Census and Data Collection Transformation Programme

Update to the Full Business Case – September 2020

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Full Business Case as approved October 2019

1 Executive Summary

Economic, population, social and business statistics are vital for informing policy and decision making nationally, locally and within communities. The detailed picture of the nation that the Office for National Statistics (ONS) provides is highly valued across society.

Central government uses ONS statistics for allocating resources and funding; in public policy research; and to inform capital investment decisions. Local authorities use ONS statistics to inform expenditure decisions, particularly in relation to public health, social care, education, transport and housing. Commercial sector organisations use small-area census data to plan new investment; life insurance, banking and management and consultancy sectors use census data in planning their activities.

Once every ten years a census provides an opportunity to build a detailed and comprehensive picture of the nation. With the unprecedented levels of change in society at present, both technologically and socially, the Census and Data Collection Transformation Programme (CDCTP) will ensure the country will have the people, technology and data needed to monitor the changes across the nation. The value of the programme is realised through the hospitals and schools built in areas of most need, the public services provided and the fairness of recruitment by employers who want to reflect the community in which they serve.

We also know that once every ten years is not frequent enough for a rapidly changing society. Decision-makers would welcome quicker insights into changes in the population and the society we are living in. Meanwhile technology changes mean that how we collect and give these insights through the census, business surveys and social surveys needs to keep pace with this.

The Government published a white paper in 2018 (Help Shape our Future: The 2021 Census of population and housing in England and Wales) which set out recommendations for the content and conduct of the 2021 Census. Consequently, during the spring of 2020, both the Census Order and Census Regulations were laid before the UK Parliament and Senedd Cymru and are now in force.

In the context of unprecedented levels of change within society, and against the backdrop of the UK's planned withdrawal from the European Union, the breadth and detail that ONS provides will continue to play a vital role by enabling organisations, communities and individuals make informed decisions and choices, and by influencing national debate.

The COVID-19 pandemic has shown how vital rapid insights of high quality into the changing nature of our society and economy are. This business case shows those benefits have already begun to be realised but also recognise that we are likely to be delivering the Census in quite unique circumstances. However, the US Census has shown that high response rates are still achievable even during a pandemic.

The Census Data Collection Transformation Programme (CDCTP) has three elements:

1. The main census (for England and Wales) which will deliver a predominantly online census of all households and communal establishments with special care taken to support those who are unable to complete the Census online. The approach to the Census will deliver improved and expanded population statistics through increased

use of administrative data and surveys. The aim for the 2021 Census is to deliver results that reflect the country we live in today. It will meet stringent quality targets set at the same levels as 2011. We have developed our approach to ensure this can be done safely and securely under covid-19

2. The Census will provide evidence to enable a decision in 2023 about the future provision of population statistics after this Census. A new system of population and migration statistics will be delivered in 2020 – better measuring population change than existing surveys. This supports the research through the Administrative Data Census which looks at the full range of Census variables; and

3. Delivering the widest possible transformation of ONS systems and collections from the investment in the Census.

    a. Data Collection Transformation (DCT) will modernise ONS's data collection activities. This delivers efficiencies through the greater use of administrative data and survey data collected online.
    b. The renewal of our technology infrastructure will support the delivery of the data collection transformation and the Census through common digital platforms. This supports transformation across the whole of ONS.

The benefits of the programme have been shown by the capability already developed through CDCTP being able to be deployed quickly to help manage the pandemic. This included:

- The online Labour Market Survey (LMS) being used to recruit to the COVID-19 Infection Survey and key suppliers from across the programme were able to be deployed to ensure we could monitor the prevalence of COVID-19 both within the community and in other settings

- The online Opinions and Lifestyle Survey (OPN) was quickly repositioned to provide weekly monitoring of the impacts on society, compliance with rules and lockdown and impact on mental health and wellbeing

- Our business survey infrastructure was deployed to provide fortnightly leading economic and labour market indicators covering furlough, impacts on turnover, business closures and more

The full benefits of the programme have been reviewed over a 17-year appraisal period, from 2015/16 to 2031/32. The Net Present Value (NPV) and Benefit to Cost Ratio (BCR) have been calculated. The 17-year appraisal period is representative of seven years pre-2021 Census (from 2015/16 when the Programme commenced to 2021/22 when the next census will be delivered), and ten years post-2021 Census when the benefits of the census are expected to accrue. The benefits delivered through the data collection transformation are expected to accrue over a ten-year period, running from 2016/17 to 2025/26. 2020/21 is the base year for calculations, and the NPV and BCR are presented without sunk costs (in line with the Green Book) over the programme appraisal period.

- Pre-optimism bias, total programme benefits were £7.4bn. Post-optimism bias, total programme benefits were calculated as £5.6bn;

- The Net Present Value (the difference of discounted total benefits to discounted total costs) is £4.0bn post-optimism bias; and

The Benefit to Cost Ratio, post-optimism bias is 6.1:1. That implies that for each £1 of remaining investment, the programme will deliver at least £6 in benefits.

The majority of benefits continue to be with external users and organisations. Specifically, the benefits of small area census data which is used to improve decision making across central government, local government and private sector organisations. These benefits have been subjected to a full review. An extensive consultation exercise took place between December 2017 and January 2018 which has helped to better understand the benefit of census data to external users. ONS consulted with representatives from seventeen private sector organisations, nine central government departments and five local authority representatives to inform this work. An assumption was built into the plan that the value of census data to users decays at a rate of 5% per annum. This was then subjected to an optimism bias and sensitively analysis.

ONS is carrying out research and acquiring the use of administrative data. This enables the delivery of a new population and migration statistical framework with administrative data at the core. It will provide improved statistics for both migration and population ahead of the 2021 Census and for the 2021 Census outputs themselves. Further, the benefit of outputs to date has been to enable data users to consider whether the information published meets their needs, and to provide feedback. Through CDCTP, ONS aims to improve the accuracy, breadth and detail of these outputs. The programme is therefore an enabler for improved statistical data quality both before the census, from the 2021 Census and in the future. However, the delays to receipt of administrative data have reduced the value of the benefits to the programme over the time period outlined.

The total cost of the programme remains at £906 million. A full and detailed analysis of the programme spend has been undertaken. This reviewed the key assumptions and cost drivers for the programme, for example, levels of digital take up for the census and the size of the census field force, to assess the validity of the assumptions and how any residual risk needs to be managed from a contingency perspective.

Funding from within the business case has already supported the digital transformation currently underway. New online survey-data collection products have been created and successfully used by census during the 2019 Rehearsal as well as social and business surveys. In total, the programme's funding of digital transformation activities enables cost avoidance benefits for ONS totalling around £66 million as compared to building separate, bespoke systems for business areas.

The programme full business case was approved by HM Treasury in October 2019. The programme has been reviewed regularly by the Infrastructure and Projects Authority with Project Assessment Reviews (Jan 2017, July 2018), Critical Friend Reviews (July 2019) and formal Gateway Reviews (G0 Jan 2016, G2 Aug 2017, G3 Mar 2019, G0 July 2020). A further operational readiness review is planned for November 2020 to underpin preparations for 2021 Census delivery.

2   Strategic update

2.1   Organisational overview

The Office for National Statistics (ONS) is the principal provider of National Statistics in the UK. We provide authoritative statistical outputs covering the economy, population, and society. It is the executive office of the UK Statistics Authority (UKSA), an independent Non-Ministerial Government Department. The UK Statistics Authority has the statutory objective of promoting and safeguarding the production and publication of official statistics that 'serve the public good'.

UK Statistics Authority Strategic Objectives
ONS's previous strategy 'Better Statistics, Better Decisions' came to an end in early 2020 and, building on the achievement, the UKSA launched its new strategy 'Statistics for the Public Good' in July 2020. This sets out a vision to produce *High quality data and analysis to inform the UK, to improve lives and build the future.*

The strategy defines four core principles which will underpin the work of the statistical system over the next 5 years. The strategy states that ONS will be:

Radical	**In taking opportunities to innovate and collaborate, using data for the public good.**
	This means seizing opportunities and being prepared to take action, where the risks of inaction are often greater.
Ambitious	**In setting out to answer the critical research questions the public needs answers to, and informing the decisions that citizens, businesses and civil society take.**
	This means anticipating the data, insights, and understanding the UK needs. Being boldly innovative with our methods and sources, and responding rapidly and transparently to reach the widest audience we can.
Inclusive	**In our approach to workforce, talent management, and the design of data, statistics and analysis.**
	This means ensuring our statistics and our workforce reflect the experiences of everyone in our society so that everyone counts, and is counted, and no one is forgotten.
Sustainable	**In delivering a unique service in a way which delivers value for money through partnership and collaboration.**
	This means supporting and stewarding the UK's statistical infrastructure, and collaborating with the UKs scientific community, academia and the commercial sector, learning from each other.

Census and Data Collection Transformation Programme

The Census and Data Collection Transformation Programme can be viewed as three main strands of work, which will make a significant contribution to achievement of the wider UKSA strategic objectives.

Delivering a primarily online census to high quality in 2021. The main census (for England and Wales) will deliver a predominantly online census of all households and communal establishments with special care taken to support those who are unable to complete the census online. The approach to the census will deliver improved and expanded population statistics through increased use of administrative data and surveys. The aim for the 2021 Census is to deliver results that reflect the country we live in today by meeting stringent quality targets no less than delivered in the 2011 Census. These are outlined in Figure 1 of the business case and the Help Shape Our Future publication.

Ensuring the widest possible transformation of ONS systems and collections. Data collection transformation will modernise ONS's data collection activities, delivering efficiencies through the greater use of administrative data and survey data collected online instead of through interview and paper-based data methods.   The renewal of our technology infrastructure to support the delivery of the data collection transformation and the census through the development of common digital platforms that will support the whole of ONS.

