NEW ZEALAND'S NEXT CENSUS OF POPULATION AND DWELLINGS

Stats NZ
Tatauranga Aotearoa

Final Report

A Business Case to support a funding bid for Budget 2020

Submitted to Treasury
12 December 2019

Document history

- Version 1, 21 October 2019 Stats NZ review
- Version 2, 30 October 2019: Gateway review
- Version 3, 28 November 2019: IQA and Gateway feedback incorporated
- Version 4, 6 December: Treasury, SSC, DPMC and DIA feedback incorporated
- Version 5, 12 December: Submitted to Treasury in support of Budget 2020 bid

New Zealand Government

IMPORTANT NOTE

The Business Case for New Zealand's next Census of population and dwellings should be read in conjunction with a separate document called the Detailed Management Case

Before this Business Case was submitted to the Minister of Finance in support of a budget bid for Budget 2020, Stats NZ and central agencies agreed that a Detailed Management Case would follow the Business Case

The purpose of the Detailed Management Case (DMC) is to provide assurance to central agencies about Stats NZ's preparedness to successfully deliver the next census.

The DMC confirms that the funded investment is achievable and describes Stats NZ's arrangements to realise the investment's benefits and manage its risk. The DMC also describes the Government's funding decision for the next Census and the funded approach which lies between Approach 1 and the preferred Approach 2 in this Business Case.

Together, the Business Case and the Detailed Management Case describe how the next census will be delivered

The table on the right shows how, together, the Business Case and DMC align to the Treasury's Better Business Case framework.

		Business Case in support of budget bid	Detailed Management Case
		Submitted December 2019	Submitted April 2020
End to end process for the next census	How the next census aligns with the Chief Data Steward's Data Strategy and Stats NZ's Census Transformation strategy.	√ (Strategic Case)	
	The timing of the next census.	√ (Economic Case)	
	The design of the census – including the planning phase, information collection and the dissemination of the census outputs, and the role of administrative data.	√ (Economic Case)	
	How much of the census content will need to change in order to improve the relevance and accuracy of census outputs, produce new outputs, and/or meet the needs of key customers.	√ (Economic Case)	
	How to determine the official coverage and response rates, and the estimate of the residential population.	√ (Economic Case)	
	The service delivery arrangements, including suppliers and community partners.	√ (Commercial Case)	
	The cost of, and funding mechanisms for the next census, including funding contingencies.	√ (Financial Case)	
	The governance and management arrangements for the census programme		√
	The capability and capacity needed to deliver the next census, including personnel and systems.		√

CONTENTS

PREFACE

On 23 September 2019, the 2018 Census data was released, six weeks after the Government Statistician and Chief Executive of Stats NZ resigned following the release of the report of the Independent Review of the 2018 Census, and 11 months after the original data release was planned to occur.

The fallout from the 2018 Census was unprecedented. It was front-page news, reflecting the significant role the census has in New Zealanders' everyday lives.

The pressure on Stats NZ to successfully deliver the next census is greater than ever. It is eager to rise to the challenge ahead, to demonstrate it is a safe pair of hands, and to deliver on its role as Aotearoa's independent data leader and expert.

The 2018 Census serves as a very clear reminder that each census requires careful planning and skilful execution. Planning needs to allow for unexpected challenges, and Stats NZ must be able to adapt and respond to them.

The Independent Review considered the design, implementation, and operation of the 2018 Census, and found the 34th census had involved significant change from its predecessor in 2013. Although the design was fundamentally sound, the execution of it was flawed.

The lessons from the 2018 Census have been fundamental in shaping this Business Case, which aims to identify an achievable design for the next census, and the capability and capacity needed to deliver it.

To realise the benefits of the next census, it is imperative that a rich, high-quality dataset is produced

The next census needs to regain the trust and confidence of all New Zealanders, making it easy for everyone to participate, and deliver on the needs of Māori.

EXECUTIVE SUMMARY

The purpose of the Business Case is to support a budget bid to the Minister of Finance for Budget 2020 for a multi-year appropriation to deliver the next census.

The data the census collects is the lifeblood of public- and private-sector decision-making

Census data is used by central and local government, businesses, Treaty partners and community organisations to make important decisions.

