census for 2021 provides NRS with opportunities to improve question design, and for a number of areas, question development has focussed on alternative online designs to understand any impacts this may have on data quality. Following the publication of the Plans for Scotland's Census 2021, NRS held stakeholder events in Edinburgh, Glasgow and Aberdeen to get feedback from stakeholders on the progress NRS has made to date. These stakeholder events sought opinions on the changes proposed to existing questions, the new questions

⁷⁹ <http://www.legislation.gov.uk/ukpga/Geo5/10-11/41>

⁸⁰ <https://www.parliament.scot/parliamentarybusiness/Bills/109595.aspx>

⁸¹ <https://digitalpublications.parliament.scot/Committees/Report/CTEEA/2019/2/7/Stage-1-Report-on-the-Census--Amendment---Scotland--Bill#Recommendations-and-Conclusions>

that are under consideration for inclusion, and where online questions will have a different format than the paper versions.

3.31 NRS is also open and transparent about how suppliers and resources are obtained to ensure the business processes of the census are fully supported. NRS procures a range of services, goods and works to support its very diverse business needs and the NRS estate⁸². The key procurement principles are founded on openness, fairness, transparency and equal treatment. NRS Procurement promotes best practice when working with customers, stakeholders and suppliers to ensure goods and services are bought efficiently, effectively and sustainably. All procurement of goods, services and works that support Scotland's Census 2021 comply with procurement legislation and are in accordance with ethical standards, whilst demonstrating best value for money.

3.32 Following the procurement process there needs to be an effective contract management process in place which is clear on the outcomes to be achieved through the delivery of the contract, including value for money outcomes and how contractual risk will be managed. NRS contracts and our suppliers are managed in accordance with the Scottish Government Contract and Supplier Management⁸³ process.

3.33 Progress on the procurement activities of NRS is monitored and recorded through the Procurement & Commercial Improvement Programme (PCIP)⁸⁴ administered by Scottish Government. The PCIP is designed to measure procurement, contract management and commercial capability and to identify any areas that require further improvement. NRS is fully committed to this programme and aims to continually improve its performance. At the PCIP assessment in 2016 NRS achieved an overall score of 82% which currently rates the procurement function at the highest performance level (M1) for a PCIP medium sized organisation.

3.34 As a public sector contracting authority, NRS is subject to the Procurement Reform (Scotland) Act 2014⁸⁵. Under the Act, NRS is required to produce a

⁸² <https://www.nrscotland.gov.uk/about-us/procurement>

⁸³ <https://www2.gov.scot/Topics/Government/Procurement/Procurement-News/newsvault2015/updatedContractSupplierGuid>

⁸⁴ <https://www2.gov.scot/Topics/Government/Procurement/buyer-information/spdlowlevel/PCIPIntro/PCIPInfoPack>

⁸⁵ <https://www.legislation.gov.uk/asp/2014/12/contents>

Procurement Strategy⁸⁶ and an annual report⁸⁷ on our regulated procurement activities.

3.35 NRS operates within the National Performance Framework⁸⁸ set by Scottish Ministers. We support several of the Scottish Government's key National Outcomes and our information helps to measure some of the national indicators.

3.36 The NRS strategy sets out our purpose and vision, the four supporting strategic 'pillars' and the values that underpin these elements⁵³. NRS's purpose is to "collect, preserve and produce information about Scotland's people and history, and make it available to inform present and future generations". NRS's vision is to "increase our reach and impact and be recognised as an influential leader across our sectors. As a trusted, expert and professional organisation, we will continuously improve our customer services and enhance our digital services". The strategy focuses on consolidating our profile as a single organisation and influential leader across the sectors in which we operate. Our transformation programme will support us to deliver our purpose more effectively in collaboration with our stakeholders.

3.37 Information about our governance and corporate plans are published on our website⁵³. We also consulted the Population and Migration Statistics Committee on our NRS Statistics Plan and Vision in May 2018 and we incorporated feedback into the final published plan⁸⁹.

Principle T5. Professional Capability

People producing statistics should be appropriately skilled, trained and supported in their roles and professional development¹.

3.38 As an employer, the Scottish Government is committed to having a diverse workforce reflective of the communities they serve and thus look for a wide range of personal attributes in people who are suitably skilled for their role⁹⁰. The recruitment criteria for employment with the Scottish Government reflects this⁹¹. As part of the Scottish Civil Service, NRS must adhere to the valuable recruitment principles,

⁸⁶ <https://www.nrscotland.gov.uk/files/about-us/procurement/nrs-procurement-strategy-2016-19.pdf>

⁸⁷ <https://www.nrscotland.gov.uk/files/about-us/procurement/nrs-annual-procurement-report-2017-18.pdf>

⁸⁸ <https://nationalperformance.gov.scot/>

⁸⁹ <https://www.nrscotland.gov.uk/files/statistics/Events/pams-30-5-18/pams-may-18-2.pdf>

⁹⁰ <https://www.gov.scot/Resource/0053/00532622.pdf>

⁹¹ <http://www.work-for-scotland.org/working-with-us/recruitment-criteria/>

updated in 2018, which explain the legal requirement that selection for appointment to the Civil Service must be on merit on the basis of fair and open competition⁹². Statisticians recruited also need to meet statistical competency requirements.

3.39 Once in post at NRS, employees are fully supported in meeting the objectives of their role to the best of their abilities. The Scottish Government's People Strategy sets out the conditions for individuals to thrive and be successful within the Scottish Government. Skills for Success (SfS)⁹³ is the competency framework that underpins career planning and skills development. It supports the People Strategy commitment to have "the right people in the right places, with the right skills at the right time" by underpinning recruitment and performance management systems. It sets out what is fundamental to success in the Scottish Government from Band A to the Senior Civil Service. The competency framework identifies a set of core skills that everyone should have and be able to demonstrate, whatever job they do.

3.40 The Government Statistician Group (GSG) also has a competency framework⁹⁴ which supports statisticians working on Scotland's Census 2021 in meeting the aims of the statistical profession. It helps to recruit and retain a strong cadre of Statisticians and Statistical Data Scientists and to build the professional capability of all members of the GSG, keeping statistical evidence and advice at the heart of decision making across society.

3.41 NRS staff are further supported throughout their roles in Scotland's Census 2021 via monthly conversations with line managers where successes are celebrated and future development is discussed. Team meetings are held regularly and census-wide team huddles occur weekly to ensure all staff are up to date with the progress and priorities of the census operations as a whole. Statistical staff are also encouraged to undertake 60 to 100 hours a year of continued professional development to ensure they are adequately trained, up to date on the latest role-related advances and fully supported in achieving the best results in their roles.

3.42 Underpinning the commitment of NRS to having "the right people in the right places, with the right skills at the right time" are the steps taken to ensure robust resource management. NRS keeps all resource management information relating to the staff employed to work on Scotland's Census securely within our workforce

⁹² <http://civilservicecommission.independent.gov.uk/civil-service-recruitment/>

⁹³ [https://www.foodstandards.gov.scot/downloads/Skills_For_Success_Competency_Framework\(002\).pdf](https://www.foodstandards.gov.scot/downloads/Skills_For_Success_Competency_Framework(002).pdf)

⁹⁴ https://gss.civilservice.gov.uk/wp-content/uploads/2016/11/GSG-Competency-Framework_March2016-1.pdf

plans, managed in-house within the Programme Management Office (PMO). Staffing information is shared with Senior Management for a variety of reasons, including accommodation management.

3.43 NRS will recruit staff to offer on the ground support for people completing their census forms. These staff are called the Field Force and they will use a digital approach throughout the programme, starting from the beginning of the recruitment campaigns all the way through to an enumerator's final workload allocation. We have identified four key user needs throughout this journey:

- User Need 1: Adverts for Field Force staff need to be accessible online, through various digital formats and available on a variety of devices and software. Various communication routes will be used to ensure that everyone in Scotland has the chance to view our adverts.
- User Need 2: Applying for a job should be user friendly. The online application form should comply with various support software and the content easily understandable if being used by accessibility software.
- User Need 3: Interviews will use digital means where possible, by supplying guidance in PDF formats, usable on free software, on a variety of operating systems. Communication of interview dates, times and feedback will be provided in plenty of time through secure email networks for quick information sharing. Video technology will be available for face to face interviews for anyone unable to travel and will help Scotland's digital carbon footprint.
- User Need 4: Training for the successful candidates will be available online in various formats to access at any time. Devices will be supplied and adjustable software provided for those in need.

3.44 It is important that to achieve the above, we have the right people in place to ensure the highest levels of quality exist across the entire census programme. We have skilled ICT staff making sure everything works around the clock and integrates well with other systems, Information Security staff working on keeping all personal data secure, and qualified HR staff ensuring we follow key legislation throughout.

Principle T6. Data Governance.

Organisations should look after people's information securely and manage data in ways that are consistent with relevant legislation and serve the public good¹.

3.45 NRS controls and administers information within an information governance framework that brings together all the legal rules, guidance and best practice that

apply to the handling of information. By operating within this framework NRS ensures the necessary safeguards for, and the appropriate use of information assets and personal information. The information governance framework allows for strategic direction and key decision-making to be taken across all our business areas, with due consideration given to the variance in standards and legal rules that may apply to information handling.

3.46 NRS fully recognises the importance of privacy, confidentiality and security. All work undertaken as part of Scotland's Census 2021 is governed by various statutory requirements including the Census Act 1920⁷⁹, the EU General Data Protection Regulation (GDPR)⁹⁵, the Data Protection Act 2018⁹⁶, and the Code of Practice for Statistics¹. The census depends on the participation of individuals and as a result the maintenance and preservation of their privacy underpins everything that NRS does. Individuals responding to the census need to know that their information will be safe and secure, who will have access to it and how it will be used. NRS adheres to guidelines laid down by the Information Commissioner's Office⁹⁷ and are working with them as progress towards 2021 is made.

3.47 NRS understands that people need to be confident their personal data will be held securely, so it is protected by strict security measures⁹⁸. Access to personal census data is tightly controlled and the number of people who see it is kept to a minimum. Access to census data that can identify households or individuals is strictly controlled. The Census Act 1920⁷⁹ made it a criminal offence to unlawfully disclose confidential census data. The Census (Confidentiality) Act 1991⁹⁹ extended this to people and businesses working as part of the census. As such, anyone who unlawfully discloses census data can be fined up to £10,000, sent to prison for up to two years, or both. All NRS staff who have access to personal census data are subject to baseline security clearance checks and have signed a Census Confidentiality Agreement¹⁰⁰ to ensure that individuals do not abuse the trust placed in them for personal gain.

3.48 NRS takes the trust and right to privacy of individuals seriously and is committed to ensuring that whenever personal information is processed it is done fairly, lawfully and in a transparent manner. Specifically, NRS complies with the

⁹⁵ <https://eur-lex.europa.eu/eli/reg/2016/679/oj>

⁹⁶ <http://www.legislation.gov.uk/ukpga/2018/12/contents/enacted>

⁹⁷ <https://ico.org.uk/>

⁹⁸ <https://www.scotlandscensus.gov.uk/Privacy-2021>

⁹⁹ <http://www.legislation.gov.uk/ukpga/1991/6/contents>

¹⁰⁰ Appendix 7. Census Confidentiality Agreement

obligations detailed under data protection and privacy laws. These laws include the EU General Data Protection Regulation (GDPR)⁹⁵ and the Data Protection Act 2018 (DPA 2018)⁹⁶. NRS has published a privacy notice¹⁰¹ explaining how it collects and processes personal data, as well as specific information about how it protects the confidentiality of census data.⁹⁸

3.49 NRS has also published the first version of Scotland's Census 2021 Data Protection Impact Assessment (DPIA)¹⁰². A DPIA is a process which can help organisations identify the most effective way to comply with their data protection obligations and meet individuals' expectations of privacy. The Information Commissioner's Office has published detailed guidance on DPIAs to promote good practice and which NRS adheres to. There is now a legal requirement under GDPR article 35.3(b) for NRS to conduct a DPIA for Scotland's Census 2021 and it is NRS and Scottish Government policy that one is conducted for all projects that involve personal data. Doing so helps ensure that the privacy risks of any new initiative are identified and appropriate measures to reduce those risks are put in place.

3.50 To ensure the highest levels of security, Scotland's Census 2021 have a designated security team, which applies UK government security standards to all areas of the census operation. Security measures are regularly reviewed and they are improved when necessary.

3.51 Procurement of the Tripartite Independent Information Assurance Review, covering ONS and NISRA, as well as NRS security measures for the 2021 census is currently underway. This is intended to produce both public and private reports on the effectiveness of the security governance and controls, both prior to the census rehearsal in autumn 2019 and again prior to the census go-live date in March 2021. Additionally, NRS will be conducting a range of security testing, including IT health checks, on all systems processing census data to ensure that the specified controls are adequately implemented.