Making a recommendation on the future of the census in 2023. The census, together with the research and analysis undertaken by the programme, will provide evidence to enable a decision about the future provision of population statistics after 2021.

The ONS business plan covering the period 2020 through to 2025 describes the criticality of CDCTP as a critical programme within the organisation. In the coming year, work will continue to ensure that the 2021 Census delivers the best possible insights as the last of its kind. As the social and business transformation continues, evidence to support the proposal on how to deliver the benefits of the Census via alternative means will be delivered by the end of 2023. Based upon this recommendation, from 2023/24, a follow-on programme will be scoped to deliver the recommendation.

2.2 Legislation

The authority to undertake a census is governed by the Census Act 1920 as amended by the Statistics and Registration Service Act (SRSA) 2007. The 1920 Census Act enables a census to take place but does not require one. It also places a requirement on the UK Statistics Authority to report on "the number and condition of the population in the interval between one census and another". The Census Act includes provisions for secondary legislation to set out the detailed arrangements for the conduct of each census. ONS may conduct a census only after Parliament has approved the relevant legislation.

White Paper

On 14 December 2018, the White Paper (Help Shape our Future: The 2021 Census of Population and Housing in England and Wales) outlining the recommendations for the 2021 Census was published on GOV.UK, along with the associated Equality Impact Assessment.

Welsh Ministers were consulted throughout and the White Paper was laid in Synedd Cymru, in both English and Welsh, on the same date.

Prior to the passage of the legislation (Order and Regulations) for Census 2021, primary legislation was passed amending the Census Act 1920 to ensure the new questions on sexual orientation and gender identity are made voluntary through the removal of penalties. The Census (Return Particulars and Removal of Penalties) Act 2019 received Royal Assent on 8 October 2019."

Census Order

The Census (England and Wales) Order, which sets the date of the census, became law at the May Privy Council meeting on 20 May 2020. This followed debates and votes in both Houses of Parliament in May. This is available online https://www.legislation.gov.uk/uksi/2020/532/made.

The Order covers such items as: directing that a census shall be taken on 21 March 2021; the persons required to complete, and be included in, the census returns; and the content of the questions to be answered.

Census Regulations

The Census Regulations came into force on 23 June 2020 in England and 26 June in Wales 2020. The Regulations include many of the operational details of the census, as well as exact copies of the paper questionnaires and descriptions of the online questionnaires. They are available to view online:

- Census (England) Regulations 2020

- Census (Wales) Regulations 2020 and Rheoliadau'r Cyfrifiad (Cymru) 2020

The Regulations set out the procedures and practical arrangements for a census, including how to encourage participation and safeguard confidentiality.

Wider legislative context

As well as statistical legislation we also need to work within terms of wider legislation (e.g. Equality Act 2010, Data Protection Act 1998, Human Rights Act 1998, the Digital Economy Act 2017 and the General Data Protection Regulation 2018). The introduction of the Digital Economy Act includes provisions around statistics and data-sharing across government. Through the administrative data work, ONS is seeking to identify departments that collect data on each of the characteristics traditionally provided by a census. Once collected, this data can be used with other data to improve the Government's ability to identify and address disadvantage and provide much needed information on societal change.

2.3   Delivering a primarily online Census in 2021

i.   **Key elements**

Whilst a census has numerous components integrated across the organisation, the programme has a focus on the following key elements:

Questionnaire content
The White Paper set out the UK Statistic Authority's recommendations on the content of the 2021 Census*: "The consultations ONS has held (see Chapter 2) have shown a particular need for data to be gathered on some topics not previously covered by the census. After careful consideration based on evidence from research and stakeholder engagement ONS proposes to collect, for the first time, information on three new topics. Gathering data on past service in the UK Armed Forces will help service providers and others to support veterans in accordance with the Armed Forces Covenant. ONS also proposes questions on gender identity (while keeping the existing question on sex) and sexual orientation. As with the question on religious affiliation introduced in the 2001 Census, we believe these new questions (on sexual orientation and gender identity) should be voluntary and no individual should be forced to answer these questions who does not want to. The Government and UK Statistics Authority will now consider the appropriate mechanism to ensure this is the case. The new topics will all help government bodies by meeting the need for better quality information for monitoring equality impacts on communities."*

Digital first
The 2011 Census showed that higher quality responses were achieved online. However only 16% of responses were delivered online due to every household receiving a paper questionnaire. We will ensure most households receive only a Unique Access Code (UAC) to complete online. Paper completion will still be delivered to households in areas with low digital take-up or to those that request it. Any individual within a household can opt to complete their own individual questionnaire, ensuring their personal characteristics are not shared with the rest of the household. A request for a UAC for an individual online questionnaire can be fulfilled by text or email making this a truly private response.

Digital inclusion
An assisted digital service will be available to help those willing to complete their census online but without the ability, confidence or technology to do so. A contact centre will provide help via telephone and digital services. Support for multiple languages will be provided through an interpretation service. It will also provide an option for telephone capture of census information.

Service design and integration
The 2021 Census will be delivered using 21 external suppliers. Core to the success will be our successful integration of services across multiple suppliers to ensure that every census user can complete the census quickly and easily. ONS has a Service Integration function monitoring these integrations and have also established a Service Design and Innovation function.

Field operations

Our target is that initial response rate before follow-up will be 70%. For the 30% of responders who need follow-up, a field workforce will follow up on non-responses. Field officers will be temporarily employed as ONS staff for 6-8 weeks. 2021 will see a move from paper to mobile technology to manage the field force workload. This technology will assist in managing the operation centrally and improve the allocation of field staff in areas where response is low. Field staff will be supported by a national logistics operation.

Stakeholder communications and marketing

In 2021, we will also deliver a communications campaign to encourage householders to complete their questionnaire. This will support the response rate target of 70% without follow up. A strong marketing strategy, including digital advertising, and partnerships with community groups and local authorities will be a key feature of our approach. This will augment publicity activities through direct engagement in harder-to-reach communities. Community liaison officers will explain the purpose and value of the Census and give reassurance about confidentiality and security. Census engagement managers will be responsible for local community and local authority engagement, carrying out publicity and media work. Operational managers will focus on the logistics of the collection operation.

Census processing and outputs

A digital first response provides the opportunity to speed up the processing of census information. ONS aims to exploit the early availability of data and publish initial findings within 12 months, and all data within 24 months (in 2011 results were published 16 months after Census Day). To deliver this several new strategies have been developed. This includes processing from the first date response data arrives, the development of methods on the new ONS technical infrastructure and use of administrative data sources. A major development will be the publication of a web-based interactive dissemination system where users can specify the data they require. This innovation will enable users to produce cross-tabulations (tables with multiple variables) where disclosure control is applied dynamically as part of the request to safeguard confidentiality. This will make the results of the census and other surveys available to users in an accessible, fast and flexible way. It will also free resources within ONS which enables a wider range of analytical work.

COVID-19 prepardeness

As part of the response to the pandemic, scenario planning has been completed which has led to several changes for the 2021 Census.

The design of the address check was changed to a clerical desk-based check. An unexpected benefit of which has been it surpassing the original design expectation. This has enhanced the address frame to avoid waste from missing or false addresses. It has additionally deepened understanding to help inform how the live operation deals with certain types of address.

Working closely with the supplier, the recruitment and training of community engagement managers and community advisors has moved to an entirely virtual journey. This has been successful with thousands of applicants for the roles advertised. The design of the field operation has been amended to ensure it can run successfully under any circumstance

including national or local lockdowns should these be in place. Processes used by field staff have been considered and numerous changes have been made including the use of full Personal Protective Equipment (PPE), contact tracing and amendments to the doorstep routine, policies and procedures.

In recognition of disruption to the supply chain, devices for field staff has been purchased earlier than planned and the situation continues to be monitored closely to assess the impact to any assisted digital centres or the ability of local or national groups to engage and support the field operations.

ii.　　　**Progress to date**

The programme is making good progress towards delivery of the 2021 Census. The digital build is nearly 90% completed and testing of the full end-to-end will begin in October 2020. All of this has built upon two key successful rehearsals of capability.

October 2019 Collection Rehearsal
The Collection rehearsal took place during October 2019 to stress test the operation by including a cross-section of the population, differing types of housing, and varying operational conditions in four areas across England and Wales:
- **Carlisle** – field officers faced a variety of conditions including urban and rural areas, varying internet coverage, as well as student populations.
- **Ceredigion** – field officers supported a high proportion of Welsh language speakers and large rural areas with varying internet coverage and digital take up/
- **Hackney** and **Tower Hamlets** – rehearsed the way we work across local authorities and in urban and densely populated areas. Together, the two boroughs have a multicultural population which includes students and several hard-to-access properties.

2020 Processing and Outputs Rehearsal
A full end to end rehearsal of data processing activities took take place early 2020. This successfully assured and tested:
- Statistical methods appropriate to meet the quality goals.
- Statistical methods are able to be implemented as designed.
- Live processing can be operationalised in 2021.

iii.　　　**Next steps in 2020 - 2023**

2021 Census Operation
Census Day will take place on 21 March 2021. The main communications campaign will begin six weeks ahead with further communications to raise awareness. Dispatch of the initial contact letter to all respondents, together with the Unique Access Code (UAC) will commence three weeks in advance. In parallel, the Census Contact Centre, including the Assisted Digital Services, will go live.

The main field force will be mobilised in tranches. The first group of field staff will commence five weeks ahead. The field operations needed to support enumeration of households will continue for the duration of the of the six-week data collection period. The Census Contact Centre will operate throughout the data collection period, after which it will transition to support the follow-up Census Coverage Survey (CCS).

Post Census Surveys

Two sample surveys will be conducted post Census Day:

The voluntary Census Coverage Survey (CCS) starts six weeks after Census Day, for a four-week period. It will cover c.1% of the census addresses in England and Wales, weighted towards the areas with lower response. It will check on the coverage of households and collect basic demographic characteristics. The information will be used in conjunction with the census data itself to help produce a consistent set of census-based estimates. These will form the new base series of annual mid-year population estimates for local and health authorities.