The data the census produces describe the wellbeing of small populations and those living in deprivation – groups that often have the poorest outcomes and are of high policy interest to government. This capture of rich data about communities throughout Aotearoa is unique to the census. The census is also a vital and comprehensive source of data on iwi affiliation, the state of te reo Māori, Māori descent, and Māori ethnicity.

An independent valuation of the use of census data estimated that for every $1 invested in the census, at least $5 is generated in the economy. For Māori, the return on investment is even higher, at $8.

Stats NZ has embarked on a Census Transformation Strategy that sets a course away from a traditional full field enumeration census to one based mainly on administrative data[1]

Realising this vision will mean that, in the future, customers have access to high-quality data, the data is updated more frequently, and the burden on New Zealanders to complete the census questionnaire will reduce.

The Strategy recognises that a full field enumeration will still be needed in the medium term

The 2018 Census demonstrated that Stats NZ is getting closer to being able to use administrative data to meet the core needs of the census – for example, redrawing electorate boundaries and determining funding allocations for district health boards (DHBs).

However, it also showed that reliable administrative data is not yet available for some important population characteristics such as iwi affiliation and family and household structure. In the medium term, a full field enumeration is still needed, as part of a combined methodology census model that also uses administrative data to fill data gaps.

That combined methodology model enables Stats NZ to respond to the increasing difficulty of collecting data directly from the whole population, while taking advantage of the greater availability of administrative data and new technologies.

While a large proportion of the population needs little support to complete the census, there is a growing segment that is hard to count. For this group, Stats NZ currently visits homes up to 10 times to achieve high enough response rates in its household surveys, compared to up to 3 times in the 2006 Census.

[1] Administrative data refers to records that are collected mainly for operational rather than statistical purposes but that are then used to produce official statistics.

Participation in New Zealand censuses has gradually declined since 1996, with a big drop in 2018

Between the 1996 and 2018 Censuses, overall response rates declined from 95.6% to 83.3%. Of even greater concern has been the steeper drop in response rates for population sub-groups such as Māori whose outcomes are often poorer than for many other New Zealanders. Between 2006 and 2018, response rates for Māori and Pasifika declined from 93% and 92% respectively to 68% and 65%. Youth response rates dropped from 92% to 75%.

Low response rates limit Stats NZ's ability to produce rich data about the wellbeing of groups that are of high policy interest and its ability to provide statistical counts of iwi. Declining response rates are not an inevitability, however. By making significant investments, other countries have been able to improve their census response rates. For example, by more than doubling the census budget from £211 to £484 million, the 2011 England and Wales Census was able to significantly lift response rates for population sub-groups and small areas from the low levels achieved in 2001.[2]

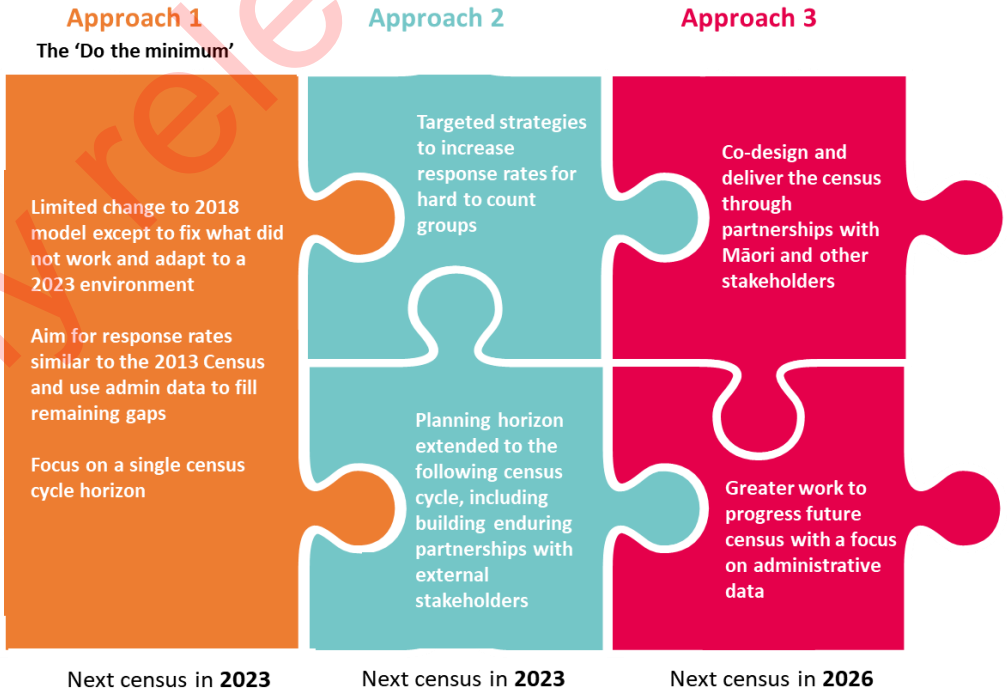
Census data about hard to count groups is highly valued by customers and stakeholders