3.52 To ensure personal information is not accidentally revealed in 2021 census outputs and statistical data, special arrangements called statistical disclosure control will be put in place. They will include some or all of the following procedures¹⁰³:

- restricting the number of output categories into which a variable may be classified, for example by aggregating age groups;

¹⁰¹ <https://www.nrscotland.gov.uk/files/about-us/nrs-data-protection-privacy-notice-march-2018.pdf>

¹⁰² https://www.scotlandscensus.gov.uk/documents/census2021/Privacy_Impact_Assessment.pdf

¹⁰³ <https://www.scotlandscensus.gov.uk/statistical-disclosure-control-and-outputs-event>

- where the number of people or households in an area falls below a minimum threshold, amalgamating the statistical output – except for basic head counts – with a sufficiently large neighbouring area; and
- modifying some of the data before the statistics are released – through one or more of a variety of means such as record swapping or cell perturbation.

3.53 For any data table that is produced, either as a pre-built table or in the proposed flexible table builder, a notification will appear as standard informing users that statistical disclosure controls have been applied to that data. For example, on a table⁴⁹ produced from Scotland's Census 2011 data, a footnote reads "In order to protect against disclosure of personal information, some records have been swapped between different geographic areas. Some cell values will be affected, particularly small values at the most detailed geographies."

3.54 In June 2017, NRS held a Statistical Disclosure Control (SDC) and Outputs event to update interested parties with information about the current plans for Statistical Disclosure Control³³ for Scotland's Census 2021. The event included information on cell perturbation, which introduces a sufficient level of ambiguity or uncertainty to the data by altering some numbers, and record swapping which swaps a sub-set of records or households. Overall, most stakeholders appeared to be content¹⁰⁴ with the proposed SDC methodology, as it would speed up the release of data and allow users to create their own tables. A few stakeholders questioned whether cell perturbation was necessary or whether the combination of record swapping and imputation provided enough protection. Over-imputation was also suggested as an SDC method, but as this requires discarding some census records to impute false records this is not seen as an acceptable method.

3.55 Keeping personal data secure is often down to good practice within an organisation. NRS ensures all staff have sufficient security training to enable them to actively help to protect personal and sensitive data from being disclosed either maliciously or accidentally. For example, all staff who work on Scotland's Census 2021 undertake a mandatory annual security seminar that provides in-depth training on building and desk security, online, password and data security, and personal security whilst working for NRS. All NRS staff also undertake mandatory annual data protection training.

¹⁰⁴ https://www.scotlandscensus.gov.uk/documents/get-involved/Scotlands_Census_2021_Statistical_Disclosure_Control_and_Outputs_Stakeholder_Event_Summary.pdf

3.56 Similarly, the use of administrative data to support the quality assurance of the data collected from Scotland's Census 2021 requires that the security of administrative data must meet census security standards and comply with all relevant legislation on data security and linkage.

4. Quality – using data and methods that produce assured statistics.

Principle Q1. Suitable data sources

Statistics should be based on the most appropriate data to meet intended uses. The impact of any data limitations for use should be assessed, minimised and explained¹.

4.1 Scotland's Census is unique; it is the only survey that asks everyone in Scotland the same questions at the same time. It underpins the demographic and population statistics system and other official statistics in Scotland. Its uses are wide and varied. Given this, Scotland's Census 2021 intends to enumerate all people in Scotland on census night, 21 March 2021, who are staying, or expecting to stay in the UK for six months or more. This is the same enumeration base as in Scotland's Census 2011¹⁰⁵.

4.2 The primary output base for the 2021 census will be all usual residents. This is consistent with the primary output base for the 2011 census⁶.

4.3 In June 2013, stakeholders participated in the Beyond 2011: Consultation on User requirements for Population and Socio-demographic Information¹⁰⁶. The results of this consultation helped towards the decision to have a census in 2021 for Scotland. Since the Beyond 2011: Consultation, the three UK Census offices have been investigating how administrative data can support the quality assurance process of the 2021 census.

4.4 Given the size of the census operation, and the fact that it is mandatory to complete the questionnaire, it is important that the questions which are asked provide the information that is really needed, and only that. The topics proposed for the census questionnaire are those most in demand by the main users of census information, for example, central and local government, the health service, the commercial and academic sectors, local community groups and voluntary and charitable organisations⁶. The data collected by the Census is also instrumental in informing Ministers and the Scottish Parliament about the population of Scotland. It is fundamental in informing the Scottish Government and Parliament about the size and nature of Scotland's current and future population.

¹⁰⁵ https://www.scotlandscensus.gov.uk/documents/census2021/Enumeration_Base.pdf

¹⁰⁶ <https://www.nrscotland.gov.uk/files/census/2021-census/Stakeholder-Engagement/user-require-analysis-report.pdf>

4.5 The aforementioned topic consultation⁴ was vital in order to understand the needs of users. To ensure that the consultation reached a wide range of users it was conducted using Citizen Space¹⁰⁷ and was publicised on the Scotland's Census website⁴ and on the Scottish Government website¹⁰⁸ as well as being widely promoted through other channels.

4.6 Following the consultation, NRS worked closely with stakeholders through follow-up events, meetings, focus groups and online surveys¹⁰⁹ to gather more detailed information about census users' data requirements to ensure user needs were fully understood.

4.7 In April 2018, NRS published the evaluation framework setting out the criteria used to assess potential questions for inclusion in Scotland's Census 2021¹¹⁰. A separate evaluation framework for assessing changes to existing questions was also published¹¹¹.

4.8 In order to be considered for inclusion in the census questionnaire, topics must meet a significant and clearly demonstrated user need. This might involve the allocation of significant resources, improved service provision, the development of new policies or monitoring of established policies.

4.9 The information collected by Scotland's Census must be of major national importance. One of the strengths of the census is that it collects detailed information for a large number of small geographic areas and small population subgroups, that cannot be quantified by other means. In some cases, information required only for larger areas (such as local authority areas), or information which is needed only about a few specific small areas, may be more cost effectively collected by other means such as sample surveys or focussed local surveys.

4.10 An important attribute of census data is the ability to analyse particular variables against one another (for instance, the state of health of different ethnic groups at different ages). The need for such multivariate analysis will help justify a

¹⁰⁷ <https://consult.gov.scot/national-records-of-scotland-survey/scotlands-census-2021-topic-consultation/>

¹⁰⁸ <https://www2.gov.scot/Publications/2015/10/2781/downloads>

¹⁰⁹ <https://www.scotlandscensus.gov.uk/events-and-workshops-2021>

¹¹⁰ https://www.scotlandscensus.gov.uk/documents/census2021/Question_Design_and_Inclusion_Evaluation_Criteria_Questions.pdf

¹¹¹ https://www.scotlandscensus.gov.uk/documents/census2021/Question_Design_and_Inclusion_Evaluation_Criteria_Response.pdf

census question – particularly if they are mutually supporting (each providing information that will make others more useful).

4.11 Comparison with previous censuses (and with other countries) is a further important aspect of census analysis and therefore a consideration for inclusion. Questionnaire content should not vary from one census to the next without good reason and close attention has been given to comparability with the content of the 2011 census questionnaire. Similarly, user demand for the ability to compare Scottish census results with other parts of the UK has been taken into account, along with the need to provide outputs to meet international statistical requirements.

4.12 The inclusion of particular questions should be shown, in tests, to have had no significantly adverse effect on the census as a whole – particularly the level of public response. It is also necessary to be sure that practical questions can be devised to collect data of sufficient and measurable quality to meet users' requirements.

4.13 The cost of collecting and processing the data is an important consideration. A question which is very difficult to turn into a code that a computer can read to help categorise answers, requires extensive processing or otherwise significantly adds to the total cost of the census, will generally not be included.

4.14 The census should generally only seek to collect information for which there is no other viable source. Similar data may, for example, be collected by another government department or organisation, or by existing or planned surveys, or the data may be available from administrative records. Surveys may be a better way of collecting data, because interviewers can probe into more detail and resolve uncertainties – and their outputs may be available more quickly. Technological and legal changes make it easier to link data from administrative sources, reinforcing or substituting for census data.

4.15 The census is a statistical exercise and must not be used to collect data in order to deliberately promote political or sectarian groups, or sponsor particular causes. The burden on the respondent must be considered – so the availability of space on the questionnaire, and the design and size of a question, is an important factor in deciding whether or not particular information can be collected by the census.

4.16 The Census Act 1920⁷⁹ limits the topics which may be included in a census; each topic must comply with the Act. Proposals for questions also need to consider

the desirability of asking the same or comparable questions throughout the UK, so that users can compare circumstances in Scotland with those in the rest of the UK.

4.17 NRS works closely with the UK's other census offices to ensure that consistent UK-wide census results are available where there is user demand (subject to approval, where appropriate, of the relevant legislatures). NRS works alongside the Office for National Statistics (ONS)¹¹² and the Northern Ireland Statistics and Research Agency (NISRA)¹¹³ to gather as much evidence as possible to ensure the 2021 census questions are clear, generate good quality data and meet a demonstrated user need.

4.18 As Scotland's Census 2021 will be Digital First⁵, development and testing of questions for inclusion has focussed on how best to present questions on an online platform to ensure digital collection improves data quality and maximises efficiencies in collection and processing of the information. But NRS is also clear about the differences in paper responses and work has focussed on ensuring consistency with previous censuses.

4.19 An extensive programme of public acceptability testing, cognitive testing⁷⁷ of question wording and questionnaire design, and quantitative testing⁷⁷ exploring data quality has been carried out. This is to make sure that people understand the questions, that question design does not have a negative impact on census completion, and that the questions deliver good quality data that meets user needs.

4.20 The current proposed questions for the 2021 census are listed on page 21 of the Plans for Scotland's Census 2021 report⁶ published in September 2018. There is still further testing to be carried out on some questions and it is possible others will change as a result of feedback. In particular, the Digital First⁵ approach for 2021 requires further development, user testing and feedback and this is ongoing. The final proposed questions will be set out in subordinate legislation for the approval of the Scottish Parliament. All of the development work and testing around the proposed questions for 2021 can be found in the associated topic reports:

- Housing and Accommodation Topic report¹¹⁴
- Housing and Accommodation – Rooms and Bedrooms Topic Report¹¹⁵

¹¹² <https://www.ons.gov.uk/>

¹¹³ <https://www.nisra.gov.uk/>

¹¹⁴ https://www.scotlandscensus.gov.uk/documents/census2021/Housing_and_Accommodation_Topic_Report.pdf

¹¹⁵ https://www.scotlandscensus.gov.uk/documents/census2021/Housing_and_Accommodation_Rooms_and_Bedrooms_Topic_Report.pdf

- Housing and Accommodation – Central Heating Topic Report¹¹⁶
- Housing and accommodation – Tenure and Landlord Topic Report¹¹⁷
- Income Topic Report¹¹⁸
- Demographics and Household Composition Topic Report¹¹⁹
- Sex and Gender Identity Topic Report¹²⁰
- Sexual Orientation Topic Report⁷⁸
- Migration Topic Report¹²¹
- Religion Topic Report¹²²
- National Identity Topic Report¹²³
- Ethnic Group Topic Report¹²⁴
- Language Topic Report¹²⁵
- Health Topic Report¹²⁶
- Unpaid Care Topic Report¹²⁷
- Education Topic Report¹²⁸
- Labour Market Topic Report¹²⁹
- Voluntary and Unpaid Work Topic Report¹³⁰
- Ex-Service Topic Report¹³¹
- Travel to Work or Study Topic Report¹³²

4.21 Despite both it being a legal obligation to complete the Census, and the best efforts of Census staff, not everyone will complete the census. To account for people and households who may not have been counted by the census, or who may have

¹¹⁶ https://www.scotlandscensus.gov.uk/documents/census2021/Housing_and_Accommodation_Central_Heating_Topic_Report.pdf

¹¹⁷ https://www.scotlandscensus.gov.uk/documents/census2021/Housing_and_Accommodation_Tenure_and_Landlord_Topic_Report.pdf

¹¹⁸ https://www.scotlandscensus.gov.uk/documents/census2021/Income_Topic_Report.pdf

¹¹⁹ https://www.scotlandscensus.gov.uk/documents/census2021/Demographics_and_Household_Composition_Topic_Report.pdf

¹²⁰ https://www.scotlandscensus.gov.uk/documents/census2021/Sex_and_Gender_Identity_Topic_Report.pdf

¹²¹ https://www.scotlandscensus.gov.uk/documents/census2021/Migration_Topic_Report.pdf

¹²² https://www.scotlandscensus.gov.uk/documents/census2021/Religion_Topic_Report.pdf

¹²³ https://www.scotlandscensus.gov.uk/documents/census2021/National_Identity_Topic_Report.pdf

¹²⁴ https://www.scotlandscensus.gov.uk/documents/census2021/Ethnic_Group_Topic_Report.pdf

¹²⁵ https://www.scotlandscensus.gov.uk/documents/census2021/Language_Topic_Report.pdf

¹²⁶ https://www.scotlandscensus.gov.uk/documents/census2021/Health_Topic_Report.pdf

¹²⁷ https://www.scotlandscensus.gov.uk/documents/census2021/Unpaid_Care_Topic_Report.pdf

¹²⁸ https://www.scotlandscensus.gov.uk/documents/census2021/Education_Topic_Report.pdf

¹²⁹ https://www.scotlandscensus.gov.uk/documents/census2021/Labour_Market_Topic_Report.pdf

¹³⁰ https://www.scotlandscensus.gov.uk/documents/census2021/Volunteering_Topic_Report.pdf

¹³¹ https://www.scotlandscensus.gov.uk/documents/census2021/Ex-Service_Topic_Report.pdf

¹³² https://www.scotlandscensus.gov.uk/documents/census2021/Travel_Topic_Report.pdf

been counted more than once or counted in the wrong place, a Coverage Assessment and Adjustment (CAA) methodology will be used to identify the number of people and households affected and to adjust the 2021 census estimates accordingly.