The voluntary Census Quality Survey (CQS) will involve c.10,000 people and will take place after the census to estimate the level of respondent error. It aims to measure the accuracy of response by asking a sample of households the census questions. By comparing the two sets of responses, agreement rates will be calculated. This will provide an indication of how accurately the census questionnaire has been completed by the general public. Along with other quality information relating to the 2021 Census, the CQS results are intended to help users understand the strengths and limitations of census data and how to use them appropriately.

Delivery of Census Outputs

Prior to Census Day, ONS will undertake consultation and stakeholder engagement to ensure that outputs are prioritised and published in a coherent and comprehensive way. The target is to publish the first 2021 Census results within 12 months, and all the data within 24 months. A major innovation will be the release of a new web-based system which will enable data users to specify the data that they require and create tables with multiple variables to their own specifications. Disclosure control, which safeguards confidentiality, will be applied dynamically. The aim is to deliver the census data faster and more flexibly.

2.4 Ensuring the widest possible transformation of ONS systems and collections

i.   **Key elements**

Whilst the breadth of the programme means that most platforms are needed for success, there is a focus on transformation in the following areas:

Address register development transforming the ability to select address-based samples for surveys and develop new geographies for statistical outputs. It also has wider applications across government and ONS is working with other departments to maximise this potential.

Response management system functioning in real time that monitors and manages data returns across multiple modes.

Publishing and dissemination transforming ONS's ability to disseminate large quantities of data putting users' needs at the heart of the approach, including how users can create their own tables of outputs.

Survey management transforming the efficiency of survey taking by enabling adaptive response management and more effective allocation of workloads of field-based staff.

Electronic questionnaires transforming ONS data collection capability by developing an online data collection service.

Administrative data processing transforming the capability of the Government Statistical Service to process, integrate and analyse administrative data to unlock the potential of new sources for statistical purposes.

Social survey data collection removing outdated systems and hardware, replacing these with iPhones and tablets.

ii.   **Progress to date**

Online survey and data collection
The platform approach has already delivered shared online survey-data collection products (electronic questionnaire, secure data exchange and response management capability) used both for Census testing and the Census Rehearsal and for 29 transformed business surveys. All monthly business surveys are now online, and we are now focusing on the financial and trade surveys where wider transformation is taking place to improve quality. By March 2021, almost one million online business survey questionnaires will have been sent to respondents. The status of our survey-data collection products has allowed us to stand up the Business Impacts of Coronavirus Survey quickly, providing ONS and other government users the opportunity to understand the impacts of the virus on businesses.

The Opinions and Lifestyle Survey (OPN) underwent a phased transformation during 2019 and the first half of 2020 switching from traditional face-to-face modes to mixed telephone data capture in early 2019. An online mode was enabled and added therefore becoming the first ONS social survey to utilise an online first mode. This approach enabled the further rapid transformation during early 2020 when, in response to Coronavirus, OPN was redesigned to become a weekly online Covid-19 OPN Survey of the UK's health, well-being and behaviours during the emergency. It quickly establishing itself as a primary information source for Government decision-making. The new online first capabilities were harnessed further to launch the first online Labour Market Survey (LMS) to ensure continued measurement and understanding of the UK labour market whilst all other survey activity was paused. The LMS has grown to – as of August 2020 – a sample of approximately 35,000 households a week developing towards the transformation vision of a single integrated survey framework. Significant cost avoidance has been achieved as a result of this framework being available for both the delivery of the Coronavirus Infection Study (CIS) and further Covid-19 OPN surveys. Our target state will see these surveys integrated with a range of administrative and other non-survey data sources, enabling comprehensive, relevant and flexible statistical outputs.

Mobile technology to modernise field operations

Substantial progress has been made in the modernisation of our household survey field operations. By July 2018, a roll-out of iPhone connectivity to all field managers and field interviewers was completed. This included a new Fieldwork Management Application. This has been used to test fieldwork software which will be used in the 2021 Census. Tablets have been issued to all our staff working on the International Passenger Survey (IPS). This is delivering benefits and efficiencies in the way we collect data on migration, overseas travel and tourism.

Utilising integrated data

The new data sharing powers within the Digital Economy Act are supporting ONS's investment in integrated data solutions. This enables us to meet demands from decision-makers for more frequent granular insights. We are using administrative data to transform the population statistics system so that statistics on population and housing will be provided by integrating administrative data supplemented by surveys.

For the past three years, ONS has published an assessment of its progress towards producing statistics comparable to those produced from a decennial census. The work is seeking to produce information for a range of geographical areas on the structure of the population (number and composition of households) and the size and characteristics of the housing stock.

By integrating administrative, survey and in some cases, commercial data, ONS is exploring how it can produce information on the characteristics of the population more frequently. This includes information, for example, on health, the labour market, commuting patterns and educational qualifications. An integrated data approach also offers the possibility of providing insights into the economy and society on topics such as household income distributions by health and ethnicity, fuel poverty, mental health, crime and inequalities.

iii.   **Next steps in 2020-2023**

The coronavirus pandemic has had an impact on this area of the programme. Due to both the acceleration and deceleration of transformation, priorities are being reviewed and milestones assessed for business and social surveys. This will take place during Autumn 2020 and will also include the revision of any benefit profiles associated with milestones. This work will be supported by a benefits management stocktake which will report on progress of realisation, feasibility of future milestones, and make recommendations for the future plan.

It is expected by the end of 2022, that:

- Administrative data will become an expanding source for the production of statistics; with surveys being used to calibrate models and fill gaps.
- All remaining surveys of households and businesses will be modularised in an integrated framework. Data from these surveys will be integrated with a range of administrative data sources enabling more frequent, detailed and flexible outputs.

- Survey data collection will be digital by default. The majority of ONS business surveys will be completed digitally and where possible ONS social surveys having an online first option to maximise voluntary take up and self-completion.
- The social survey field force will be flexible and scalable, supporting the digital and data integration approach, and providing significant income opportunities for ONS.

By rebalancing both business and social surveys, ONS will be able to fill gaps that administrative data cannot fill. Hours of unpaid caring, for example, are not available from administrative sources.

Where surveys are required, they will be mixed mode but 'digital by default' and will utilise the full capability provided by the ONS Enterprise Architecture. This includes the electronic questionnaire tool. Administrative data (when available) will also provide a means of designing better samples for those surveys needed to complement the administrative data sources. This will lead to a reduced burden on the public and businesses, and efficiencies for the ONS, by only collecting data once and re-using that data. An example of this is the Distributed Trades Survey (DTrades) where value added tax (VAT) data is used for small business. This reduces the need for survey forms and data collection by approximately 50%, reduces burden on respondents and improves coverage and quality.

Whilst not a primary aim of the programme, there are potential opportunities for ONS to generate income from the re-use of our modernised data collection systems and services. Different approaches are possible, such as providing a "managed" data collection service; providing wider open access to our data collection products ("shared services") or the addition of analytical value by our offering a data linking and analysis service.

2.5 Making a recommendation on the future of the Census in 2023

In endorsing the National Statistician's recommendation regarding the execution of the 2021 Census, the then Minister of the Cabinet Office, Francis Maude commented:

'Our support for the dual running of an online (decennial) census with increased use of administrative data is only relevant to 2021 and not for future censuses. Our ambition is that censuses after 2021 will be conducted using other sources of data and providing timely statistical information. However, any final decision on moving to the use only of administrative data beyond 2021 will be dependent on the dual running sufficiently validating the perceived feasibility of that approach.'

In 2023, ONS will present recommendations to government as to the future of census arrangements, considering the progress that has been made in the use of administrative data. Consultation with end users and decision-makers will inform these recommendations. The methodologies underpinning the new approach will also be quality assured by an expert external assurance panel.

There remain significant challenges in securing some of the administrative data needed. Engagement at all levels has been stepped up with data suppliers and we are adapting our plans to adopt a more iterative approach, in particular, to administrative data-based population statistics.

i. **Progress to date**

For the past four years, ONS has published an assessment of its progress towards producing statistics traditionally based on the ten-yearly census from administrative data and surveys. This assessment has been based on five high-level criteria.

1. Rapid access to new and existing data sources.
2. The ability to link data efficiently and accurately.
3. Methods to produce statistical outputs that meet the priority information needs of users.
4. Acceptability to interested parties.
5. Value for money.

The latest assessment was published in Jan 2020. We have since created a new project within the programme to focus purely on the 2023 Recommendation. As part of this we are reviewing the 'tests' or criteria against which the recommendation will be assessed. These will be reflected in a new progress update replacing the annual assessment. Current plans are to publish this once a year in the lead up to the recommendation.

Alongside this, we have been publishing research reports and outputs showing the potential in making greater use of administrative data, on population and migration statistics and on other topics like households, education, housing and income.

ii. **Next steps in 2020-2023**

We will continue to focus on the new 'tests' to provide the evidence behind the recommendation. We will be developing our stakeholder engagement plans for the next three years. These plans will feature how we intend to engage and seek feedback from the public, users and suppliers to help shape the recommendation. In parallel, we will continue to carry out and publish research to show the potential for providing statistics on topics for small geographical levels not traditionally collected in decennial censuses such as new measures of housing quality like floor space and income analysis.