It is clear from customer feedback that demand for social and population information has become more sophisticated. Customer requests for very granular data are increasing, and the rich data for groups that are hard to count is highly valued. Customers, including Māori and iwi, increasingly want to be involved in decision-making about census content and in the design and delivery of the census.

Customers also want subjective data that is accurate, up to date, more frequent, easy to find, and more detailed, as they seek to understand the 'Why' and not just the 'What'.

A comprehensive process analysed a long-list of possible options and identified three short-listed approaches for further analysis

The three short-listed approaches identified to deliver the next census sit on a continuum. At one end, Approach 1 is a viable 'Do the minimum' approach, with Approach 3 sitting at the other, more ambitious end. Approach 2 falls in between them, shown in the diagram below.



[2] NZD403 million to NZD704 million in present value terms.

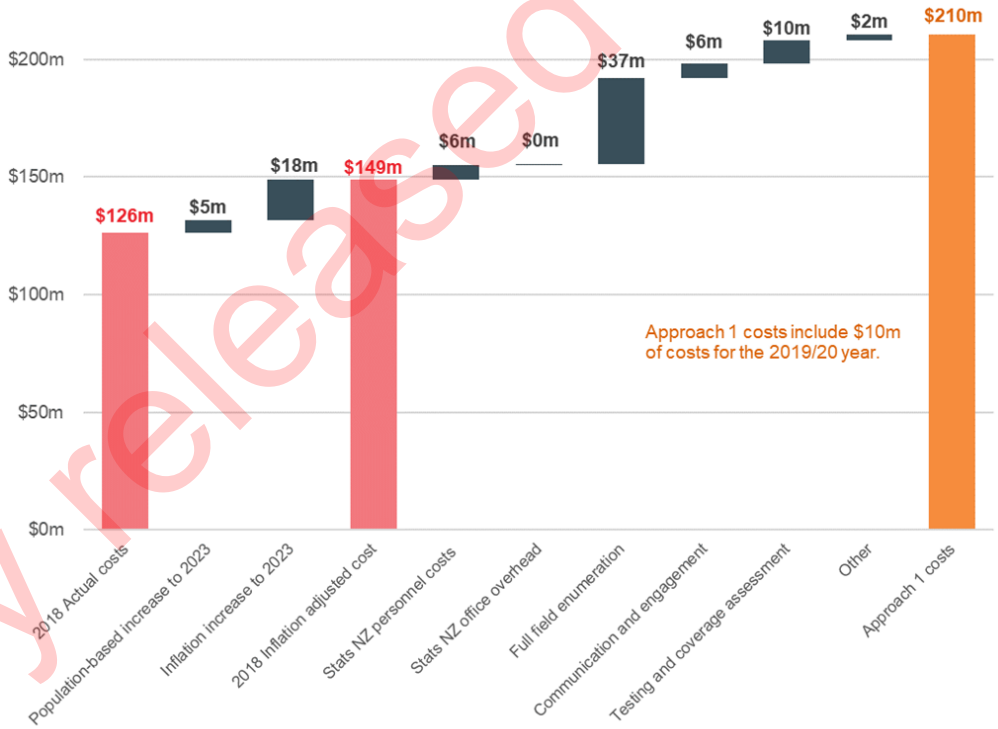
The ‘Do the minimum’ seeks to deliver a better outcome than the last census and, for this reason, costs more

Approach 1 uses the successful parts of the 2018 Census with limited change to its design, changing only where needed to fix what did not work well and to deliver the next census in a bigger, more diverse population.