4.22 An important element of this methodology - the Census Coverage Survey (CCS)¹³³ – will take place approximately six weeks after Census Day. This independent voluntary doorstep interviewer-led survey across Scotland will collect a limited amount of information about people and households that will then be matched to census records and used to estimate the size of the census under- or over-count. It is hoped the linking methods that are currently being developed will be used to link the CCS to Scotland's Census 2021 records. This is a key component of overall work to help with the adjustment of the 2021 census estimates. Any errors that occur in matching the CCS and census records directly feed through to errors in overall population estimates and so it is crucial that matching is as accurate as possible. Improved methods will mean reduced time spent on clerical review as part of the linkage process, potentially meaning outputs will be available earlier.

4.23 Administrative datasets have the potential to enhance outputs for Scotland's Census 2021. It is hoped that the independent nature of administrative datasets (i.e. they are not derived from census information) will support the ongoing work to identify potential bias, uncertainty and possible distortive effects in the census data for a limited number of important variables.

Principle Q2. Sound methods

Producers of statistics and data should use the best available methods and recognised standards, and be open about their decisions¹.

4.24 The investment of time and resources in a national census is only justified if the results are made available in a timely way and in a clear and usable form for all users. The aim for Scotland's Census 2021 is to harness current technology to improve the quality, timeliness, accessibility and user-friendliness of published outputs. The outputs will be available for the whole of Scotland down to very small levels of geography. In co-operation with the other UK census offices, NRS will also contribute to UK-wide statistics for all questions which are the same or similar across the UK⁶.

¹³³ <https://www.scotlandscensus.gov.uk/glossary/census-coverage-survey-ccs>

4.25 The aim is for the majority of 2021 census returns to be completed by people online so that the data for these responses will already be in electronic format. For paper returns, the questionnaires will need to be scanned and the information turned into an electronic format.

4.26 The progress and quality of both the online and paper data capture processes will be monitored during live operation to ensure data quality and timeliness. The paper data capture system will be required to provide data in electronic format as well as digital images of the questionnaires. Once these have been checked and securely archived, the paper questionnaires will be destroyed (as was done in the 2011 census) in line with government security guidelines, protecting the privacy of census information while allowing paper questionnaires to be recycled. All systems and storage media will be securely erased, in accordance with government security standards.

4.27 All captured responses need to be assigned a code value to produce a statistical dataset. It is intended that as much coding as possible will be completed automatically through the online collection process and through the coding software available to the paper capture supplier. A manual operation will be required for cases where automatic coding is not possible. Automatic coding will be easier for some questions than others. For example, questions requiring a numeric or tick box response will be very straightforward to code, but free-text responses can be complex due to the infinite number of possible responses.

4.28 Once coded, the data need to go through various steps to ensure they will produce reliable outputs which meet users' needs. As a first step, all online and paper returns have to be amalgamated and reconciled to remove duplicate questionnaires and ensure all people are linked to a household or communal establishment. For paper responses, this will include checks to confirm a minimum amount of information is available to determine a true response, whereas for online responses this is done at the point of entry. The data itself is then modified to complete any missing responses, correct data captured by mistake, remove inconsistencies, adjust for those missed by the census and prepare the data for dissemination to users.

4.29 The systems developed to clean and adjust the data will be based on complex statistical algorithms supported by occasional manual intervention. This processing will be carried out by NRS staff and will begin as soon as data is ready.

4.30 Inconsistent or partially completed responses will be edited according to pre-defined rules¹³⁴ if the answer is incompatible with the rest of the responses on the questionnaire. For example, a person recorded as being aged under 16 should not answer questions about economic activity. Where some questions have not been completed, a response will be imputed in such a way that it will be consistent with other answers in the questionnaire, based on responses from those living in similar households or with similar demographic profiles. This edit and imputation process ensures that the results of the census are complete and consistent. It is a standard statistical process, used successfully since the 1981 Census.

4.31 Complete and consistent results mean that the final statistical tables will have no gaps arising from 'not known' or 'not stated' responses (other than for any voluntary questions). This avoids data users having to make their own estimates for missing values, since NRS is in a better position than the user to correct for incomplete or invalid responses or to estimate accurately the values of derived variables that were based on more than one item.

4.32 Coverage adjustment¹³⁵ is the process of estimating those not counted in the census and adding those people and households in to the database to obtain a complete census database. This process also accounts for bias in non-response and overcount within the population. This approach is internationally recognised and allows a highly precise estimate of the total resident population to be made.

4.33 To estimate the total population a follow-up survey, the Census Coverage Survey¹³³, is required. The information for each household from the Census Coverage Survey will be matched to the corresponding census return from that household. This will allow the number and characteristics of those missed by the census to be estimated. NRS is investigating whether the way in which data is grouped for estimation affects the accuracy of the results.

4.34 The adjustment process then creates people and households with corresponding key characteristics and determines where to place them geographically. These people and households are added to the database and any missing information imputed as before. This technique, called the 'One Number Census'¹³⁶, was used in both 2001 and 2011. NRS is investigating the use of

¹³⁴ <http://webarchive.nationalarchives.gov.uk/20160108193745/http://www.ons.gov.uk/ons/guide-method/method-quality/survey-methodology-bulletin/smb-69/index.html>

¹³⁵ <https://www.scotlandscensus.gov.uk/census-methodology>

¹³⁶ <https://www.scotlandscensus.gov.uk/one-number-census>

administrative data and late return data to improve accuracy of the adjustment process.

4.35 There will be an increased use of administrative data in the processing and production of outputs for Scotland's Census 2021. We are researching how administrative data can improve the quality of census data collected and this may allow for innovations in the methods that we use. Administrative data will also be used for quality assurance purposes where available. These new quality assurance procedures are to be developed and tested during the census rehearsal in autumn 2019; those that have improved the quality of data or made efficiencies in the quality assurance process will potentially be used in Scotland's Census 2021. Underpinning this, we are carrying out quality assurance work on the administrative data sources that we hold to make sure we understand how the data is collected by the suppliers, what quality checks they carried out, and to understand the strengths and weaknesses in the data. We intend to publish the results of this work on our website.

4.36 As required by the Census Act⁷⁹, reports on the results of Scotland's Census 2021 will be laid before the Scottish Parliament. At the same time, these reports and associated tables will be made available for free public dissemination, primarily online, in formats which meet the needs of users. As far as possible, national and local outputs will be provided free of charge online.

4.37 The plans for Scotland's Census 2021⁶ build further on the dissemination approach used in 2011. Statistical results will be made available at varying levels of detail, for different geographical areas, subject to the overriding requirement to protect the confidentiality of personal information. The geographical aggregations will be created essentially from the same building bricks as in the 2011 census – Output Areas¹³⁷. Output Areas are created using population and household information from census returns and are made up of groupings of postcodes¹³⁸. Output Areas have a minimum size of 20 households and 50 individuals and are the smallest area for which census statistics are produced, while preserving the confidentiality of individuals.

4.38 Any area for which a census output is produced is the aggregation of Output Areas that exactly fit, or approximate best fit to, that area. Output Areas can

¹³⁷ https://www.scotlandscensus.gov.uk/documents/supporting_information/2011_Census_Geographies.pdf

¹³⁸ https://www.nrscotland.gov.uk/files/geography/2011-census/2011-census-geography-background-info_0.pdf

therefore be aggregated to give information for a wide range of geographical areas including electoral wards, Scottish parliamentary constituencies, council areas and NHS health board areas, and Data Zones, which are the stable statistical areas used on the Scottish open data platform¹³⁹.

4.39 For 2021, as with previous years, each Output Area will be a group of neighbouring postcodes nesting into the local authority area. As far as possible, the boundaries of 2011 Output Areas will be kept constant for 2021, to allow comparison between the two censuses. Where there are areas with significant population change or housing development, it will be necessary to create revised boundaries to ensure that the key criteria of size and homogeneity are followed. The number of such changes will be minimised and will normally involve splitting or merging existing Output Areas to minimise the effect on larger geographical areas.

4.40 Products will be developed to allow statistical and geographical information to be delivered together, for use with geographical information systems, giving as much flexibility as possible commensurate with the confidentiality of personal information. Metadata¹⁴⁰, in the form of definitions, classifications and quality indicators, will also be produced for use with the statistical outputs. These will include confidence intervals¹⁴¹ and other quality measures and information from post-census coverage and quality surveys – such as local coverage rates, item non-response and imputation rates.

4.41 As we develop our statistical methodologies for processing data we have an internal peer review process set up to allow challenge from other statisticians within NRS to feedback into these developing methods. We are also working closely with ONS and NISRA as we develop our methodologies, feeding into working groups as needed. For example, the UK Census Committee discusses methodologies where the three UK censuses need to harmonise, such as in our approach to statistical disclosure control.

Principle Q3. Assured quality

Producers of statistics and data should explain clearly how they assure themselves that statistics and data are accurate, reliable, coherent and timely¹.

¹³⁹ <https://statistics.gov.scot/home>

¹⁴⁰ <https://www.scotlandscensus.gov.uk/variables-classification>

¹⁴¹ <https://www.scotlandscensus.gov.uk/glossary/confidence-intervals>

4.42 The success of Scotland's Census 2021 will be judged primarily on its ability to deliver high quality population and housing statistics in accordance with agreed timescales. The required quality of these statistics will be highly dependent on the programme's ability to produce high quality systems, business processes, products and services that in turn support the collection and processing of Census data and the production and dissemination of statistical outputs.

4.43 There are several aspects to our approach to help us ensure that we achieve the quality we are looking for, in terms of statistical quality assurance and programme and project assurance. We are aiming to implement a robust approach to programme and project quality and aiming to have dedicated and experienced resources in place to manage assurance practices. For example, a programme Quality Management Strategy is under development which aims to set out how quality will be embedded into Scotland's Census 2021 Programme and encompasses:

- Data quality, including statistical outputs;
- Quality of operational systems and services and business and statistical processes;
- Quality of programme and project management; and
- Quality business delivery projects and other project products.

Moreover, the strategy will aim to provide an overview of how NRS could assess and measure the level of quality being achieved across the Programme. The work developing this strategy is ongoing.

4.44 Quality is important to Scotland's Census because of the large number of users and the potential impact the outputs have. The census is held once every ten years and provides a benchmark for the whole social statistics system. In many cases it is the only data source, particularly for small areas and for small population groups. For Scotland's Census 2021 Programme, Quality is considered:

- A degree of excellence;
- Conformance to requirements;
- Fitness for use and fitness for purpose.

4.45 Specifically, the Quality Management Strategy under development for Scotland's Census 2021 encompasses:

- Quality Planning which translates strategy into practice by defining detailed quality objectives and documenting them in business plans;

- Quality Assurance assures that the standards, processes, and procedures established for any project (internal or external), workstream, or commercially contracted supplier are appropriate and correctly implemented;
- Quality Control checks how corrections are identified in a statistical processing sense and that all key products created during the lifecycle of the programme meet user requirements. Quality Control also identifies areas for improvement and ensures that remedial action plans are developed and implemented as part of ongoing quality improvement;
- Quality Improvement seeks to improve the overall performance of an organisation and covers statistical processing, data quality, products, processes and people.