3 Economic update

3.1 Summary

We continue to ensure that we utilise internal and external best practice aligned with the Green Book guidance and the ONS Benefits Management Framework. As with FBC1, benefits have been reviewed over a 17-year appraisal period, from 2015/16 to 2031/32. The 17-year appraisal period is representative of seven years pre-2021 Census (from 2015/16 when the Programme commenced to 2021/22 when the next census will be delivered), and ten years post-2021 Census when the benefits of the census are expected to accrue. The benefits delivered through Data Collection Transformation (DCT) are expected to accrue over a ten-year period, running from 2016/17 to 2025/26. 2018/19 is the base year for calculations, and the NPV and BCR are presented without sunk costs (in line with Green Book best practice) over the programme appraisal period

The major changes within the economic case are as follows:

- A light touch refresh of benefits has been undertaken for Data Collection Transformation (DCT) (Benefit 7) for the reduction of respondent burden (7.1) and cash releasing benefits (7.4). This is to account for the latest delivery plans and impacts for the programme. There is a recognition that detailed re-planning needs to take place through the remainder of 2020 to fully understand and profile the impact of the recent changing landscape.

- Future statistical system after 2021 (previously referred to as an Admin Data Census (ADC)) (Benefit 6).

The major areas that have not changed are:

- External census benefits (Benefit 1 (Central Government), 2 (Local Government) and 3 (Private Sector), remain in line with 2018/19 stakeholder research.

- Optimism bias adjustments (OBA) for external census benefits.

- Census DST technological reuse benefit (Benefit 8).

The summary of programme benefits and value for money:

- **Pre-optimism bias**, total programme **benefits are £7.4bn**, a reduction of £10m from FBC1;

- **Post-optimism bias,** total programme **benefits are £5.62bn**, a reduction of £10m from FBC1 (£5.63bn).

- The **Net Present Value** (the difference of discounted total benefits to discounted total costs) were **£4.0bn** post-optimism bias.

- The **Benefit to Cost Ratio**, post-optimism bias of **6.1:1**. That implies that for each **£1 of further investment**, the programme will **deliver at least £6 in benefits**.

3.2   Progress to date

In relation to the benefit of census data to external users, the assumptions and data underpinning the benefit estimates remain based on the extensive consultation with users of census data from central government, local government, and the private sector in 2017/2018, by appointed consultants, Deloitte LLP.

Benefits included in relation to the future statistical system after 2021 (previously referred to as an Admin Data Census (ADC)) have been considered in light of the 2023 Recommendation. This to understand what is needed to support the new population. migration and social statistics system, including whether another census in 2031 is needed. It is still anticipated that a future business case will need to be developed to accompany the recommendation in 2023 outlining the delivery of the recommendation as a separate programme of work.

In order to avoid double counting, benefits 4 and 6 will still be claimed, whilst benefits 5 and 9 will not be claimed until the future business case. We acknowledge that the programme is an enabler to the future delivery of these benefits. This cannot be evidenced at this stage because development systems are not mature enough to provide accurate benefit forecasts. These will need to be included within the future business case.

Since May 2019, CDCTP has undertaken an annual stocktake of the transformation benefits. The data collection benefits were re-profiled to ensure impacts of current and future delays (including delayed receipt of administrative data and delivery of technology services) are kept to a minimum. Delays in receipt of administrative data (in particular Pay-as-you-Earn (PAYE) continue to impact the realisation of both business and social surveys benefits.

The next stocktake is expected to report in early 2021. This will include a review of the individual benefit profiles with full details on how programme benefits will be tracked, monitored, and reported through programme governance. Within that review, quality assurance will be undertaken for the cost and benefit models, compliant with the standards expected of the Aqua Book, in line with the recommendations of the MacPherson review. Optimism bias (OB) adjustments have been applied to all benefits.

The benefit realisation plan and cost benefit analysis provided in FBC1 have been reviewed and remain unchanged. They will be reviewed again alongside the annual stocktake.

3.3 Current benefit summaries

TABLE 1: PRIORITY AREAS FOR CENSUS DATA

Rankings	Informing Decisions Groups	Rationale provided for this ranking
High priority areas	Public Health, Social Care	Decisions in public health and social care were considered the most reliant on census data as the demographic data used to inform such decisions was only provided through the census
Medium priority areas	Education, Transport, Housing	Decisions in education, transport and housing were considered the next in terms of their reliance on census data as spend in these areas is based on long term decisions and so is more heavily informed by data collected in advance. However, the use of local administrative data sources was more prevalent to inform spend in these areas.
Low priority areas	Planning and Development, Waste Collection, Library Provision and Emergency Services	Census data is used to inform planning and development, waste collection and library provision, with the least reliance on census data.

TABLE 1: POST-OPTIMISM BIAS – FBC1 AND FBC2 (£M)

Benefit	Description	Benefit Type	Status	FBC2 Post-OB	FBC1 Post-OB	Variance
1	Benefit of census data to central government	Stakeholder Benefit	Active	471.59	471.59	0.00
2	Benefit of census data to local government	Stakeholder Benefit	Active	1,658.90	1,658.90	0.00
3	Benefit of census data to private sector	Stakeholder Benefit	Active	3,366.73	3,366.73	0.00
4	Improved statistical quality through administrative data	Stakeholder Benefit	Non-quantified	0.00	0.00	0.00
6	Reduced cost of future Census through an Administrative Data Census	Risk Reduction	Active	37.12	37.12	0.00
7.1.0	Business surveys - reduced respondent burden	Stakeholder Benefit	Active	7.54	15.09	-7.55
7.1.1	Social surveys - reduced respondent burden	Stakeholder Benefit	Active	0.15	0.34	-0.15
7.3	Wider government savings through DCT	Stakeholder Benefit	Active	0.12	0.12	0.00
7.4.0	Business surveys - cost savings through transformation	Cash Releasing	Active	7.24	7.24	0.00
7.4.1.1	Social surveys - cost savings through transformation	Cash Releasing	Active	8.74	14.81	-6.07
7.4.1.2	Social surveys - cost avoidance through transformation	Risk Reduction	Active	10.81	7.54	**3.27**
7.5.1	Income generation and retention opportunities (cash releasing)	Cash Releasing	Active	2.58	2.58	0.00
7.5.2	Income generation and retention opportunities (cost avoidance)	Risk Reduction	Active	7.56	7.56	0.00
8	Digital transformation benefits (cost avoided due to re-use of functionality)	Risk Reduction	Active	41.88	41.88	0.00
			TOTAL	**5,620.96**	**5,631.46**	**-10.5**

4   Commercial update

4.1   Summary

ONS has made significant progress in the commercial activities for the programme. Notably:

- Improved commercial governance for ONS, which is aligned to the wider organisational governance framework. This includes a cross-functional Census Strategic Supply Chain Board (CSSCB) with oversight of the financial evaluation, obligations, risks and opportunities across the supply chain.

- Collaborative key supplier meetings to gather and discuss cross-cutting challenges and opportunities for the Census.

- Reviewing and implementing lessons learned from the 2019 Rehearsal including significant changes to key performance indicator (KPI) mechanisms.

- Maintaining contractual compliance through design evolution and ensuring continued value for money throughout the supply chain.

4.2   Procurement strategy progress

The programme procurement strategy for the programme ensured that all procurements were conducted in an open, fair and transparent manner in accordance with the principles of procurement directives. The strategy further determined that any requirement that could not be met by ONS, or under the terms of an existing contract to ONS, would be competed via a Crown Commercial Service (CCS) Framework, an open or restricted tender under the terms of the Public Contract Regulations (2015) or, in exceptional circumstances, any other compliant route that offered value for money.

The strategy defines how the programme ensures maximum value-for-money from outsourcing, a contracting strategy, and commercial objectives, to ensure continuity and consistency across the programme.

The commercial objectives are:

- support the successful delivery of the programme by ONS and its suppliers.

- deliver a procurement and commercial operation that either meets or exceeds all mandatory and statutory obligations imposed on ONS.

- minimise the risk of challenge both prior and during the award of contracts.

- maximise the value-for-money realised by ONS in delivering the procurement and commercial activity.

- ensure that the procurement and commercial activities support the realisation of the programme benefits.

- use the procurement and commercial activities to assist with enhancing commercial awareness within ONS for the future to support the implementation of government

policy for public-sector procurement in the UK (including that related to the use of SMEs in the supply chain).

Contract management processes

The contract management approach helps to provide continuity in delivery, enabling refinement of the business process model, and the continued planning for the successful delivery of 2021 Census. The supply chain must be integrated, both vertically (between tier-1 suppliers and their tier-2 and tier-3 sub-suppliers) and horizontally (between different tier-1 suppliers), with no gaps in the scope or responsibilities of any supplier. Integration will be delivered by ONS in partnership with the service integrator.

To achieve the required levels of operational readiness, the supply chain was developed to deliver the rehearsal activities in 2019 ahead of the Census in 2021. In addition, ONS has created a new monthly board called the Census Strategic Supply Chain Board (CSSCB) chaired by the director of operations with active attendance from commercial, finance, operations, digital services and technology, policy and communications, programme management office and systems integration. The objectives of the board are:

(i)   Strategic oversight of contracts (financial, issues, risks, obligations, opportunities, change and escalations).

(ii)   Managing cross cutting risks and opportunities.

(iii)   Celebrating success.

(iv)   Preparation for key supplier meetings.

(i)   Endorsing key contractual changes that are for approval.

This ensures that any contractual issues that impact on multiple suppliers are managed in a consistent manner. This facilitates the key supplier meeting, where the top ten census suppliers gather and discuss holistic tactical challenges, risks and opportunities for the Census – ensuring the principles within the 'Partnership Charter' are adhered to by all parties. This is through a Government Commercial Function (GCF) relationship management model.

To support the ongoing contract management activity a series of tools and enablers have been developed including:

- **Contract tiering tool** (based on the Government Commercial Functions tool), used for all contracts at ONS. This grades all contracts as Gold, Silver or Bronze and defines the minimum standards of contract management.

- **Cross-contract key performance indicators** aligned to the user journeys with dependency mapping.

- **Coordinated supplier highlight report** which aligns to the commercial dashboard.

- **Model supplier management handbook** which is completed for each individual contract and provides clarity on roles and responsibilities, tools and templates across 9 key areas for all parties.

- **Scenario testing** (via the operational testing team) to ensure we are prepared for a broad range of commercial issues such as a key supplier bankruptcy.