The main change is a significant increase in field enumeration – ‘boots on the ground’ – to make sure that everyone has a census form before census day and that anyone who has not completed their form is actively followed up.

The cash cost of the ‘Do the minimum’ approach is $210 million.[3] The bar graph on the right shows how this is $61 million more than the equivalent cost of the 2018 Census (when adjusted for today’s dollars and population size). The Business Case explains the reasons for the cost difference in detail.

It is important that 2018 Census costs are not used as a benchmark. That census produced unacceptable response rates due to field staff reductions that the Independent Review said were too aggressive. The cost of the 2018 Census would have been considerably more than $126 million had enough field staff been used to produce acceptable response rates. Overall, the 2018 Census was under-designed to meet its needs and hence underfunded. It was also built on the 2013 Census, which had to use ‘no change’ designs due to funding and timing constraints.



Approach 1 is Stat NZ’s bottom line

Stats NZ will not conduct a census with a budget lower than the ‘Do the minimum’ approach, as this would set the country up for another failure. There would be a high likelihood that the unacceptable result of the 2018 Census is repeated.

Approaches 2 and 3 build on the ‘Do the minimum’…

Approach 2 builds on the ‘Do the minimum’ approach by improving coverage and response rates for population sub-groups (similar to 2006 Census

[3] All figures in the Executive Summary exclude a contingency unless specified.

levels) and manages change across multiple census cycles by testing the feasibility of options that might be used in future censuses after 2023.

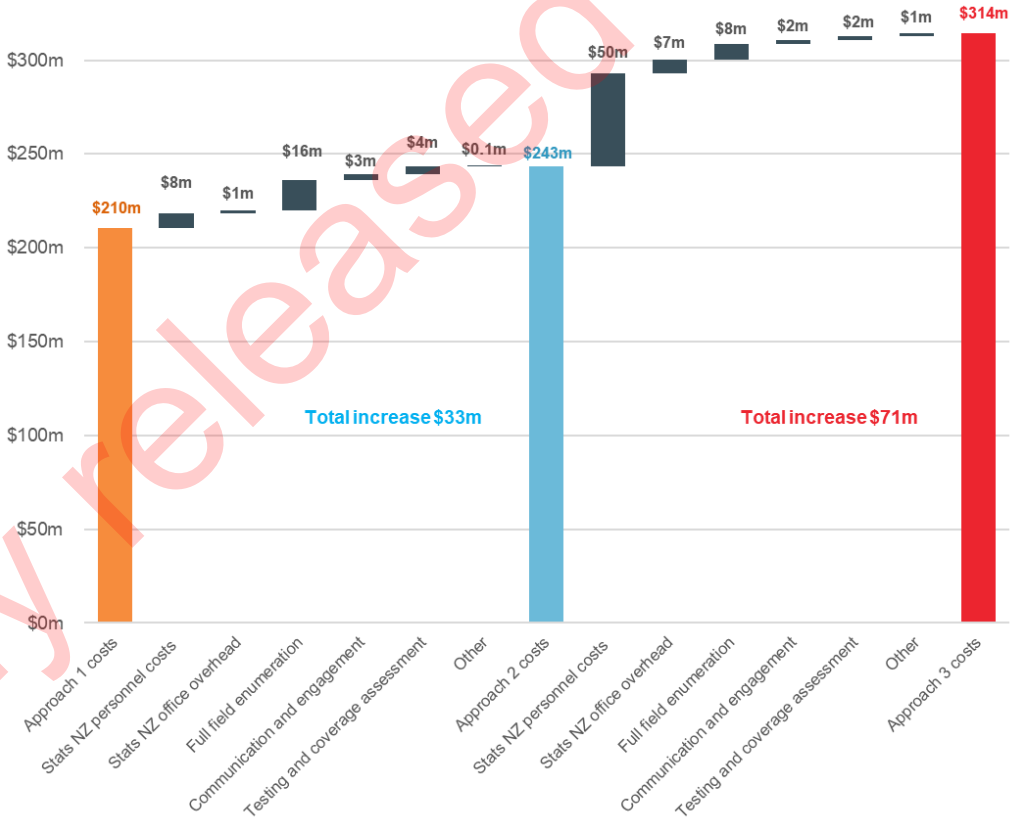
Approach 3 progresses the furthest along the strategic pathway. It develops deep-seated partnerships with Māori to co-design and deliver the next census and to work with Māori to grow data capability so they can use census data better. And while Approach 3 allows for more content change, the later census date presents trade-offs for customers.