4.46 In addition, Quality Gates, which are key decision points, are being proposed for across Scotland's Census 2021 programme both as a whole and with individual products which will aim to ensure regular and appropriate review of practices throughout the operation. Where products are being delivered by external suppliers those suppliers will also have an obligation to support and comply with the Quality Management strategy and Assurance activities. It is proposed that the Quality Management Strategy and Assurance activities should be revised periodically to ensure they are proportional and remain effective.

4.47 Quality assurance is an integral part of the ongoing question development for Scotland's Census 2021 to ensure that the data we collect is fit for purpose and meets the required quality. As such, any proposed new questions must be thoroughly tested before they can be deemed suitable for a census. In deciding what subjects to cover and what questions to ask, NRS is consulting many people and organisations to take full account of Scottish circumstances. We are also considering:

- how acceptable the questions are to the public
- how to ask questions in a way that produces reliable answers, and
- whether other ways of collecting the information already exist.

The Scottish Parliament will make the final decision on which questions to include in Scotland's Census 2021.

4.48 NRS is also working closely with the UK's other census offices to ensure that consistent UK-wide census results are available where there is user demand (subject to approval, where appropriate, of the relevant legislatures). We are working alongside the Office for National Statistics (ONS) and the Northern Ireland Statistics and Research Agency (NISRA) to gather as much evidence as possible to ensure the 2021 census questions are clear and robust.

4.49 NRS is also undertaking its own complementary programme of question development in Scotland which uses qualitative and quantitative testing and involves a wide range of community stakeholders to inform question development. In advance of the 2021 census, the range of testing being carried out includes:

- Topic Consultations⁴;
- Topic Events and Focus Groups¹⁰⁹;
- Question Evaluation Criteria for existing, alternative and new questions¹¹⁰ and for tick box response options¹¹¹;
- Cognitive and Qualitative testing⁷⁷; and
- work on UK harmonisation with the other UK census offices.

4.50 Quality management and control are central to all stages of the census operation. Given the element of estimation which goes into the final census results, it is important to have robust processes in place to ensure that all of the census elements have worked and to ensure that where census estimates differ from other published sources, that the difference is understood and can be explained to users.

4.51 Quality assurance will be carried out to improve the quality of census data and to ensure that the totals are plausible. The strategy for improving quality will be a balance between the improvement gained and the time and resource required. Quality assurance of the results of the census will be carried out throughout the census operation to ensure:

- that changes made within each of the processes are robust and do not introduce systematic error; and
- that the national and sub-national (in particular council area) estimates are plausible when compared with data from administrative sources and demographic comparators.

4.52 A significant aspect of ensuring the highest possible quality for Scotland's Census is learning from the experiences and lessons of previous Censuses in Scotland, in the UK, and internationally. NRS has dedicated a vast amount of time and resources to internal and external research, user engagement, and knowledge sharing to compile a body of work that demonstrates where the strengths of the previous census lie, but most importantly the lessons that can be learnt to achieve the highest quality census possible for the people of Scotland.

4.53 For Scotland's Census 2011, the population results went through a rigorous quality assurance process¹⁴² prior to their publication. The "2011 Census in Scotland: Population and Household Estimates – Quality Assurance Process"¹⁴³ paper describes the quality assurance that was carried out in preparation for the release of headline statistics for Scotland after the 2011 census. Similar, and additional, quality assurance measures will be implemented for Scotland's Census 2021 before data is released to the public.

4.54 A Quality Assurance Pack¹⁴⁴ was also published as part of the first release from the 2011 census in Scotland. It provided a snapshot of the population and households as at census day, 27 March 2011, as well as various comparator datasets used in the quality assurance process. The Quality Assurance Pack provided a summary version of the information that was made available to the Quality Assurance Panel during quality assurance of the census estimates.

4.55 NRS also established a Census Data Quality Advisory Group³⁰ comprising staff from NRS and local authorities. The group involved organisations external to NRS in census data quality assurance, utilising local knowledge and data sources. The work of the group formed a central part of the quality assurance and finalisation of the results from Scotland's Census 2011.

4.56 Scotland's Census 2011 User Satisfaction¹⁴⁵ survey was a survey of known census data users with the purpose of seeking views from users about their use of Scotland's Census 2011 outputs and to evaluate what NRS did well and what could be improved upon to inform the planning for the next census in 2021. Users were asked for their views on:

- use of census outputs and products;
- how well they felt that the outputs were publicised;
- accessibility of the outputs and other information on Scotland's Census website;
- overall satisfaction with the outputs; and
- suggestions for future outputs and their dissemination.

¹⁴² <https://www.scotlandscensus.gov.uk/quality-assurance>

¹⁴³ <https://www.scotlandscensus.gov.uk/documents/censusresults/release1c/rel1cqualityassurance.pdf>

¹⁴⁴ <http://www.scotlandscensus.gov.uk/documents/censusresults/release1b/rel1bqapack.xls>

¹⁴⁵ https://www.scotlandscensus.gov.uk/documents/usingcensusdata/Scotlandscensus_2011_User_Satisfaction_Survey_Report.pdf

4.57 The Census Quality Survey¹⁴⁶ is a voluntary survey carried out after the census to measure the accuracy of responses in the census. The survey asked a sample of the population the same questions as asked on the census so answers could be compared between the census and the Census Quality Survey. Where responses differed, follow-up questions were asked of the respondents to determine why.

4.58 The Beyond 2011 programme was established by NRS in September 2011 to explore the future provision of population and socio-demographic statistics in Scotland. The programme aimed to investigate a range of options and alternatives, including the possibility of using administrative sources and methods for developing a more cost-effective and efficient census design. The programme closed in March 2014 following a recommendation to hold a census in 2021. NRS carried out a series of stakeholder engagement¹⁴⁷ events across Scotland between November 2012 and March 2013. A formal consultation¹⁴⁸ on user requirements ran from March to June 2013. It focussed on gathering users' views on their future requirements for population and socio-demographic statistics including:

- the frequency of data provided;
- the geographical level at which data is available;
- the accuracy of the data; and
- the level of disaggregation required.

4.59 NRS published Scotland's Census 2011 General Report⁵⁰ and laid it before the Scottish Parliament in October 2015. The report reviews the entire 2011 census operation from the early planning and consultation through to the production and dissemination of outputs and evaluation. It provides a wealth of detail about how Scotland's Census 2011 was carried out and what NRS has learned to take forward in the planning for the next census in 2021. It reports on the successes as well as challenges and lessons to be learned for the ongoing 2021 Census programme.

4.60 Looking forward to Scotland's Census 2021, a major aspect of ensuring that the data collected by the census is accurate and reliable is ensuring that every person in Scotland engages with the census and support is in place to reach all members of society. As part of the ongoing stakeholder engagement that is being undertaken by NRS in advance of Scotland's Census 2021, NRS has instigated

¹⁴⁶ <https://www.scotlandscensus.gov.uk/glossary/census-quality-survey-cqs>

¹⁴⁷ <https://www.nrscotland.gov.uk/files/census/2021-census/Stakeholder-Engagement/combined-report.pdf>

¹⁴⁸ <https://www.nrscotland.gov.uk/files/census/2021-census/Stakeholder-Engagement/user-require-analysis-report.pdf>

engagement with all 32 of Scotland's local authorities and this engagement will continue in the run up to the census rehearsal in autumn 2019 and the main census in 2021. NRS and local authorities are aiming to work collaboratively to use expertise, resources and channels to ensure the census reaches all communities in Scotland.

4.61 NRS will develop and implement evidence-based communications and marketing plans designed to reach respondents and to encourage participation and confidence in the census. As well as informing and encouraging the wider general public, NRS will target communications at audience groups who are less likely to respond, and supplement this response with targeted community engagement using trusted intermediaries and stakeholder groups, endeavouring to ensure a respondent base reflective of the wider population of Scotland.

4.62 Whilst NRS is promoting and encouraging online responses to Scotland's Census 2021 as part of the Digital First⁵ census, NRS also recognises that there are groups within society who are digitally excluded. To ensure the census is accessible to all, NRS is beginning to engage with Local Authorities to explore the feasibility of utilising existing locations such as libraries, community centres and schools to provide assisted digital support to the public. An assisted digital service will entail a variety of functions to help drive quality online returns, including:

- the provision of internet and PC access,
- help to log on,
- basic digital skill support, and
- support from a member of staff to enable online completion.

4.63 The Data Collection processes for Scotland's Census 2021 are being set up to ensure that quality Census data are received from the Scottish Population. In particular, NRS is seeking to ensure the collection process captures good quality responses from all sectors of the population, for example, people of all ages, ethnicities, geographies and more. To ensure that the enumeration¹⁴⁹ processes for Scotland's Census 2021 achieve the highest quality data, NRS has researched best practice and successes from other census taking countries to enhance the procedures used in Scotland. A key element of achieving good quality data from all the people of Scotland is understanding the barriers people faced when completing the Census in 2011 and understanding how NRS can remove these barriers for

¹⁴⁹ Enumeration is the process of collecting data from the people of Scotland during the census. This includes the operational aspects of census data collection: direct contact, encouragement of self-response (including digital self-response) and follow up.

2021. Engagement with respondents helps NRS to understand what specific enumeration approaches will be needed to encourage maximum overall participation. In particular, NRS is aiming to enable the majority of the population to provide a self-response and within that, a digital self-response.

4.64 A Hard to Count (HtC) index has been developed using area-level characteristics (e.g. age profile, type of dwelling, deprivation) associated with census non-responses from Scotland's Census 2011. The HtC index informs NRS which enumeration¹⁴⁹ approach should be implemented in different planning areas for Scotland's Census 2021, and informs non-response follow up activities, as well as the design of the Census Coverage Survey¹³³. The HtC methodology was subject to rigorous Peer Review and was approved by the Data Collection Project Board in October 2017.

4.65 In recognition of the Digital First⁵ approach for Scotland's Census 2021, NRS is adjusting the public assistance they will provide to ensure that data quality is not reduced by people's understanding of the process. NRS will ensure that there will be staff on hand to answer any questions from people completing the census through dedicated Census channels including a telephone centre, web chat on the Census website and social media channels in addition to the existing NRS provisions. The telephone lines will be linked to a language line to provide translation services across multiple languages.

4.66 NRS will also be directing people to our Support Hubs, which are being set up with several external partners, to provide digital support to those who need and want it. Specifically, NRS has been developing partnerships with the Sensory Impairment charities, Libraries and other third sector groups to ensure support is provided to those who most need it. To identify suitable locations for the Support Hubs to be set up, NRS has been developing a Digital Exclusion (DE) Index. The DE Index is currently undergoing Peer Review. The accuracy of both the HtC and DE Indexes will be reviewed using the results of the census rehearsal in autumn 2019.

4.67 Another way that we assure ourselves that the data collected from Scotland's Census 2021 is of high quality and reliable is through ongoing research into behavioural insights which will inform the design of any contact materials. For example, all of the public facing material that will engage people in the census will undergo user testing. This testing will occur across channels including letters and online information to ensure public understanding, accessibility and to encourage responses.

4.68 The Field Force for Scotland's Census 2021 will be providing more targeted support than in 2011 as NRS will be able to track which households have provided returns and send field staff to specific addresses to encourage participation. The Field Force will also be able to direct people to where they can get further support and provide additional materials if needed. In addition to Field Force support, paper questionnaires will be available on request for those unable to complete a digital census. For those who have difficulty in submitting a digital or a paper form, there will be an option to provide responses to the census questionnaire over the telephone through the dedicated census telephone centre.

4.69 The 'Collect' stage of the census has been deemed a digital public service and the Digital First Service Standard¹⁵⁰ defines the minimum standard required when delivering a digital public service. Digital First is a set of 22 criteria that all digital services developed by Scottish Central Government sector organisations and Scottish Government corporate services must meet. This includes services for users (for example submitting an application) or corporate services (for example checking your payslip online). The standard has 3 themes:

- user needs - focus on what your users want to do rather than the organisation's objectives or the mechanics of delivering your service;
- technology – how you've built your service;
- business capability and capacity – having the right team with enough time to maintain the service.

The standard aims to make sure that services in Scotland are continually improving and that users are always the focus.

4.70 To ensure Scotland's Census 2021 is meeting the required standards of a Digital First Census, an independent assessment team¹⁵¹ have been assigned and will contain the following expertise –

- Lead Assessor
- Technical
- Product
- Content Design
- Assisted Digital
- User Research
- Performance.

¹⁵⁰ <https://resources.mygov.scot/standards/digital-first/>

¹⁵¹ <https://resources.mygov.scot/assessments/assessment-panel-roles/>

Assessments are carried out at Discovery, Alpha and Beta. The Collect part of Scotland's Census 2021 has had the Discovery assessment where it was found to not meet some of the service standards and actions have been implemented, and continue to be implemented, to resolve this.