- **Monthly commercial intelligence reports** which monitor the financial performance of suppliers of Gold and Silver contracts. This alerts contract managers if there is any trend in declining failure and delinquency scores as reported by Dun and Bradstreet.

- **Commercial training events** with more than 200 attending to date, including additional specific SCS training.

Payment mechanisms

Payments are drawn down for delivered works at key milestones and in line with the requirements of each funding stream stipulated in funding agreements and contracts for each phase. This includes ensuring compliance with supporting evidence requirements to underpin project claims. Payments at no point exceed the extent of costs incurred and stage of works completed at that stage.

All payment terms were clearly outlined in the tender and contracting process. Documentation clearly articulates that payments must be linked to the delivery of services. Payment milestones were agreed at the start of the contract period along with evidence requirements associated with each payment. Funds are only released at the point milestones are reached and the agreed requirements for that stage have been evidenced as achieved.

Governance

Formal governance of contracts is provided through commercial participation in the programme, operation and transformation boards following the monthly strategic supply chain board and key supplier meeting.

Commercial assurance is also provided by the Commercial Approvals Group (CAG). CAG was initiated in 2018 to provide commercial governance to the entire ONS organisation. It is a sub-committee of the Portfolio and Investment Committee, which in turn reports into the National Statistician's Executive Group (NSEG).

4.3 Awarded programme contracts

The programme has awarded 21 contracts at a total value of £233.6m.

These contracts are the key outsourced services which will underpin the successful delivery of census operations.

The following table summarises the contracts awarded by the programme. All values shown are rounded and include irrecoverable VAT

TABLE 2: AWARDED CONTRACTS

Procurement	Key Supplier	Contract Value	Supplier Name
Questionnaire Management (QM)	Y	£67.8m	Leidos
Census Field Force People Services partner (CFFPSP)	Y	£43.3m	Adecco
Print and Post Out (PPO)	Y	£20.7m	HH Associates Ltd
Census Field Operations Devices (CFOD)	Y	£15.8m	XMA
Contact Centre (CC)	Y	£11.5m	Serco
Campaign Agency	Y	£10.5m	M&C Saatchi / Family and Education
Assisted Digital	Y	£8.2m	Good Things Foundation
Paper Questionnaire Return Service (PQRS)	Y	£6.3m	Royal Mail
Field Force Logistics and Replenishment (FFLR)	Y	£3.1m	Granby Marketing Services Ltd
Field Force Supplies – FFS	N	£1.9m	Banner
Specialist Media Buying Agency	N	£17.6m	OMD Group Ltd
Welsh Translation	N	£0.1m	Prysg CYF
Other Translation	N	£0.1m	K International Ltd
Technical Consultancy and Design Services	N	£5.4m	Deloitte
Legal Services	N	£2.5m	Gowlings WLG
Self Help Facility	N	£0.4m	Worth Internet Systems
Lone Worker Solution	N	£0.5m	Mitie
Service Integration	N	£17.9m	Bloom

4.4 Collaboration with devolved administrations

ONS actively engaged with Northern Ireland Statistics and Research Agency (NISRA) and the National Records of Scotland (NRS) to determine the scope for any joint procurement activities in support of the Census.

For the Census, NISRA has collaborated with ONS on some of the procurement activities. A Memorandum of Understanding (MoU) between ONS and NISRA was developed and signed between the organisations in December 2016. The MoU includes a formula for managing any liabilities and financial contributions between the authorities. It also manages responsibilities for the sharing of information and data, and marketing and communications.

NRS developed their own commercial strategy for the delivery of the 2021 Census in Scotland. This census has now been deferred to 2022. They have sourced the goods and services they require, however ONS continue to update NRS on progress and share lessons learned.

5 Financial update

5.1 Summary

The delivery of the programme business case continues to work within the £906m budget of FBC1. A significant amount of cost refinement has taken place since the OBC of £981m. Further requirements and capabilities have been added in critical areas of delivery, statistical capabilities have been further identified and resourced, and there has been enhancement in the programme and ONS' ability to support the Government response to COVID-19.

There has been significant further development of the programme and refinement in key areas of the financial case. An analysis of these costs is provided below.

The profile of costs has been updated since FBC1, with a further concentration of costs in the approach to the live field operation for census. Learning from the 2019 Rehearsal has suggested less emphasis on expensive door-to-door follow up. Alternative communications, including postal reminders, advertising, and where possible telephone follow ups, have been added to the design. This approach has added resilience as part of the response to COVID-19. This has shifted emphasis to pre-census day communications (in 20/21) from post-census day (predominantly in 21/22). The overall costs of census operations across both years have remained largely static but there has been a change in phasing.

Significantly, the programme needed to respond to the COVID-19 pandemic through building further resilience in the delivery models. It is estimated that the net cost of COVID-19 on the programme has been £9m with a further £15m anticipated through our risk profile. Expenses already incurred have included personal protective equipment (PPE) for field staff, screens for assisted digital stations, and health and safety expertise. Risks are recognised for the impact on call volumes at the contact centre, additional communication by print, and the impact of local lockdowns on the ability of field officers to perform effectively.

5.2 Progress to date

Overall, the funding request remains at £906m as approved in FBC1 (October 2019).

The scope of the programme is largely unchanged. However, some additional areas have been identified that are necessary to deliver the remit of the programme but were not within the budget lines of FBCv1. These are necessary to ensure successful delivery of the programme. This means the following budget lines have been included:

- **Service design and integration** was excluded from PBC2 and first included in FBC1. The benefit and needs of this service have evolved and has been funded accordingly. It is anticipated that this will become a legacy function funded by the ONS baseline upon completion of the programme.

- **Systems security and live operations support** where there has been a greater recognition of increased threats from malicious agents, along with greater reassurance required for the general public for personal data security. Steps have been taken to provide robust cover.

- **Public policy analysis;** further needs have been recognised in this business area including population statistics analysis and migration statistics. This has included funding of rapid response teams. Learning from this experience informed the ability of ONS to mobilise the COVID-19 Infection Survey. Finally, FBC1 did not include any funding for the census longitudinal studies arising from the 2021 Census.

- **Digital services and technology** have several requirement gaps which have been identified and funded since FBC1.

- **Digital publishing** was contained within census dissemination funding in FBC1 but was focused upon statistical design and "as-is" means of publishing. Advances in on-line capabilities and user demands have provided greater requirements and yielded opportunities in this area. Further security, capability and capacity options are also in consideration.

- **2023 National Statistician recommendation** was referenced in FBC1 but was not funded. FBC2 bridges this gap in so far as developing and consulting the recommendation ahead of publication. The implementation of the recommendation would form a future programme or be part of the ONS business as usual.

- **Business registers** are an important part of business statistics transformation which was not specifically funded in FBC1 and is therefore funded in FBC2.

- **Clerical matching** is the ability to match records from various administrative sources with a light touch using automated routines.

- **Business change** was recognised in FBC1 with the needs and benefits further evolving. These costs are concentrated within data collection transformation and programme delivery. It is anticipated that this will become a legacy function funded by the ONS baseline upon completion of the programme.

These changes have been offset by reductions in costs through some of the main contracts and changes in other budget lines. This includes the apportionment of contingency funds to support some of the funding gaps. The following tables show the changes in costs across the different areas of the programme.

TABLE 3: CHANGES SINCE FBC1 (2019) IN £M

Budget Areas	FBC1	FBC2	Comments
Budget areas that have been restructured			
Service Design and Business Architecture	25.4	61.5	Collectively these are restructured budget areas. Responsibilities have been reallocated to Transformation Integrated Shared Services (TISS). There is additional focus on business change within programme delivery which has become more focused on core competencies as has statistical design.
Statistical Design and Research	63.3	52.6	
Programme Delivery and Transformation	79.0	50.1	
Budget areas where costs that have increased			
Digital Services and Technology	121.0	134.4	Supporting the introduction of administrative data and creating a lasting technology legacy for ONS. Additional requirements identified and supported include clerical matching, social and business surveys, gaps in funding of field devices, uplift of legacy systems in surveys, and enhanced on-call systems support.
Methods Data and Research	43.2	44.8	Increase driven primarily by an increase of salaries in 21/22 and 23/23 within Methodology and Data Acquisition Operations.
Policy and Communications	44.4	46.0	Increase for staffing in relation to new posts for social media and PR.
Digital Publishing	0.0	13.1	Allocated funding for the dissemination and digital publishing of statistical outputs.
Public Policy Analysis	12.8	15.0	Additional areas not in FBC1 include longitudinal studies linkage, RAPID analysis response teams, and additional population analysis requirements. These are all aimed at enhancing the value of the data gathered from the census.
Census Delivery	339.5	342.6	Proportionately as small increase, which does include a shift in profile from 2021/22 to 2020/21 with savings made based upon learning from 2019 Rehearsal offset against increasing resilience.
Corporate Services	23.2	23.7	This is an increase because of the restructuring of cost centres. There is no material increase.
Security	6.7	7.3	There has been a greater recognition of increased threats from malicious agents, along with greater reassurance required for the general public about personal data security. Steps have been taken to provide more robust cover
PPP Ops Surveys	8.7	12.8	Increase principally driven by social surveys offset by a reduction in business statistics. This includes increase in staff costs spread across 21/22 and 22/23. GAE and contractor resource increases also applied.
Core Data Collection Transformation	39.9	47.4	Delays in the acquisition of administrative data has resulted in business statistics transformation work being delayed. This now includes work on the business register. Additionally, decision to focus on Census as a priority in Jan 2019 restricted progress.
Budget areas where costs that have decreased			
Commercial Services	13.1	9.2	Decrease relating to reduced need for commercial support following contract awards.
Contingency	85.8	45.4	Detailed reviews of the contingency with appropriate costs placed against risks across the programme.
Total	**906.0**	**906.0**	