… and require more investment

The cash cost of Approach 2 is $243 million and Approach 3 is $314 million. The bar graph on the right shows the main cash items (excluding contingency) that increase the cost of these two approaches.

The cost of Approach 2 may seem high compared to Approach 1, but it is within the range of international census per capita costs. For example, the per capita cost of the 2016 Canadian census was $49 (compared to $46 for Approach 2). The per capita cost of all three approaches is less than the upcoming US 2020 Census ($85).

The rising cost of a census is not unique to New Zealand. In December 2010, the US Government Accountability Office noted that the cost of conducting the US census approximately doubled each decade since 1970. The same is also true for the England and Wales Census mentioned above.



Approaches 1 and 3 both have significant shortcomings that outweigh their benefits

Approach 1 does not advance Stats NZ towards its vision for the census or progress its commitments to partnering with Māori and iwi. It will not achieve very high (and equitable) response rates for Māori, Pasifika and other hard to count population groups and it will barely meet customer needs for rich data. Approach 1 involves fewer field staff and less community engagement than

Approaches 2 and 3 and carries a high risk of response rates being unacceptably low for some groups and geographic areas.

Approach 3 holds the census in 2026, with the additional planning and development time used to introduce new census content and move Stats NZ further along its strategic pathway toward an administrative data future. However, the longer wait for the next census falls short of meeting the expectations of Treaty partners and stakeholders and the needs of customers. There is more uncertainty about what the future environment will be like and the technological changes that will be needed to conduct a successful census.

Approach 2 is the preferred approach – it seeks to successfully deliver the census in 2023 while moving closer to the goal of a future census based mainly on administrative data

Approach 2 delivers a census using a conservative and well-tested full field enumeration design, with administrative data used to fill gaps and support the design and delivery of the census.

A large proportion of census resources will focus on the growing part of the population that is hard to count. This will lift response rates above unacceptable 2018 Census levels and produce census outputs that describe population groups who often have poorer outcomes than other New Zealanders.

Customers, Treaty partners and stakeholders have expressed a strong preference for this approach because it best meets their needs. It balances the need to maintain the current time series of data with a desire for ever-richer, high-quality data about small groups of the population.

Approach 2 delivers improvements to the wider data system. Focused research and development for a 2028 Census will limit the amount of change needed over consecutive census cycles, and will provide a deeper understanding of ways to improve the population count and the quality and availability of administrative data.

Stats NZ will grow its enterprise capability to support the increased use of administrative data in the production of official statistics. It will do this through developing a new Statistical Person Frame register and new business rules for its existing processing platform.

Continuous engagement throughout the full census cycle will build longer-term partnerships with Treaty partners and stakeholders and help them grow their own data capability.

Approach 2 delivers benefits over the short, medium and long terms

Short-term benefits

In the short term, Stats NZ will revise the official population estimates and projections. Electorate boundaries will be adjusted so all New Zealanders have equal representation in Parliament. The Ministry of Health will allocate funding to DHBs so health services more closely match the needs of the population and New Zealanders have access to appropriate levels of primary health care and hospital care. Economic and social researchers will generate robust and insightful knowledge about population groups.

The timely release of rich census data will increase customers' and stakeholders' trust and confidence in official statistics, and help to maintain the international community's trust in the New Zealand government.

Medium-term benefits

In the medium term, census data will be used to develop evidence-based policy. Delivery of essential public services like health and social housing will be targeted more accurately to Māori, Pasifika and other population groups whose outcomes are poorer than those of many other New Zealanders.