4.71 Technology has progressed considerably since the last census in 2011 and NRS is adopting many new and improved technological systems and services to improve the quality of the Census programme as a whole. In particular NRS is adopting new and improved methods of capturing, processing and outputting the 2021 census data. However, the census in Scotland occurs only once every 10 years and it is vital that NRS puts measures in place to assure ourselves and our stakeholders that all systems will work as expected when it comes to census day and beyond. As Scotland's Census 2021 is Digital First⁵, NRS has an Online Collection Instrument (OCI) for capturing people's responses to the census questionnaire. This Online Collection Instrument will streamline how data is processed and quality checked before it is output via pre-built tables and a flexible table builder³³. The proving of the OCI system will take place during the census rehearsal in autumn 2019 to ensure all parts of the system work as expected before the census in 2021.

4.72 To ensure that NRS is able to monitor, understand and manage the response rates during Scotland's Census 2021, a Data Collection Operational Management System (DCOMS) has been implemented. The DCOMS system does not store any census data but instead is the internal facing system of Scotland's Census 2021, built to support the enumeration¹⁴⁹ strategy for the collection of the 2021 census by:

- Securely storing and producing information on return rates for the whole of Scotland in an agreed format so that other census systems can complete their requirements and processes with accuracy and ease;
- Securely receiving information on return rates from other systems to monitor the levels of non-responses throughout Scotland;
- Storing and passing information on return rates to Qlik, a reporting system, to produce accurate reports to monitor the data collection period of census and ensure the necessary enumeration support is implemented in a timely and efficient manner to areas where it is required;
- At the end of the collection period pass all the information stored in DCOMS across to a NRS internal system so that statisticians can complete further analysis on the collection period.

4.73 To ensure the utmost security in the DCOMS system, only dually trained individuals with permissions to carry out certain tasks are granted access. Due to the sensitive information being stored within DCOMS, users are restricted to only carry out tasks they have been trained and authorised to complete. Access to DCOMS is required by other IT systems to allow a two way flow of information between them. Reports on return rates will be regularly available when DCOMS becomes active for the 2021 data collection period and will only be discoverable by individuals with access permissions. Proving of the DCOMS system will take place during the census rehearsal in autumn 2019 to ensure all parts of the system work as expected alongside business processes before the census in 2021.

4.74 To ensure all parts of the Census Programme work as expected, NRS has developed and implemented a Test Strategy for all IT systems. The Test Strategy covers all activities which assess whether the functionality of the multiple census systems are fit for purpose. This includes whether the data quality of the online collection instrument and the output services are as expected. There are different levels of the Test Strategy that will be implemented before Scotland's Census 2021 goes live, including:

- System/In Sprint Testing which will test the isolated components of each part of the system;
- System Integration Testing which will test that multiple components work end to end and the data flows correctly and is reconciled;
- User Acceptance Testing which will involve the testing of parts of the system by subject matter experts or product owners within Scotland's Census 2021 team to ensure the business processes are proved to work prior to releasing to external stakeholders;
- Non-Functional Testing which covers a range of test elements from User Research and Usability Trials and will test accessibility and the overall performance of the Census systems as a whole in a live-like environment.

4.75 Maximising response is key to ensuring that we collect high quality data and as such we are developing targets to ensure that non-response follow-up activity by the field force is targeted to achieve this. It is intended that the field forces will be issued with a prioritised list of addresses to follow up to ensure that once we have reached our council area return targets we then work to equalise returns across our hard to count categories. We are also starting to consider what contingencies we might employ if our return/response rates are lower than expected, in particular whether we can use administrative data to help plug any gaps.

5. Value – producing statistics that support society's needs for information.

Principle V1. Relevance to users

Users of statistics and data should be at the centre of statistical production; their needs should be understood, their views sought and acted on, and their use of statistics supported¹.

5.1 The census aims to capture the whole population and has enormous value to its users because of this. The census provides a once in a decade opportunity to obtain an accurate, comprehensive and consistent picture of the population of Scotland in terms of its size and characteristics. However, the value of the data produced from the census can only be realised if the outputs are easy to access and meet users' needs.

5.2 Scotland's Census 2021 programme is engaged in extensive user research and will ensure users (respondents and data users), and their needs, remain at the centre of the design, build and test processes. Furthermore, this user-centred approach will be independently assured using the Scottish Government's Digital First Service Standard¹⁵⁰ and a series of associated 'Digital First' assurance assessments.

5.3 The Business Case for Scotland's Census 2021 will be regularly updated, and will reflect the value of the census – intermediate value as well as longer-term strategic benefits and opportunities NRS is seeking to realise. The last (unpublished) version of the Outline Business Case (OBC) was based on, amongst other things, the Beyond 2011 programme¹⁰⁶, a body of work conducted following the previous census, significant user consultation⁴ in 2015-16 regarding the proposed topics and, more recently, the question set itself⁷. The question set will obtain useful information from respondents whilst focussing on the needs of data users. The benefit potential at the OBC stage was approximately five times the estimated investment. The Business Case follows HM Treasury's guidance regarding business case appraisal and evaluation (e.g. The Green Book¹⁵²).

5.4 NRS conducted extensive consultation to define the range of products and services that were produced in 2011 and a similar approach is underway for what will

¹⁵² <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>

be produced in 2021. In particular, NRS has aimed to meet users' requirements for data at different levels of detail by producing data for 2011 at 16 different levels of geography subject to protecting the confidentiality of individuals' data.

5.5 There is an extensive value, number of uses and related benefits from Scotland's Census which contribute to the following two key areas:

- To inform policy, planning and funding decisions, and
- To target resources effectively.

5.6 Following 2011, NRS undertook a range of activity with users to identify the uses and benefits of Scotland's Census and it is evident that there are many. Uses of census outputs include Scottish Government using them to understand ageing and the impact on pensions, local authorities using them for housing demand and needs assessment, and third sector organisations using them to highlight inequalities or social problems, and use by the business and private sector for business planning and market research. The census dataset is also an excellent source for research and there are examples of several projects which directly draw on its data, for example, the post-doctoral research project "Scottish Muslims in Numbers" by Dr. Elshayyal at the Alwaleed Centre at the University of Edinburgh¹⁵³.

5.7 As part of the work to identify uses of census data, NRS sought feedback directly from users and asked for views on census outputs, especially what could be improved. Overall response was positive although some respondents were dissatisfied with the length of time it took for outputs to be produced.

5.8 The work on identifying and measuring uses and benefits will continue. NRS will report on this work as it evolves and will use the emerging results to feed into the business case and design of the 2021 census. NRS will continue to work with users to improve their experience of using census outputs and therefore to increase the impact and value of the census.

Principle V2. Accessibility

Statistics and data should be equally available to all, not given to some people before others. They should be published at a sufficient level of detail and remain publicly available¹.

¹⁵³ <https://www.ed.ac.uk/literatures-languages-cultures/alwaleed/muslims-in-britain/scottish-muslims-in-numbers>

5.9 As in 2011, the Scotland's Census 2021 website will be the main platform for the dissemination of outputs. To ensure that all outputs from the census are fully accessible by everyone at the same time, all data will be released in accordance with a preannounced schedule. NRS is also committed to ensuring that Scotland's Census website is accessible to the widest possible range of people¹⁵⁴.

5.10 NRS is currently undertaking a programme of user research on the online collection instrument. This is focussing on accessibility and user experience, specifically with groups identified as facing barriers to either (a) engaging with official processes or (b) accessing services on a digital platform. Included within this is the correspondence material that supports census, such as invitation letters, calling cards etc, to ensure the census service is maximised for users. User research on the digital presentation of the census questions themselves, and the question help content are included in the current user research programme.

5.11 Qualitative research focussing on the census information strategy is planned. This will focus on what information is important to the respondent, in what channels they expect to receive it, and whether the current designs meet respondents needs. This is due to be undertaken in March 2019, and will evaluate our correspondence and online platform.

5.12 Scotland's Census 2021 is billed as Digital First⁵ and NRS is aiming for an online response rate of 80%. Criteria 1 'User centred' and Criteria 2 'usable and accessible' of the Digital First service standards¹⁵⁰ have been used to ensure that the census team understand who the users of the service are and what that means for the design of the service. User research has been done, and continues to be done, with service users and their feedback taken on board as part of the design process. Users need to be able to complete the census without understanding government or technology. This includes service users needing assisted digital support such as screen readers. The provision of assisted digital support will be provided via outreach and the designated census contact centre. Personas and user journeys have been created, and are used by the project team, to keep the user at the centre of the design and review processes. This helps to ensure respondent burden is minimised where possible to provide a reliable and efficient user experience. After the census rehearsal in autumn 2019, the analytics from the rehearsal will be used to add quantitative data to the qualitative data and used to further improve the service if required.

¹⁵⁴ <https://www.scotlandscensus.gov.uk/accessibility>

5.13 In order to realise the greatest benefits from Scotland's Census 2021 data it needs to be made easily accessible and have the right content to meet user needs, subject to the constraints of protecting the confidentiality of personal census information and achieving value for money.

5.14 The current proposals for the 2021 census outputs have been informed by engagement with users and seek to build on the positive initiatives introduced through the 2011 census. This will include:

- Producing the first set of key outputs in March 2022 - rounded population statistics by sex and age (5 year age bands) by council area (CA);
- Producing a core set of standard census tables;
- Providing more functionality in creating tables by utilising a flexible table builder with in-built cell key perturbation;
- Producing non-standard outputs: Microdata sets, origin destination data and daytime/workplace population data;
- Creating interactive visualisations that link to the data to encourage a wider range of users to use the census data;
- Producing an updated website that coincides with the 2021 census data to improve the workflow and overall experience;
- Improving wider customer access to data by developing mobile-optimised products and providing Application Programming Interface (API) functionality. NRS also hopes to enable users to access UK level data from one place through the use of APIs.

5.15 Core outputs and tables will be published on Scotland's Census website. However, the number of standard tables will be reduced as the primary focus is to enable access to census data via a flexible table builder facility. The flexible table builder will enable users to create their own tables, so this will reduce the need for as wide a range of standard pre-built tables.

5.16 If a customer requires a table with a specific variable combination that is not available in the flexible table builder, customers can still commission a table from NRS for Scotland's Census 2021 data. However, we anticipate that the need for commissioned tables will be considerably reduced compared to 2011 as most data combinations should be available through the flexible table builder.

5.17 A second vital aspect of Scotland's Census data is ensuring that all of the census outputs are continuously available to those who want to use them. As such, the data from previous censuses in Scotland are still available to users. For example,

users can access the outputs from Scotland's Census 1991 and 2001¹⁵⁵, including reports, products and supporting information. Similarly, the outputs and products for Scotland's Census 2011 remain fully available for users¹⁵⁶ with commissioned outputs¹⁵⁷ still being requested, created and released for public use.

5.18 To help users easily access the data from previous censuses in Scotland, a range of tools were made available. For example, the Census Data Explorer allows users to navigate through the available data from Scotland's previous censuses. A guide on what data is available from Scotland's Census 2011 and how to access that data is available to help users¹⁵⁸. For all standard outputs produced from Scotland's Census 2011, users are able to select the tables with the information most relevant to them from the Standard Outputs web page¹⁵⁹. Data from the 2001 and 1991 censuses in Scotland are also available through the Standard Outputs web page.

5.19 Multiple help guides have been produced to assist users in accessing the data they require¹⁶⁰, including a visual guide on what census data is available and how to find it¹⁶¹. Concurrently, the Data Warehouse provides options for users to access and download large volumes of Scotland's Census 2011 data¹⁶². The census table index also provides a one-stop shop for all tables that are available for users to access for previous census data¹⁶³. Users can also use the search function on Scotland's Census website to find the data they require, whilst Area Profiles allow users to view and download a snapshot of results for a particular region, and compare up to three regions at once¹⁶⁴. To make Scotland's census data as accessible as possible, all releases are published and made available for download via Scotland's Census website.

Principle V3. Clarity and insight

Statistics and data should be presented clearly, explained meaningfully and provide authoritative insights that serve the public good¹.

¹⁵⁵ <https://www.scotlandscensus.gov.uk/productsresults>

¹⁵⁶ <https://www.scotlandscensus.gov.uk/census-results>

¹⁵⁷ <https://www.scotlandscensus.gov.uk/commissioned-outputs>

¹⁵⁸ <https://www.scotlandscensus.gov.uk/what-data-available>

¹⁵⁹ <https://www.scotlandscensus.gov.uk/ods-web/standard-outputs.html>

¹⁶⁰ <https://www.scotlandscensus.gov.uk/ods-web/home.html>

¹⁶¹ <https://www.scotlandscensus.gov.uk/how-use-census-data-explorer>

¹⁶² <https://www.scotlandscensus.gov.uk/ods-web/data-warehouse.html>

¹⁶³ <http://www.scotlandscensus.gov.uk/documents/cde/Census-Table-Index-2011.xlsm>

¹⁶⁴ <https://www.scotlandscensus.gov.uk/ods-web/area.html>

5.20 For over 200 years, the country has relied on the census to underpin national and local decision making. Some 200 countries worldwide now carry a regular census under the auspices of the United Nations (UN) census programme.