TABLE 5: WORKFORCE PROFILE

Full time equivalent, by department, by quarter for the remainder of the programme lifecycle

Directorate	2020/21 Q1	Q2	Q3	Q4	2021/22 Q1	Q2	Q3	Q4	2022/23 Q1	Q2	Q3	Q4	2023/24 Q1	Q2	Q3	Q4
Corporate Services	**87**	87	89	125	**130**	110	109	95	**55**	52	52	52	**8**	8	8	**8**
Finance Planning and Performance	20	20	20	31	32	32	31	31	22	20	20	20	0	0	0	0
People and Business Services	29	29	29	40	40	40	40	39	19	18	18	18	0	0	0	0
Policy Communications and Digital Publishing	37	37	39	53	57	37	37	25	14	14	14	14	8	8	8	8
Data Capability	255	255	261	300	296	296	231	215	175	165	165	165	0	0	0	0
Digital Services and Technology	111	111	114	118	117	117	64	48	10	0	0	0	0	0	0	0
Methods Data and Research	145	145	148	182	179	179	167	167	165	165	165	165	0	0	0	0
Economic Statistics	**2**	2	2	2	**2**	2	2	2	**2**	2	2	2	**0**	0	0	**0**
Economic Statistics Development	2	2	2	2	2	2	2	2	2	2	2	2	0	0	0	0
Population and Public Policy	604	604	693	798	815	814	740	645	438	436	431	424	156	156	151	116
PPP Operations	203	203	263	289	298	298	231	139	38	38	36	34	4	4	4	4
PPP Transformation	354	354	382	449	458	458	450	446	357	355	353	348	150	150	145	110
Public Policy Analysis	47	47	48	61	60	59	59	60	43	43	42	42	2	2	2	2
Grand Total	**948**	**948**	**1,045**	**1,225**	**1,242**	**1,221**	**1,081**	**957**	**669**	**655**	**650**	**643**	**164**	**164**	**159**	**124**

5.3   Costing forecasts

The detailed cost model has been enhanced as part of the organisation's internal cyclical review processes. This has informed recent budget planning. The financial case has been scrutinised by ONS internal governance committees prior to approval.

In October 2019, FBCv1 was approved with an estimate of £906m. This remains unchanged. For assurance, there has been a rigorous and detailed review greater than that of FBC1 which includes learning from the 2019 Census Rehearsal. This was to ensure that the programme was structurally secure as it enters a critical phase and that it could remain secure through the current COVID-19 pandemic. The procurement processes for key contracts have been revisited and renegotiated following the wave-of-contact study. The increased certainty of the re-negotiated contracts has informed the proposed contingency. The profile of costs has been updated since FBC1, with an increased concentration of costs between 2021 and 2022.

TABLE 5: FBC2 COST FORECAST AGAINST FBC1 IN £M

Census Budgets	2015-20	2020/21	2021/22	2022/23	2023/24	2024/25	TOTAL
TOTAL FBC1 2019	319.2	319.2	247.4	280.5	30.0	6.4	906.0
2020 Update (FBC2)							
Census Transformation	188.2	218.1	233.8	30.0	18.0	0.0	683.9
Digital Transformation	83.6	45.9	18.3	1.1	0.0	0.0	153.1
Data Collection Transformation	26.6	13.3	21.3	7.8	0.0	0.0	69.0
TOTAL 2020 FBC2	298.4	277.3	273.4	38.9	18.0	0.0	906.0

TABLE 64: BREAKDOWN OF PROPOSED AND PRIOR YEAR ACTUAL DIGITAL SPEND (INC. INFLATION)

Digital Spend £m	Actual 2015 - 2020	Forecast 2020/21	Forecast 2021/22	Forecast 2022/23	Forecast 2023/24	Forecast 2024/25	TOTAL
CDCTP Development	0.0	11.8	2.6	0.0	0.0	0.0	14.4
ONS Platform Development	16.7	4.7	2.1	0.0	0.0	0.0	23.5
ONS Technical Infrastructure	1.0	4.5	0.8	1.1	0.0	0.0	7.4
CDCTP IT Operations	26.5	7.2	2.7	0.0	0.0	0.0	36.4
Census Field Operations Devices	2.2	9.5	6.4	0.0	0.0	0.0	18.1
Other Field Worker Technology	1.3	7.8	2.3	0.0	0.0	0.0	11.4
Digital Census Dissemination	0.4	0.4	1.4	0.0	0.0	0.0	2.2
Other Prior Year Costs	35.5	0.0	0.0	0.0	0.0	0.0	35.5
TOTAL	83.6	45.9	18.3	1.1	0.0	0.0	148.9

TABLE 75: TOTAL PROGRAMME COST FORECAST ANALYSIS FROM OBC TO FBC2 IN £M

Census Budgets	2015-20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	TOTAL
Interim OBC (2014):	336.0	276.0	279.0	39.0	29.0	21.0	0.0	980.0
Programme Business Case v1.0 (Spending Review 2015):								
Census Transformation	260.0	282.0	230.0	33.0	24.0	16.0	0.0	845.0
Digital Transformation	21.0	0.0	0.0	0.0	0.0	0.0	0.0	21.0
Data Collection Transformation	26.0	5.0	3.0	2.0	2.0	1.0	1.0	40.0
TOTAL PBC v1.0 2015	307.0	287.0	233.0	35.0	26.0	17.0	1.0	906.0
2017 Programme Business Case v2.0								
Census Transformation	258.0	263.0	265.0	29.0	21.0	9.0	0.0	845.0
Digital Transformation	21.0	0.0	0.0	0.0	0.0	0.0	0.0	21.0
Data Collection Transformation	27.0	5.0	3.0	2.0	1.0	1.0	1.0	40.0
TOTAL 2017 Refresh	306.0	268.0	268.0	31.0	22.0	10.0	1.0	906.0
2019 Full Business Case								
Census Transformation	207.2	207.7	260.2	22.6	19.0	4.1	0.0	720.8
Digital Transformation	80.8	29.2	10.7	3.0	1.5	0.9	0.0	126.1
Data Collection Transformation	31.2	10.5	9.6	4.4	2.0	1.4	0.0	59.1
TOTAL 2019 Refresh	319.2	247.4	280.5	30.0	22.5	6.4	0.0	906.0
2020 Full Business Case v2.0								
Census Transformation	188.2	218.1	233.8	30.0	18.0	0.0	0.0	688.1
Digital Transformation	83.6	45.9	18.3	1.1	0.0	0.0	0.0	148.9
Data Collection Transformation	26.6	13.3	21.3	7.8	0.0	0.0	0.0	69.0
TOTAL 2020 Refresh	298.4	277.3	273.4	38.9	18.0	0.0	0.0	906.0

5.4 Programme assumptions and exceptions

Capital Requirements

It is assumed that the funding requirement for the programme is classified as resource (RDEL). The programme has incurred £4.7m capital expenditure (CDEL) to date.

We anticipate that any future capital requirements associated with digital development expenditure will be managed in year through the supplementary estimates process. Most of the capital requirements relate to apportioned digital build expenditure.

Post 2021 Severance Costs

The census involves a rapid increase and decrease of ONS staff numbers relating to the delivery of census. This reaches a peak in 2021 before reducing. Though ONS will seek to retain and redeploy talent into other programmes and activities, it is likely that there will be a residual. It is difficult to precisely estimate the severance costs. However, we have included an estimated figure of approximately £20m in the business case.

5.5 Programme contingency

The programme risk team have re-analysed all risks to identify those with a potential cost impact. Upon identifying the relevant risks, the team worked with the risk owners to re-estimate the scale of potential costs.

In addition, those contracts with a degree of variability were reviewed. The main cost estimate has been based on the latest contract revision. The contingency figure has been separately identified on a contract by contract basis where there is the potential for anticipated volumes to vary.

The management overlay contingency includes any centrally held contingency that has not been allocated to specific budget areas. This allows programme leadership flexibility to respond to any unforeseen issues, such as critical resource or service gaps. The management overlay is 2.25% of overall costs, and commensurate with a programme of this size and complexity.

The phasing of the contingency requirements has materially shifted, for two reasons. Greater depth of modelling for the census operations' wave-of-contact has identified requirements from February 2021 through to May 2021, including the census coverage survey (CSS). Additionally, a shift in timing and magnitude for digital requirements from 2019/20 to 2020/21. These have been previously discussed with HM Treasury with an agreed £8m rephasing of contingency from 2019/20 to 2020/21.