Government and private sector will make better decisions about infrastructure use and investment, including for built space, three waters, roading and recreation assets. Businesses will better understand what their customers want, including services that are essential to the community (such as aged care).

New Zealand will better understand its cultural identity and wellbeing, which is linked to positive outcomes in areas like health and education. Resources can be better directed to grow the Māori language and increase the number and competency of te reo speakers.

Long-term benefits

In the long term, Treaty partners and stakeholders will have access to better-quality official statistics and so will be able to use them more effectively. This data can be used to improve the wellbeing of Māori and population groups with highest needs, and support New Zealand to have thriving, resilient communities.

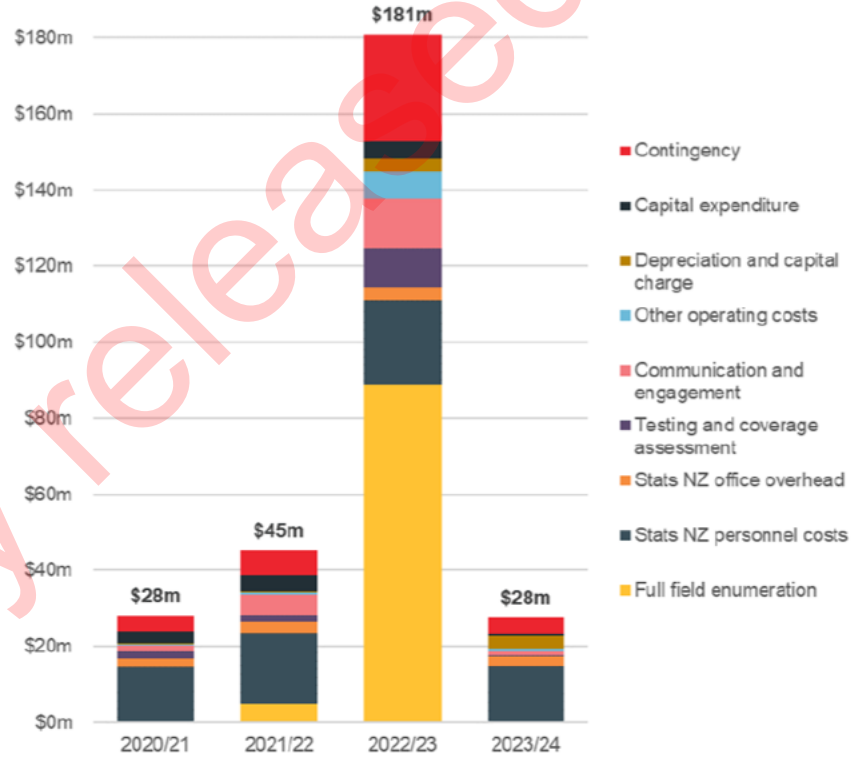
The funding requirement for the four years from 2020/21 to 2023/24 is estimated to be $281.7 million including contingency

The funding sought for Approach 2 is made up of $269 million operating and $12.7 million capital, shown in the table below.

$ millions	2020/21	2021/22	2022/23	2023/24	Total
Operating base cost	21.0	34.6	148.0	22.5	226.1
Contingency at 85th percentile	4.0	6.5	28.1	4.3	42.9
Operating funding sought	**25.0**	**41.1**	**176.1**	**26.8**	**269.0**
Capital funding sought	**3.0**	**4.2**	**4.8**	**0.7**	**12.7**

Based on advice from Treasury, the funding includes $42.9 million for contingencies, which is based on the 85th percentile of the likely cost distribution modelled by the quantitative risk analysis. Stats NZ is not expecting to draw down the full amount of funding sought. It will agree with Treasury the amount of funding contingency that can be drawn down by the census programme and by Joint Ministers, and the mechanism for this to happen.

The bar graph below shows the cost over four years.



All Stats NZ staff, overhead and travel costs are included in 'Stats NZ personnel costs'.