5.21 The census is the only survey of its kind to ask everyone in Scotland the same questions at the same time. No other survey provides the richness and range of information that the census does. It is widely acknowledged as playing a fundamental and unique role in the provision of comprehensive and robust population statistics.

5.22 Government, local authorities, the health service, the education and academic community, commercial businesses, professional organisations and the public at large all need reliable information on the number and characteristics of people and households if they are to conduct many of their activities effectively.

5.23 Government, in particular, needs this kind of information to form policy, to plan services for specific groups of people and to distribute resources effectively to local authorities and NHS Boards, in a way which matches needs. The information must be authoritative, accurate and comparable for all parts of Scotland down to very small levels of geography. Currently, only a census can provide the range of such information on a consistent basis.

5.24 Basic information on the population size, age, sex, and location is fundamental to the work of government, especially concerning:

- ageing and pensions;
- migration, both into and out of the country, and internally;
- economic growth (and thus government revenues); and
- labour supply.

5.25 Information on housing, household size and family make-up is fundamental to government policies in areas such as:

- local housing demand and planning; and
- inadequate accommodation and overcrowding.

5.26 Other information collected by the census enables government to:

- understand pressures on transport systems and the planning of roads and public transport, using information collected on travel to and from work or study and on car ownership;

- identify areas of deprivation so that effort can be targeted on improving their circumstances;
- gather evidence on equality groups in order to identify and appropriately tackle discrimination; and
- show how many people work in different occupations and industries throughout the country, helping government and businesses to plan jobs and training policies and to make informed investment decisions.

5.27 Census information is used for many social and economic indicators such as:

- estimates of the population;
- employment and unemployment rates;
- birth, death, mortality, and fertility rates;
- equalities monitoring – in particular by providing information on age, sex, ethnicity, religion, disability, gender identity, and sexual orientation in order to identify the extent and nature of disadvantage and to measure the success of equal opportunities policies; and
- enhancing sample survey data (including socio-economic surveys carried out by government and the private sector), without which the surveys would be less reliable or would need to be larger and more costly.

5.28 Census benchmarks underpin democratic engagement. For example, the Boundary Commission for Scotland takes account of population change to reshape the boundaries of Scottish and UK parliamentary constituencies.

5.29 The Scottish Government needs an effective means of allocating and targeting resources. The census results are used to benchmark the mid-year population estimates, which in turn are a key input to the planning and allocation of over £23 billion by the Scottish Government to local authorities¹⁶⁵ and health boards each year¹⁶⁶.

5.30 In addition to the work of the national government, census data drives targeting of local services such as:

- health services, for which census questions on illness are good predictors of demand;
- education, for which the census is useful in the siting of new schools;
- transport planning and traffic modelling;

¹⁶⁵ <https://news.gov.scot/news/budget-local-government-funding-settlement>

¹⁶⁶ <https://news.gov.scot/news/increased-funding-for-health-boards>

- development plans to ensure that development happens at the right locations; and
- community support services, including home help and home care.

5.31 The census is an excellent source of data for research. The Scottish Longitudinal Study (SLS) contains an anonymised representative five percent sample of the Scottish population linking information from the 1991, 2001, and 2011 censuses with birth, marriage, death and information from the NHS Central Register, cancer registration and hospital admissions and discharges¹⁶⁷. This provides an unrivalled source of information for the examination of how Scotland's population has changed over time. Research based on the SLS, and directly on the data from the census, increases understanding of social conditions and can shed light on the impact of past policies. One example is the use of longitudinal data to construct new measures of population ageing based on years of remaining life expectancy rather than years since birth¹⁶⁸.

5.32 Different people and organisations use census statistics in a variety of ways. NRS has published quotes from several organisations and groups reflecting their use of census data to inform the public good²¹, a few examples are shown here:

"The Scotland's Census data enable us to demonstrate with authority that there are Jewish people in all local authorities and health board areas and to show the distribution across the country." - Scottish Council of Jewish Communities.

"The KnowFife Dataset is a partnership with NHS Fife and Fife Council. We are in the process of adding Scotland's Census 2011 data to our dataset webpage, including interactive maps, charts, and data tables, as well as reports and profiles available at a range of local Fife geographies." - KnowFife Dataset.

"We recently used Scottish census data to update our National Population Database which we use on behalf of the Health and Safety Executive and other Government departments for estimating the numbers of people at risk from man-made and natural hazards." - Health & Safety Laboratory Buxton, Derbyshire.

"From congregations on the streets of our largest cities and smallest communities alike, to those who work on their behalf in resourcing and policy making, the data

¹⁶⁷ <https://sls.lscs.ac.uk/>

¹⁶⁸ https://sls.lscs.ac.uk/projects/view/2013_003/

available in Scotland's Census 2011 is invaluable in serving all of the people of Scotland.” – Church of Scotland.

5.33 In June and July 2015, NRS undertook Scotland's Census 2011 User Satisfaction survey¹⁴⁵ which was a survey of known census data users to assess the value of the census to users and how this could be improved. The survey asked for views on:

- use of census outputs and products,
- how well they felt that the outputs were publicised,
- the accessibility of the outputs and other information on Scotland's Census website,
- overall satisfaction with the outputs, and
- suggestions users have for future outputs and their dissemination.

Overall, the responses to the Scotland's Census User Satisfaction Survey¹⁶² were very encouraging. Users were broadly satisfied with the access to Scotland's Census data via Scotland's Census website, the sections of the website and products that are available. The comments received around how NRS has responded to enquiries and requests around Scotland's Census 2011 were also very encouraging as was the feedback around the way in which NRS consulted users about plans and kept users informed about census outputs.

5.34 To ensure that the results from Scotland's Census 2021 are presented clearly, explained meaningfully and provide authoritative insights that are of benefit to the public good, NRS has made it a priority to understand what the users of census data need. Specifically, the team that are responsible for producing the outputs for Scotland's Census 2021 will embark on a varied and thorough course of conversations, workshops, events and planning sessions with stakeholder groups across the country to build a clear picture of what formats they would like to see census outputs produced. For example, there is ongoing work into how the outputs will be disseminated. The current plan is to produce a set of pre-built tables that users can download as they are, and to allow users access to the flexible table builder where they can create their own tables with their own specific variables. In addition, the outputs team produce reports and supporting metadata to enhance the understanding of census data. There is also ongoing work investigating website and user interface design and the use of infographics to express key census statistics, all of which will be thoroughly user tested before implementation.

Principle V4. Innovation and improvement

Statistics producers should be creative and motivated to improve statistics and data, recognising the potential to harness technological advances for the development of all parts of the production and dissemination process¹.

5.35 The initial high-level design for the 2021 census is shaped by:

- the successes of and lessons learned from the 2011 census;
- developments and lessons learned in international census taking;
- requirements from the user community about the types, quality, frequency and detail of outputs required;
- changes in technology, in particular the opportunities and challenges offered by the internet, and changes in the willingness of the public to use technology in order to interact with government;
- improvements in administrative data sources (such as the NHS Central Register) and the potential for linking administrative data with census data;
- information and evidence gained through the carrying out of various Impact Assessments.

The census design will develop as the different design elements are researched and tested. Elements will be tested independently and in relation to other components and processes. NRS will also assess and implement appropriate new opportunities as they emerge.

5.36 NRS has identified design principles that will guide the development and implementation of the design for Scotland's Census 2021. These include:

- employing operational and statistical methods to deliver the highest quality population estimates by age and sex at local authority level;
- using the elements of the 2011 census that worked well and are still relevant;
- embracing new technologies and methods where appropriate;
- designing for online first, including a range of device formats, and making it as easy as possible for the public to respond;
- seeking to minimise the respondent burden on the public;
- testing the census design iteratively to assure us, and stakeholders, of the underlying system, processes, and security of the overall design;
- attempting to get a response from every person and household in Scotland;
- maximising appropriate use of administrative data in all areas of the operation & processing;
- estimating and adjusting the results to account for over and under enumeration as in the previous two censuses;

- making the first results available more quickly than results from the 2011 census and completing the full suite of outputs (still to be defined) more quickly as well.

5.37 The main changes for Scotland's Census 2021 compared to 2011 will include:

- it will be carried out primarily online;
- most households will receive an internet access code via the post - there will be very limited hand-delivery of materials by census staff;
- there will be targeted follow-up of non-responding households;
- outputs will be provided in a more flexible way.

5.38 NRS has worked towards developing questions which deliver statistics which meet user needs in an efficient way. In order to maximise response, development of the online collection instrument (OCI) means that the people of Scotland will be able to complete their census questionnaire on a range of devices. User testing of the OCI will ensure the platform is easy to use for respondents.

5.39 As Scotland's Census 2021 is Digital First⁵, question development has focussed on developing questions primarily for a digital platform, embracing the opportunities this brings to format questions online which improve respondent understanding and experience. To support this, question testing has been undertaken to understand any impacts on census outputs where questions may be formatted differently online and on paper.

5.40 Other innovation opportunities that Digital First has provided include the ability to introduce question validation, which will assist users in correctly responding to the questionnaire, and user-optimised indexes which present potential question responses to users as they type their responses online. These innovations will be further refined during user engagement as part of the various testing phases of the OCI as well as during the census rehearsal in autumn 2019. The refining of these innovations will add value to the data collected by providing the opportunity for NRS to fine tune user-optimised index content and adjust the level and types of validation used in the census ahead of the main census in 2021.

5.41 Collaboration with other statistical agencies on the statistical approach to data processing will add value to the Scottish census through innovations in the Edit and Imputation (E&I) process. The innovations in data processing will contribute to a more holistic running of data cleansing activities using Canadian software and allowing enhancements to be made to other processes through working groups with representatives from across the UK. This collaboration has allowed statisticians in

Scotland's Census 2021 to provide their expertise in the research and development of the coverage adjustment methodology, sharing the best practices they have developed through previous experiences of running the processes.

5.40 A key innovation for Scotland's Census 2021 will be the development of a flexible table builder that enables users to create their own tables that meet their specific needs. Statistical Disclosure Control is used to prevent the release of any data that could lead to identification or disclosure of information about individuals or households. In 2011, NRS used targeted record swapping and table redesign to protect against disclosure. This was a time consuming process as every table had to be manually checked for disclosure. This delayed the release of outputs and meant that users did not always receive the table they wanted.

5.41 A stakeholder event was held in September 2017 to introduce and get feedback from users on the proposed flexible table builder and statistical disclosure control methods for Scotland's Census 2021 outputs³³. For the 2021 census NRS is planning to continue using targeted record swapping, but will combine this with cell key perturbation rather than table redesign. A similar method is currently used by the Australian Bureau of Statistics on their census data. This method makes small changes to some of the cells in a table to add more uncertainty to protect against disclosure, particularly disclosure which occurs when one table is compared to other tables with similar data. Therefore, this method will allow users to create their own tables and would speed up the release of the data.

5.42 NRS is also proposing a mobile friendly site or app to allow users to easily access high level data on a range of devices. Stakeholders thought that this could be useful, but had no preference for an app over a website.

5.43 For 2021, NRS intend to redesign the table search function to allow users to search by variable name or geography rather than the table number. NRS also plan to enable users to select an area from the map first so that the search lists all tables available for that geography. Stakeholders liked the move away from searching by table number.

5.44 There will be an increased use of administrative data in the production of census 2021 outputs. The linking of administration data will add value to the quality assurance processes. With the introduction of these new processes, care and consideration will be given to the impact of comparability and coherence of census data.

5.45 NRS plans to provide Application Programming Interface (API) functionality, alongside the flexible table builder, to allow users to manipulate the data using different Integrated Development Environments (IDE). API functionality also has the potential to enable users to pull out UK data from one source, where UK comparable census data is available.

Principle V5. Efficiency and proportionality

Statistics and data should be published in forms that enable their reuse. Producers should use existing data wherever possible and only ask for more where justified¹.

5.46 Carrying out a census of the entire population at one point in time is a very large, expensive and complex undertaking. The planning for such an exercise is extensive and it takes some time for all of the information to be processed and published. Furthermore, it is often felt that the information being collected as part of the census is already held by government in some way.