TABLE 86: CONTINGENCY SUMMARY

Category	2020/21	2021/22	2022/23	2023/24	TOTAL
Management Overlay	4.1	7.3	2.7	3.3	17.4
Contract	5.9	10.0	1.0	0	16.9
Risks Log	4.5	6.6	0.0	0	11.1
Total	14.5	23.9	3.7	3.3	45.4

TABLE 9: CONTINGENCY BREAKDOWN (£M)

Category	Output Description	2020/21	2021/22	2022/23	2023/24	TOTAL
Managment Overlay	R1227: CDCTP Capability and Capacity	3.1	5.7	1.0	1.0	10.7
Managment Overlay	R1965: CDCTP PB Key Risk: Failure to Transform the Statistical System	1.0	1.6	1.7	2.3	6.6
Contract	R1179: Questionnaire Management Volume Uncertainty	0 6	0.5	0.0	0 0	1.1
Contract	R1180: Contact Centre Volume Uncertainty	0 6	0.8	0.0	0 0	1.4
Contract	R1181: Print & Post Out Volume Uncertainty	1 2	0.8	0.0	0 0	2.0
Contract	R1201: Residual Coding volume uncertainty in the Questionnaire Management contract	0 0	1.5	0.0	0 0	1.5
Contract	R1202: Questionnaire Management Requirement/product uncertainty	0 2	0.5	0.0	0 0	0.7
Contract	R1904: Print & Post Out Requirement/product uncertainty	0 6	1.2	0.0	0 0	1.8
Contract	R1915: Supply of devices for field staff	0.1	0.0	0.0	0 0	0.1
Contract	R2025: Requirement uncertainty for Contact Centre Contract	0 8	0.0	0.0	0 0	0.8
Contract	Data Offboarding	0 6	0.5	0.0	0 0	1.1
Contract	Logistics costs: last minute shipment of supplies	0 0	0.5	0.0	0 0	0.5
Contract	Restore devices to factory settings	0 0	0.3	0.0	0 0	0.3
Risks Log	I1508: Quality of "Who usually lives here" section of Household questionnaires	0 0	0.1	0.0	0 0	0.1
Risks Log	R0024: (R0024) Failure to recruit required volumes of Census field staff	0.9	1.5	0.0	0 0	2.5
Risks Log	R1515: 2021 Census Printed Materials Extra Resource; Content, Design, Test and Deliver	0.1	0.0	0.0	0 0	0.1
Risks Log	R1517: Inability to meet (NISRA) 2021 Communications Commitments	0.1	0.0	0.0	0 0	0.1
Risks Log	R1780: Loss of Key Staff, moving from Fixed Term Appointments to Permanent	0.3	0.3	0.0	0 0	0.5
Risks Log	R1893: Delay in receiving 2021 Census products	0.1	0.0	0.0	0 0	0.1
Risks Log	R1937: FWMT system failure during live operations. Disruption to field operations.	1.3	0.0	0.0	0 0	1.3
Risks Log	R1978: Lack of visibility of all the materials required for the 2021 Census	0.1	0.0	0.0	0 0	0.1
Risks Log	R1986: Community groups payments for Census 2021 community completion events	0.1	0.1	0.0	0 0	0.1
Risks Log	R2039: Second Covid-19 spike tight lockdown during 2021 Census live operations	1.8	3.0	0.0	0 0	4.8
Risks Log	R2040: Census field staff not operationally ready to start work in the field by date	0 0	1.3	0.0	0 0	1.3
Risks Log	R2041: Incorrect volumes of Census field staff profiled for live operations	0 0	0.6	0.0	0 0	0.6
Risks Log	R2042: Field staff do not model the behaviours stipulated by ONS	0.1	0.8	0.0	0 0	0.8
Risks Log	R2043: Global System Failure during 2021 Census live operations	0.3	1.3	0.0	0 0	1.6
Risks Log	R2045: Census field staff training not fit for purpose	0.1	0.8	0.0	0 0	0.8
Risks Log	Recharges from other Government Departments to facilitate data sharing	0.6	0.0	0.0	0 0	0.6
Risks Log	Census Dissemination Digital Platform Security, Capacity and Capability Risks	0 0	0.5	1.0	0 0	1.5
	TOTAL	14.6	23.9	3.7	3.3	45.4

6 Management update

6.1 Summary

The programme has a comprehensive and robust governance, management and assurance framework in place to ensure that the outputs, outcomes and benefits of the investment are achieved.

This governance, management and assurance framework is founded upon, and complies with, all appropriate government requirements, standards and best practice for programme, commercial and financial management.

It has continued to evolve as the programme has applied lessons learned and acted upon recommendations from assurance activities. This has included organisational restructures and the introduction of new roles.

This framework, and specific aspects within it, will continue to be refined as the programme progresses to address the changing demands of the lifecycle, changes in the wider environment and emerging experiences and lessons learned. However, it will always be based upon the principles of appropriateness, prudence and agility.

6.2 Programme planning, management and assurance

Census & Data Collection Transformation Programme Level 0 Milestones
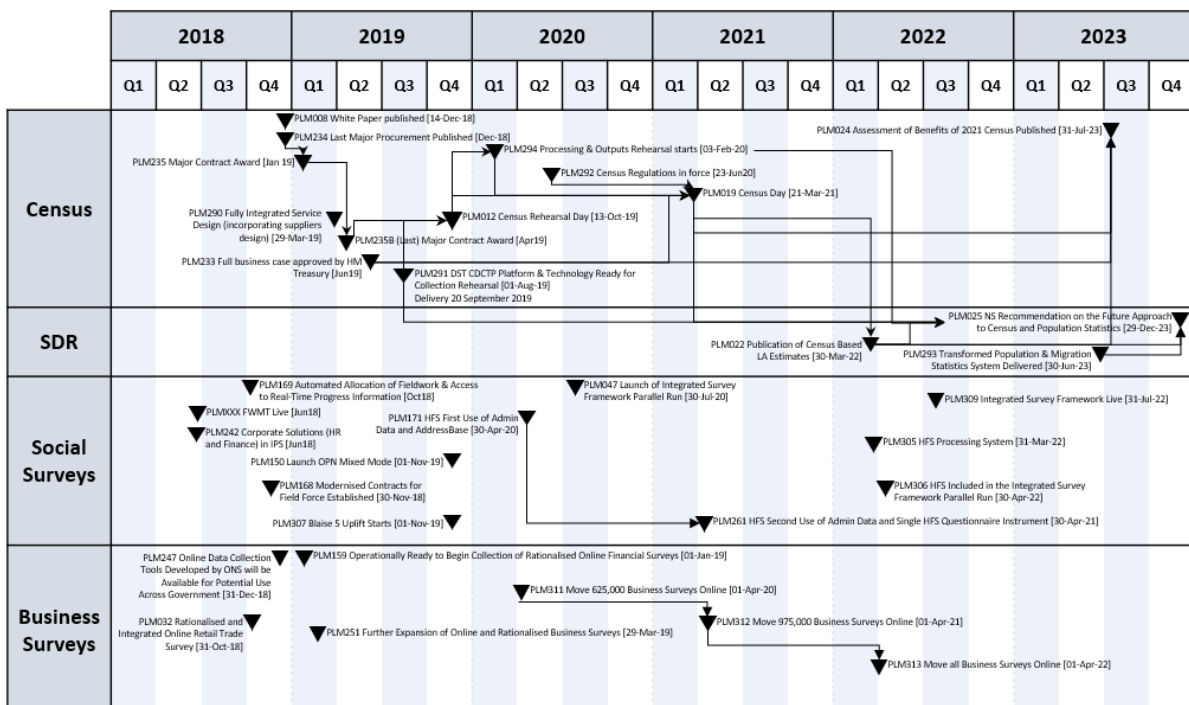
Version 2.0   August 2020

The Programme Management Office (PMO) continues to work with an agreed single set of standards ensuring consistency in planning and reporting. This enables more robust integration of all various components of the portfolio (and those impacting the portfolio) in the

future. These are aligned to the Government Project Delivery Standards and the ONS Professional Standards.

The programme continues to have three levels of milestone in place that are used for tracking and reporting at different boards. The Programme Management Office (PMO) maintains the programme plan which uses level zero and key level one milestones for the critical path and to track delivery at a strategic level. Project managers maintain project delivery plans including the level two milestones. A census operations plan has been produced to focus specifically on census activities and further plans, based upon agile methodology, continue to be refined for the business statistics and social survey work within the programme.

Portfolio planning continues to be is conducted by the organisation's central Planning and Portfolio Management (P&PM) team who also manage the alignment between organisational strategy and plans. This ensures that portfolio and business as usual planning activities are aligned and sequenced appropriately. P&PM undertakes ongoing programme and project assurance and reporting on the progress of the portfolio to assess achievability of the portfolio plan. These activities act as an early warning indicator highlighting concerns over the delivery of future programme milestones thereby allowing Portfolio and Investment Committee (PIC) to take preventative action.

As stated in the FBC1, in line with the programme roadmap and the quality management strategy quality objectives and measures will be defined and reviewed throughout the programme. The objectives, quality objectives and critical success factors will be formally evaluated at programme close, using the quality measures established by the programme.

Programme delivery phases

To bring about the transformation, the programme has initiated a number of projects for each of the key areas; BST (Business Statistics Transformation) Census, SDR (Statistical Design and Research) and SST (Social Survey Transformation). Projects are listed in the programme project dossier. If necessary, new projects will be initiated or projects closed once approved by the deputy director for programme delivery. The programme is supported by central corporate functions, including human resources, legal and finance.

The key delivery phases of the programme remain as stated in FBC1 with the following future phases being delivered:

- **2021 Census –** initial contact with the public will commence via a letter posted out to households and communal establishments in England and Wales, in most cases 3 weeks before Census Day 21 March 2021, inviting participation in the Census.

- **2022 Business Surveys transformation complete**. Transformation of data collection operations seeks to rebalance ONS's data collection for business and social surveys toward wider, more integrated use of administrative and other non-survey data sources, reducing reliance on large population and business surveys.

- **2022 Census Outputs –** commence publication of outputs including the use of administrative data to deliver the programme benefits.

- **Social Survey Transformation**. Where social surveys are still required online first, mixed mode data collection delivers the primary measures of survey-based statistics integrating with administrative data to deliver transformed population and migration statistics.

- **2023 Recommendation** for future census options and the future of population surveys.

Programme methodology

The programme continues to be managed according to the Cabinet Office (CO) and Infrastructure and Projects Authority's (IPA) recommended methodology, Managing Successful Programmes (MSP) and the Government Project Delivery Standards. In addition, the programme continues to use the most suitable approach (waterfall or agile or hybrid) depending on the output required, as well as business change methods and processes to support transformational activities.

The transformation director acts on behalf of the senior responsible owner in delivery of the programme. To support both the transformation director and senior responsible owner, the deputy director for programme delivery has day to day accountability for delivering the programme through multidisciplinary teams of programme, project and change professionals. This includes a central programme management office (PMO), responsible for programme level management and control. The PMO ensures that a consistent approach is taken to all aspects of delivery and that the programme is complying with relevant standards.