Financial risks

There are two main financial risks for the census programme: insufficient funding to fully deliver the census as it was designed, and not enough funding certainty over the lifecycle of the census. If these risks were to eventuate, there is a greater chance the census will not produce an acceptable result. This is because:

- Stats NZ could be forced to design a cheaper or smaller-scaled census model. Stats NZ would be unable to increase the scope of the census model later if additional funding becomes available.
- There will be potentially less market competition for contracts that are tendered by Stats NZ for the census, and it could be more difficult for Stats NZ to enter into contracts with providers that span multiple financial years.
- Stats NZ may find it harder to recruit high calibre people to the census programme.
- If there are requirements to unlock funding throughout the census lifecycle, the census programme management team may need to divert a significant amount of its attention away from census planning in order to access the funding.

Stats NZ will focus on four key change areas to successfully deliver the next census

Key change 1: Keeping the focus on what matters. Stats NZ will use the census programme's critical path to manage dependencies and risks and inform contingency planning.

Key change 2: Creating a culture of constructive challenge. The census programme will nurture a culture of constructive challenge, including a willingness to listen and take advice from both internal and external stakeholders.

Key change 3: Greater use of independent advice. The census programme will use independent advisors to bring in fresh expertise, skills and perspectives.

Key change 4: Being adaptive. The census programme will build flexibility into the planning schedule so that it can adapt to unexpected delays and adverse events that occur during the census cycle.

Procurement has an important role in the delivery of the next census

Unlike some major transformational initiatives, which include one or maybe two technology partners, the census is characterised by there not being a single dominant supplier. Instead, a range of procurements are necessary for census success. Commercial arrangements for the census will focus on ensuring there is effective integration across all the suppliers and the census programme.

Stats NZ will also use several procurement approaches to recruit the required number of field officers. Where feasible to do so, it will recruit officers directly. For cities and large centres, it will use large-scale providers.

Stats NZ will appoint a panel of regionally based recruitment suppliers to help get enough capacity in the regions, and partner with community organisations to get field officers that have a deep understanding of, and are recognised by, the communities they will work within.

STRATEGIC CASE

The Strategic Case describes the case for the proposal to invest in the next census, and sets out the strategic context.

What this Strategic Case seeks to do

1. **Define the scope of the Business Case**
2. **Demonstrate the significant impact that the census has on the every-day lives of New Zealanders**
3. **Describe Stats NZ's vision for a census based mainly on administrative data and why this ambition is so important**
4. **Define the investment objectives and the key elements that must be present to successfully deliver the next census**
5. **Identify the potential risks, constraints and dependencies for the investment**

PURPOSE AND SCOPE OF THE BUSINESS CASE

Purpose

The purpose of this Business Case is to secure the funding needed to plan for and deliver the next census. **The Business Case will support a budget bid to the Minister of Finance for Budget 2020 for a multi-year appropriation.**

Scope

As will be demonstrated in the Strategic Case, census information informs decision-making that impacts local communities and the country. The recent events of the 2018 Census have shown the value that customers and stakeholders place on the census.

The scope of this Business Case is, therefore, not about whether an investment in the next census is needed – but rather **how best to deliver the next census**.

What is out of scope of the Business Case?

- Improvements to administrative data sources that might be used in the next census
- Longer-term transformation of the census – this is being progressed as part of the Census Transformation programme
- Surveys carried out after the census such as Te Kupenga and the Disability survey.

Level of detail of options identified in the Business Case

The census is a major national event that is five years in the planning. In the Business Case, each shortlisted approach has only been partially developed – significant design and planning is still needed to ready the options for testing and implementation. If funding approval is given, the Business Case will provide a platform for Stats NZ to begin the next stage of more detailed planning for the census.

The Implementation Business Case

Stats NZ and central agencies have agreed that an Implementation Business Case will follow this Business Case, building on the Management Case and providing further detail about the arrangements of the census programme.