5.47 Following on from the 2011 census, NRS, in conjunction with other UK census offices, explored whether there were alternative ways to produce statistics on the size and characteristics of the population. NRS had an open mind in identifying potential options and examined and compared various approaches to counting the population, both here and overseas, engaged with a diverse group of users, commentators and public bodies, and undertook qualitative and quantitative research into attitudes to the census and population statistics.

5.48 Having considered all of the evidence, NRS recommended in March 2014 that a modernised 'traditional' census was the best way to meet users' needs at this point in time. As part of the work to deliver the 2021 census, NRS continues to investigate the use of administrative data both to improve the current census and also as a way to deliver population statistics in the future.

5.49 For the production of census outputs in 2021, NRS will follow the Scottish Government's Open Data Strategy¹⁶⁹. Open data is non-personal and non-commercially sensitive. Open data is easily discoverable, accessible to anyone and able to be freely used, re-used and redistributed by anyone. Open Data is data made available, via the internet, in an electronic format which supports its ready reuse, and with open licensing which allows its reuse. All standard outputs from Scotland's

¹⁶⁹ <https://www.gov.scot/publications/open-data-strategy/pages/6/>

Census 2021 will be open data subject to protecting the confidentiality of individual's data.

6. Appendices

6.1 Appendix 1. Example of a Terms of Reference: Outputs and Dissemination Harmonisation Working Group Terms of Reference

Purpose

In support of the Registrars General and National Statistician's agreement, to work towards the harmonisation of key outputs, through:

- Sharing of testing, research and methodological outcomes;
- Developing and managing shared stakeholder engagement plans (including consultations) wherever possible.
- Ensuring (and understanding differences with) NS Harmonised questions and definitions

Scope

Harmonisation of SDC approach is fundamental. Identifying the requirements for UK outputs will help clarify priorities and understanding about what must be harmonised and what might be acceptable differences. Where there are acceptable differences we would clarify whether there is a way of combining the data or whether metadata describing differences and reasons for differences is sufficient.

Topics to be considered for UK harmonisation:

- Statistical disclosure control - methods and application
- Dissemination approach and timing
- Output content and products (standard and specialist incl. origin-destination)
- EU requirements including grid square geog
- Specification and testing of DVOs/variable classifications
- Product plan and timetable
- Access to product policies and plans
- Geography (including Eurostat requirement for grids)
- Metadata and associated commentary plans
- Stakeholder engagement plans (timing and content)
- Ensuring consistency, where relevant, with NS harmonised categorisations


Ways of working

Regular audio meetings (monthly)

Email correspondence

Face to face meetings as required

6.2 Appendix 2. Screen shot of a revised table including footnotes explaining a) revisions made, and b) Statistical Disclosure Controls.



Standard Outputs

Main Menu Area Profiles Maps and Charts Standard Outputs Data Warehouse Supporting Information

Print Table

Download Table: Excel 2007 (xlsx) (max 16,384 columns x 85,000 rows and < 100,000 cells) Go

Wafers: Scotland Scottish Council Area 2011
Cell count: 44 (4 x 11 x 1) total.

Scotland's Census 2011 - National Records of Scotland
Table DC7402SC - Distance travelled (1) to work by car or van availability
All people aged 16 to 74 in households in employment the week before the census (excluding full-time students)

Cars or vans, number of	All people aged 16 to 74 in households in employment	Number of cars or vans in household: No cars or vans	Number of cars or vans in household: One car or van	Number of cars or vans in household: Two or more cars or vans
Distance to place of work or study				
All people aged 16 to 74 in households in employment	2,390,595	314,494	932,787	1,143,314
Work mainly at or from home	254,799	34,111	93,650	127,038
Less than 2km	395,988	87,566	176,614	135,808
2km to less than 5km	422,332	76,051	181,249	165,032
5km to less than 10km	387,884	45,165	154,114	188,605
10km to less than 20km	347,893	24,514	126,887	196,492
20km to less than 30km	148,454	7,964	49,827	90,663
30km to less than 40km	68,499	3,567	22,399	42,533
40km to less than 60km	51,183	2,594	16,374	32,215
60km and over	47,429	3,656	16,024	27,749
Other (2)	262,134	29,306	95,649	137,179

(1) The distance travelled is a calculation of the straight line between the postcode of place of residence and postcode of workplace.
(2) Includes no fixed place of work, working on an offshore installation and working outside the UK.

An error has been found in the calculation of grouped distance travelled to work or place of study. This table contains the uncorrected results for this variable.
For more detail please see www.scotlandscensus.gov.uk/revisions-and-corrections. Should you require any further information about this correction please contact statisticscustomerservices@nscotland.gov.uk.

Crown copyright 2014
For further information on variables, see www.scotlandscensus.gov.uk/variables
In order to protect against disclosure of personal information, some records have been swapped between different geographic areas. Some cell values will be affected, particularly small values at the most detailed geographies.

6.3 Appendix 3. The objectives of Scotland's Census 2021 and how they align with the Code of Practice for Statistics.

Census Objectives ("What we are seeking to achieve")	How we will achieve this?	Alignment to National Statistics Pillars		
		Trust-worthiness	Quality	Value
(1) We will produce high quality results	We will maximise our overall person response rate		X	
	We will ensure a minimum level of response with every local authority in Scotland		X	
	We will maximise the accuracy of our national population estimates		X	
	We will maximise the accuracy of our local authority population estimates		X	
	We will minimise the non response to all mandatory questions		X	
	Our data will demonstrate high agreement rates with post coverage quality surveys	X	X	
	All national and local authority level results for each main release will be assessed by a quality assurance panel	X	X	
	We will publish details of methods and full details of all our data quality indicators	X	X	
	We will publish the results of an independent methodology review	X	X	
	We will maintain our National Statistics Accreditation	X	X	X
(2) We will generate Outputs that meets the needs of our Users	Our question set will be based on evidenced user need	X		
	We will demonstrate stakeholder satisfaction			X
	Questions will have been subject to Parliamentary scrutiny	X		
	We will have undertaken extensive testing, incorporated feedback and have published the results of the testing			X

	We will evidence the use of outputs to deliver benefits across a range of sectors in Scotland.			X
	Our 'disseminate' service will embrace digitally-enabled public services with user experience at the heart	X		X
(3) We will maximise online response rates for the Census	We will adopt an online first approach to data collection			X
	Our 'Collect' service will embrace digitally-enabled public services, with user experience at its heart	X		X
(4) We will deliver our Outputs in a timely fashion	Our outputs will be produced in line with pre-announced timetable	X		X
	Our first set of results will be produced within 12 months of census day	X		X
	All other standard outputs will be produced within 24 months of census day	X		X
	Our outputs will be produced as open data and will be easily accessible in a range of formats			X
	There will be free and equal access to outputs (incl. Supplementary outputs where appropriate)			X
	Our outputs will continue to be available in the future as a point of reference			X
(5) The Census will maximise benefits to the People of Scotland	We will grow the range of users of Census data			X
	We will work to raise awareness of census data to ensure that Public sector decision making based on Census data will be 'better'			X
(6) We will protect – and be seen to protect – the Publics' data	We will have no data breaches	X		
	Our services and systems will have been thoroughly tested and accredited	X		
(7) We will deliver the Census in a cost-effective way	Cost/benefits of the Census will be in line with our Business Case			X
	The respondent burden will be acceptable	X		X
	We will adhere to the commercial strategy (Re-use before buy before build)			X
	We will use administrative data to lower costs and/or improve quality			X
		12	9	19

6.4 Appendix 4. When the success of Scotland's Census 2021 objectives will be measured.

Census Objectives ("What we are seeking to achieve")	How will we achieve this?			
		Before	During	After
1. We will produce high quality results	We will maximise our overall person response rate	X	X	
	We will ensure a minimum level of response with every local authority in Scotland	X	X	
	We will maximise the accuracy of our national population estimates	X	X	X
	We will maximise the accuracy of our local authority population estimates	X	X	X
	We will minimise the non-response to all mandatory questions	X	X	
	Our data will demonstrate high agreement rates with post coverage quality surveys	X		X
	All national and local authority level results for each main release will be assessed by a quality assurance panel			X
	We will publish details of methods and full details of all our data quality indicators			X
	We will publish the results of an independent methodology review	X		
	We will maintain our National Statistics Accreditation	X	X	X
(2) We will generate Outputs that meets the needs of our Users	Our question set will be based on evidenced user need	X		
	We will demonstrate stakeholder satisfaction	X	X	X
	Questions will have been subject to Parliamentary scrutiny	X	X	X
	We will have undertaken extensive testing, incorporated feedback and have published the results of the testing	X		

	We will evidence the use of outputs to deliver benefits across a range of sectors in Scotland.			X
	Our 'disseminate' service will embrace digitally-enabled public services with user experience at the heart	X		X
(3) We will maximise online response rates for the Census	We will adopt an online first approach to data collection	X	X	
	Our 'Collect' service will embrace digitally-enabled public services, with user experience at its heart	X	X	
(4) We will deliver our Outputs in a timely fashion	Our outputs will be produced in line with pre-announced timetable			X
	Our first set of results will be produced within 12 months of census day			X
	All other standard outputs will be produced within 24 months of census day			X
	Our outputs will be produced as open data and will be easily accessible in a range of formats			X
	There will be free and equal access to outputs (incl. Supplementary outputs where appropriate)			X
	Our outputs will continue to be available in the future as a point of reference			X
(5) The Census will maximise benefits to the People of Scotland	We will grow the range of users of Census data	X	X	X
	We will work to raise awareness of census data to ensure that Public sector decision making based on Census data will be 'better'	X	X	X
(6) We will protect – and be seen to protect – the Publics' data	We will have no data breaches	X	X	X
	Our services and systems will have been thoroughly tested and accredited	X		
(7) We will deliver the Census in a cost-effective way	Cost/benefits of the Census will be in line with our Business Case	X	X	X
	The respondent burden will be acceptable	X	X	

	We will adhere to the commercial strategy (Re-use before buy before build)	X		
	We will use administrative data to lower costs and/or improve quality	X	X	X
		21	16	20

6.5 Appendix 5. Measures of Success for Scotland's Census 2021 objectives.

Census Objectives ("What we are seeking to achieve")	How will we achieve this?	How will we measure success? (Level 1 KPIs ¹ and acceptance levels) TBC
(1) We will produce high quality results	We will maximise our overall person response rate	Person response rate ² of at least 94%
	We will ensure a minimum level of response with every local authority in Scotland	Person response rate in every council area of at least 85%.
	We will maximise the accuracy of our national population estimates	Variability ³ : national estimates will achieve 95% CI +/- 0.4%; Bias: < 0.5%
	We will maximise the accuracy of our local authority population estimates	Variability ⁴ : council area estimates will achieve 95% CI +/- 3%
	We will minimise the non-response to all mandatory questions	Achieve or exceed target non-response rates for all mandatory questions
	Our data will demonstrate high agreement rates with post coverage quality surveys	Agreement rates of at least xx% achieved for all questions (TBC)
	All national and local authority level results for each main release will be assessed by a quality assurance panel	Undertaken with no residual issues remaining
	We will publish details of methods and full details of all our data quality indicators	Published on our website
	We will publish the results of an independent methodology review	Positive review published.
	We will maintain our National Statistics Accreditation	Accreditation maintained throughout