Acting as the internal client for the transformation are both the operations director and the public policy analysis director. The operations director is accountable for census operations once solutions are in use following operational handover and acceptance of services. The operations director will be responsible for service operational delivery and accountable for operational decisions. The public policy analysis director is responsible for leading the delivery of social statistics and maximising the impact of its public policy analysis, including 2021 Census outputs.

Programme governance

As stated in the FBC1 programme governance sits within the overall ONS governance framework. This forms part of the ONS investment portfolio and is included within the Government Major Projects Portfolio (GMPP), which is overseen jointly by the IPA and HMT. There have been no significant changes to ONS governance since FBC1.

Developments since May 2019 have driven changes to the programme governance structure which was last revised in June 2020. It was reviewed and assured by an IPA Gate 0 Review in July 2020. The governance structure reflects three key components, building capability by overseeing the design and build for the transformation, the handover and delivery of operations, and finally, the handover of operational capability into business as usual. The governance structure aims to tighten cross-programme decision making by ensuring that decisions are made at the appropriate level. Regular reporting provides the programme and project boards with a summary of the status of the programme or project at regular intervals.

Reporting advises senior managers and directors of positive and negative events, allowing for progression or remedial action to be taken as appropriate.

Programme control and approvals

The programme continues to manage control, change and approvals as outlined in the FBC1 with the principal pipeline being via the integrated change control board (CCB). The programme is included in the Government Major Projects Portfolio (GMPP) with quarterly reports provided to allow the Infrastructure and Projects Authority (IPA) to conduct independent assurance.

Within the programme, budgeting, forecasting and monitoring are conducted on a regular basis. The programme continues to delegate a proportion of contingency to business areas to allow for flexibility during delivery. This is monitored through the CCB.

Each iteration of the programme business case remains subject to the full ONS internal investment approval governance. Business cases are assessed by ONS subject matter experts who provide comments and endorsement before sign off at the appropriate level.

ONS continues to manage departmental expenditure limits (DEL) and annually managed expenditure (AME) in a way that maximises effective use of public funds in line with HMT requirements.   This programme refresh has been reviewed and endorsed by ONS keyholders, the programme board, senior responsible owner and the National Statistician in line with HMT delegations. Programme purchasing fully accords with HM Treasury and Cabinet Office requirements for the specific control of expenditure by government departments on certain prescribed items.

Programme risk

The programme continues to manage risks in accordance with the UKSA Risk Policy providing regular updates to the Audit and Risk Committee. Project level risks are reviewed at each project board or management meeting (as appropriate) and programme level risks are reviewed at both the transformation and operations boards. The programme board owns and reviews a set of key strategic risks. Additionally, risk deep dive reviews take place around specific risks or themes that warrant more detailed investigation and understanding. The programme uses the Authority risk and issue database to capture project and programme risks. The current risk landscape is shown below and was reviewed as part of the IPA G0 review in July 2020.
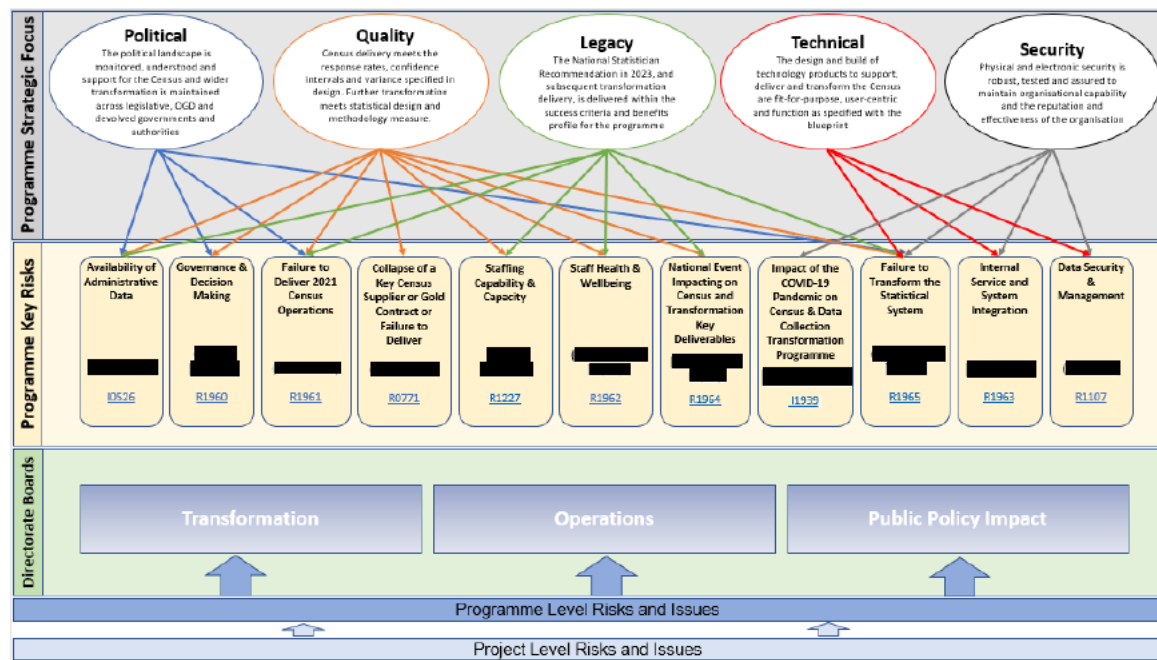
Service design and digital assurance

ONS is fully committed to complying with the Government Service Standards for all its public and business facing solutions. The Government Digital Service (GDS) have, and continue to be, engaged in agreeing plans for assuring compliance of all census enabling products, including adherence to spend controls.

Initial assessments conducted by GDS focused just on the public-facing element of the delivery. As the scope of the Government Service Standard has developed in recent years, both parties acknowledged that the scale and complexity of the end to end census capability has not fitted neatly with the standard assessment process. This is partly because the enabling capability consists of both strategic and bespoke solutions for this single survey. As such, joint agreement was reached for a pragmatic, risk-based approach to assure compliance with the best practice principles contained within the standards.

Recommendations were proposed following an assessment workshop in July 2019. A thorough analysis was undertaken of the technology solutions that are not subject to significant change. A risk-based approach to assuring compliance with all other aspects of the standards has been implemented within ONS, involving external assessors where available. The order of priorities is:

1. Public facing solutions
2. Field worker interfacing solutions
3. Data processing and analysis pipeline
4. Data dissemination

Whilst most of the major development of solutions has now been completed, particularly since it was required for the different stages of Census rehearsal in 2019, some major work on data dissemination is underway and is under continuous ONS assurance for compliance with the service standards. GDS technology colleagues have been engaged early in the discovery and alpha phases in a critical friend capacity. Assurance updates are planned to

be shared with GDS in September 2020 for feedback and agreement on any further action necessary for this digital programme of work.

Methodological assurance

A methodological assurance review panel is considered a key assurance activity and has been established to provide assurance to the National Statistician. Reviews will take place up to 2023, led by a chair and a core panel of experts from the academic, public and commercial sectors. At present the panel meets every three months as methods are developed and will continue to meet regularly until methodology for the entire programme is approved.

Programme assurance

There have been no significant changes to programme assurance. The programme continues to have processes in place processes to ensure there are sufficient, robust and challenging controls to test the achievability of plans, management of risk and stakeholders. Assurance will seek to provide evidence of effective controls against the assurance alignment model and identify opportunities to increase likelihood of success. This will ensure alignment across the scope of the programme and highlight any potential assurance gaps.

The programme assurance team focus on providing assurance across the programme with the following key objectives:

- Coordinate and report the overarching view against the three lines of defence model; provide assurance visibility and insights across the programme including early warning indicators via existing PMO metrics.
- Act a conduit between Infrastructure Projects Authority (IPA), Planning & Portfolio Management (P&PM), Internal Audit and Programme Assurance Owners.
- Mitigate against assurance gaps, whilst avoiding overburden to delivery and functional teams.
- Aim to minimise repeat occurrence of issues through analysis of assurance failures or gaps, ensuring lessons learned are effectively captured and recommending relevant actions.

Cross programme functional confidence is assessed via the assurance map which remains a "live" document alongside the integrated assurance and approvals plan (IAAP). Assurance will be further informed by the integration of a risk and assurance matrix. This contains insights gathered from a range of sources including the census assurance group, programme management information, early warning indicators and anonymous feedback.

The latest IPA Gateway Review (Gateway 0 Strategic Assessment) took place in July 2020. The Delivery Confidence Assessment is rated Amber due to clear and decisive leadership being in place giving confidence that Census 2021 will be delivered. Further Transformation activity is underway though appears, understandably, to have less visibility and priority at present. The review report is available from the programme or from the IPA.

6.3   Programme evaluation and closure

As described in FBC1, post-programme evaluation of processes and lessons learned will commence in 2021/22. The programme will be formally closed during the period December 2023 to March 2024. Resource requirements for evaluation activities are planned and will consist almost entirely of in-house staff resource. These costs and staff numbers are accounted for in the programme's cost model. In 2023, ONS will present recommendations to government as to the future of census arrangements. The views of end users and decision-makers will inform these recommendations in respect of how far the new system will be fit for purpose in meeting needs. The methodologies underpinning the proposed new approach will be quality assured by an external panel of experts.

The programme continues to manage benefits realisation in line with the ONS Benefits Management Framework, and with the other ONS investment portfolio programmes and projects. The benefit realisation progress is and will continue to be monitored and reviewed continuously through the processes and steps outlined in the FBC1. Progress towards realising programme benefits will be monitored throughout the programme life cycle.

As the programme forms part of the ONS's portfolio of programmes, a programme exit and evaluation report will be completed before the programme can formally exit the portfolio. This report will examine how investment funding has been spent, what benefits were achieved, and the return on investment. The content of this report is based on HMT guidance and principles through the Green and Magenta books.

A General Report has traditionally been produced for every census since 1861 to summarise each census operation, report on innovations and make recommendations for the following census. The 2021 Census General Report will be published after the closure of the programme in 2024.