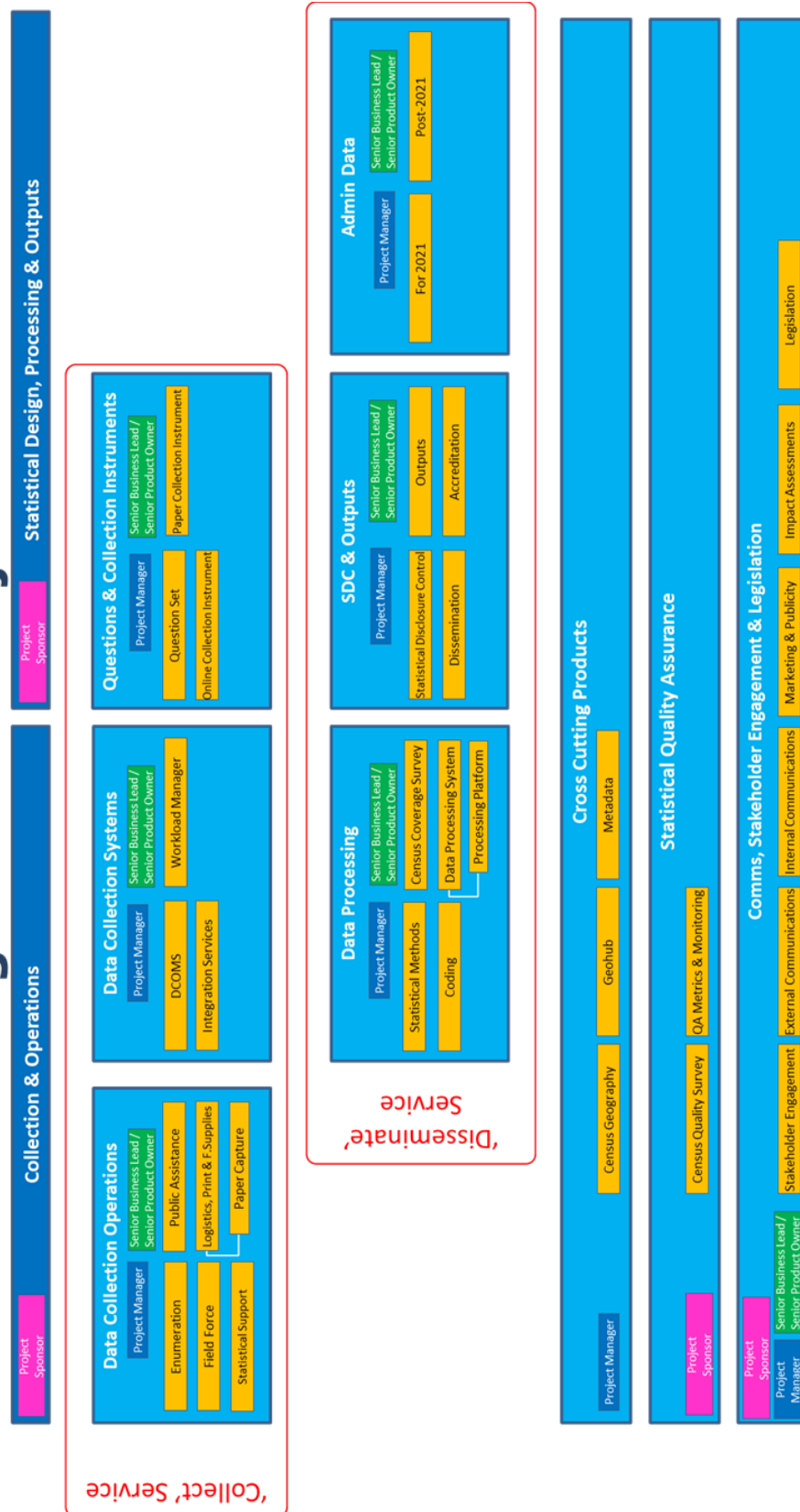
(2) We will generate Outputs that meets the needs of our Users	Our question set will be based on evidenced user need	Publish our topic reports of engagement with stakeholders and users
	We will demonstrate stakeholder satisfaction	Publish our topic reports of engagement with stakeholders and users
		Publish user satisfaction survey results (TBC)
		Positive assessments for all three National Statistics Assessment stages
	Questions will have been subject to Parliamentary scrutiny	Making any changes on the back of scrutiny before the census
	We will have undertaken extensive testing, incorporated feedback and have published the results of the testing	Well planned and successful testing and publishing of the results. Key stakeholders content.
	We will evidence the use of outputs to deliver benefits across a range of sectors in Scotland.	Quantified user benefits realised. Additional outputs produced for key priorities.
	Our 'disseminate' service will embrace digitally-enabled public services with user experience at the heart	Pass the D1 Assessment, Positive user experience (measure to be defined)
(3) We will maximise online response rates for the Census	We will adopt an online first approach to data collection	At least 70% of person responses received online ^{5,6}
	Our 'Collect' service will embrace digitally-enabled public services, with user experience at its heart	Pass the D1 Assessment, Positive user experience (measure to be defined)
(4) We will deliver our Outputs in a timely fashion	Our outputs will be produced in line with pre-announced timetable	All outputs are preannounced in advance and dates achieved
	Our first set of results will be produced within 12 months of census day	First outputs within 12 months of census day (population estimates by 5-year age band and sex). ⁷
	All other standard outputs will be produced within 24 months of census day	All priority outputs published within 24 months of census day (timetable to be confirmed in advance through research and user consultation).
	Our outputs will be produced as open data and will be easily accessible in a range of formats	Open data standards achieved

	There will be free and equal access to outputs (incl. Supplementary outputs where appropriate)	Outputs will be published on our website in a range of formats with other formats available on request
	Our outputs will continue to be available in the future as a point of reference	We will maintain access to outputs
(5) The Census will maximise benefits to the People of Scotland	We will grow the range of users of Census data	TBC
	We will work to raise awareness of census data to ensure that Public sector decision making based on Census data will be 'better'	TBC
(6) We will protect – and be seen to protect – the Public's data	We will have no data breaches	We will have no data breaches before, during and after
	Our services and systems will have been thoroughly tested and accredited	The 2021 Census achieves, and can evidence, all security commitments included in public plans (such as the Government Statement) and the Programme's DPIA.
		KPI to be added reflecting security testing outcomes.
		Revised accreditation process: list all business areas approving key systems and services.
		Engagement with ICO.
		Independent security review published. ⁸
		Feedback sought on plans, particularly the PIA.
(7) We will deliver the Census in a cost-effective way	Cost/benefits of the Census will be in line with our Business Case	TBC
	The respondent burden ⁹ will be acceptable	Evaluation Matrix from User Needs, Content and Benefits ¹⁰
	We will adhere to the commercial strategy (Re-use before buy, buy before build)	Evidence from our procurement decisions
		Procurement / gateway reviews

	We will use administrative data to lower costs and/or improve quality	TBC
<p>Notes:</p> <ol style="list-style-type: none"> 1. Lower-level KPIs may sit below individual Level 1 KPIs. For example, Census Security have produced a table showing the lower-level KPIs for the Programme Objective "Protect, and be seen to protect, confidential information". 2. Precise measure for person response rate to be defined. 3. This target is under review. It is based on the document: "Scotland's Census 2021 - Estimation and Adjustment". A target of 0.2% (as adopted by ONS) is expected to be difficult to achieve, due to Scotland's smaller population and smaller sample size for the Census Coverage Survey. 4. This target is under review. It is based on the document: "Scotland's Census 2021 - Estimation and Adjustment". 5. Precise measure for percentage of person responses received online to be defined. 6. An aspirational target of 80% of returns received online has been adopted. The 70% Acceptance Level for this KPI will be reviewed following the results of the census rehearsal. 7. In general, age/sex level estimates should show minimal variation in precision across council areas without compromising estimate accuracy. 8. The independent security review will cover the lifespan of the census programme. As such, it may comprise several security "check points" each corresponding to a key stage of the Programme. 9. Respondent burden principally refers to any person completing the census questionnaire; it may also extend to other government departments or organisations assisting the census programme. 10. The matrix will indicate how difficult a respondent is likely to find answering individual questions. 		

6.6 Appendix 6. Scotland's Census 2021 Project Structure Diagram

Census Programme – Project Structure



6.7 Appendix 7. Census Confidentiality Agreement

CONFIDENTIALITY OF PERSONAL CENSUS INFORMATION

The success of the census depends on everyone in Scotland providing information about themselves. We cannot expect them to do that, if they fear that their details will be made public. So section 8 of the Census Act 1920 makes it **a criminal offence to disclose that 'personal census information'** without lawful authority. Everyone working on the census, whether they are employed by the Registrar General or work for a company providing services to the Registrar General in connection with the Census, is subject to the strict confidentiality provisions of the Census Act 1920 and the Census (Scotland) Regulations 2010.

Everyone working with (or who has access to) personal census information must sign a **Census Confidentiality Undertaking** to confirm that they understand these legal obligations and are aware of the penalties for unlawful disclosure or use of the information, or failure to keep it safe.

Please read the extracts provided below from the Census Act 1920 and the Census (Scotland) Regulations) 2010. When you have done so, you are required to sign the **Census Confidentiality Undertaking** which will be kept by the National Records of Scotland and may be used for criminal investigations into possible offences.



Registrar General for Scotland

The Census Act 1920

Section 8 of the Census Act 1920, as amended by the Census (Confidentiality) Act 1991, states:

"8(1) If any person -

(a) refuses or neglects to comply with or acts in contravention of any of the provisions of this Act or any Order in Council or regulations made under this Act he shall for each offence be liable on summary conviction to a fine not exceeding level 3 on the standard scale [currently £1,000].

8(2) If the Registrar General for Scotland or any person who is -

(a) under the control of either of the Registrars; or

(b) a supplier of any services to either of them

discloses any personal Census information to another person, without lawful authority, he shall be guilty of an offence.

8(3) If any person discloses to another person any personal census information which he knows has been disclosed in contravention of this Act, he shall be guilty of an offence.

8(4) It shall be a defence for a person charged with an offence under subsection (2) or (3) to prove

(a) that at the time of the alleged offence he believed-

(i) that he was acting with lawful authority; or

(ii) that the information in question was not personal Census information; and

(b) that he had no reasonable cause to believe otherwise.

8(5) A person guilty of an offence under subsection (2) or (3) shall be liable -

(a) on summary conviction, to imprisonment for a term not exceeding six months or to a fine not exceeding the statutory maximum [currently £10,000] or to both;

(b) on conviction on indictment, to imprisonment for a term not exceeding two years or to a fine or to both.

8(6) For the purposes of this section -

(a) references to a Registrar include, where he is also the holder of a designated office, references to him in his capacity as the holder of that office;

(b) a person is to be treated as under the control of one of the Registrars if he is, or has been -

(i) employed by that Registrar (whether or not on a full-time basis); or

(ii) otherwise employed, or acting, (whether or not on a full-time basis) as part of that Registrar's staff for purposes of this Act;

(c) a person is to be treated as a supplier of services to a Registrar if he -

(i) supplies, or has supplied, any services to that Registrar in connection with the discharge by that Registrar of any of his functions; or

(ii) is, or has been, employed by such a supplier.

8(7) In this section -

"census information" means any information which is -

(i) acquired by any person mentioned in subsection (2) above in the course of any work done by him in connection with the discharge of functions under section 2 or 4 of this Act;

(ii) acquired by any such person in the course of working, for purposes of section 5 of this Act, with any information acquired as mentioned in sub-paragraph (i) above; or

(iii) derived from any information so acquired.

“designated office”, in relation to a Registrar, means any office for the time being designated by him in writing for the purposes of this section; and

“personal Census information” means any Census information which relates to an identifiable person or household.

The Census (Scotland) Regulations 2010

Regulations 18 and 19 of the Census (Scotland) Regulations 2010, state:

18. Any person having the custody, whether on that person’s behalf or on behalf of any other person, of any forms of return or other documents (including electronic documents) containing personal census information must keep such forms and documents in such a manner as to prevent any unauthorised person having access to them.

19. A person to whom information is given pursuant to the Census Order and these Regulations must not, other than for the purposes of the Act -

(a) make use of that information; or

(b) publish it or communicate it to any other person.

This is an important document. Please read it carefully and keep it in a safe place.

I have read section 8 of the Census Act 1920, as amended by the Census (Confidentiality) Act 1991, and regulations 18 and 19 of the Census (Scotland) Regulations 2010.

I understand and acknowledge the obligations of confidentiality and the conditions on which census information (including information on identifiable individuals and households) can be held, used and disclosed as set out in the Census legislation.

I understand that it is an offence under section 8(2) of the Census Act 1920 to disclose any personal census information to another person without lawful authority and that convictions for such an offence may result in a criminal record and fine and/or up to two years imprisonment. I also understand that it is an offence under section 8(1) of the Census Act 1920 to fail to comply with the provisions on safekeeping and use of information in regulations 18 and 19 of the Census (Scotland) Regulations 2010, and that the penalty for such an offence is a fine of up to £1,000.

I undertake to comply with this legislation.

I also undertake to report any concerns I have about the confidentiality of census information, whether arising from my own duties and actions or those of others, to the Census 2021 Programme Management Office at: censuspmo@nrscotland.gov.uk

Please sign the form below and then detach it and pass it to the Programme Management Office, NRS, Room 2/1/1, Ladywell House, Edinburgh. Please retain the rest of this paper for your own reference.

I have read section 8 of the Census Act 1920, as amended by the Census (Confidentiality) Act 1991, and regulations 18 and 19 of the Census (Scotland) Regulations 2010.

I understand and acknowledge the obligations of confidentiality and the conditions on which census information (including information on identifiable individuals and households) can be held, used and disclosed as set out in the Census legislation.

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I undertake to comply with this legislation.

I also undertake to report any concerns I have about the confidentiality of census information, whether arising from my own duties and actions or those of others, to the Census 2021 Programme Management Office at: censuspmo@nrscotland.gov.uk

Signed _____ **Date** _____

Full name _____ (Block letters)

Job Title _____

Team/Location _____