The scope of this Business Case covers the end-to-end process of the next census:

- The timing of the next census.
- How the next census aligns with the Chief Data Steward's Data Strategy and Roadmap and with Stats NZ's Census Transformation strategy.
- The design of the census – including the planning phase, the collection of information and the dissemination of the census outputs, and the role of administrative data.
- How much of the census content will need to change in order to improve the relevance and accuracy of census outputs, produce new outputs, and/or meet the needs of key customers, including Māori and hard to count groups.
- The governance and management arrangements for the census programme, and the supporting systems and processes to enable a successful census.
- The capability and capacity needed to deliver the next census, including personnel and ICT systems. Some of the ICT systems will serve the organisation in the production of other statistical data and future censuses.
- The service delivery arrangements, including suppliers and community partners. This includes partnerships that will be developed with stakeholders over time.
- The evaluation of the next census, which happens shortly after the census collection phase to determine the official coverage and response rates, and the estimate of the residential population.
- The cost of, and funding mechanisms for the next census, including funding contingencies and the escalation processes for accessing contingent funding.

Approach to developing the Business Case

A list of the key documents and information sources that the Business Case has drawn on is provided in Appendix 2.

Learning from experience

Independent reviews

The Business Case has incorporated recommendations from:

- Gateway 0/2 review[4]
- an independent quality assurance review[5]
- lessons from the Independent Review of the 2018 Census[6], and
- internal reviews carried out by Stats NZ of previous censuses.

Engaging with customers and stakeholders

To help identify the preferred approach for the next census, Stats NZ engaged extensively with customers and stakeholders to understand what they need from the next census. This included talking with central and local government, Māori and iwi, Pacific peoples, representatives of people with disabilities and increased accessibility needs, the rainbow community, and migrants, including people for whom English is their second language.

In all, 249 external stakeholders were invited to engage with Stats NZ across eight customer segments and 19 stakeholder sectors, including sub-populations and geographical areas with low response rates. A total of 310 feedback responses were received from 150 individuals and organisations.

Appendix 4 provides more information about the customer and stakeholder groups Stats NZ engaged with as part of developing the Business Case.

Examining other jurisdictions

Stats NZ has drawn widely on international best practice – for example, findings from an UN-sponsored initiative called the High-level Group on the Modernisation of Official Statistics, which was formed to share best-practice approaches to censuses.

Stats NZ has discussed its proposed approach with other jurisdictions, including the Australian Bureau of Statistics, the UK Office for National Statistics, Statistics Canada and the US Census Bureau, and found that the proposed approach is broadly in line with those other countries. A summary of the findings is set out in Appendix 6.

Looking across the New Zealand public sector

Stats NZ has engaged with Treasury, the State Services Commission, and functional leaders such as New Zealand Government Procurement and Property (NZGPP) and the Government Chief Digital Officer (GCDO).

Stats NZ has also met with leaders of Inland Revenue's transformation programme to learn more about the type of arrangements needed in order to deliver large, complex programmes.

Field operations – which involve engaging large numbers of staff on a short-term basis to help run the census – have been discussed with the Electoral Commission, who engage approximately 20,000 field officers to run a general election.

[4] Gateway review report for Stats NZ: 2023 Census; November 2019.

[5] IQANZ: Independent Quality Assurance Review; 7 November 2019.

[6] Report of the Independent Review of New Zealand's 2018 Census, July 2019.

Key terms used in the Business Case

Terms describing how data is gathered

- A **census** gathers information from every person in a population.
- **Surveys** are usually conducted on just a sample of the population.

Terms describing types of data

Census data or **census content** refers to the data collected in a census. Appendix 3 lists the information sought in the previous census. A summary of the two main types of data captured in a census is provided here:

- **Key demographic variables:** The Statistics Act 1975 (section 24(1)) requires Stats NZ to obtain the name, age, sex and ethnicity of every occupant of a dwelling on census night, along with the address, location, number of rooms, ownership, and number of occupants of that dwelling. This is regardless of whether the respondent is a New Zealand citizen.
- **Attribute data** reveals how people identify themselves as a community, for example:
  - the overall numbers and linked household characteristics for Māori based on iwi connections
  - information about the ownership and occupation of dwellings (such as whether they are crowded) and the quality of the housing stock (such as whether it is damp or has mould)
  - information about occupations and jobs, the way we work, and how we travel to and from work
  - relationship status and the make-up of families, including whether they have single parents, or are living in multiple households.
- **Rich data** describes attributable data that is highly valued by customers for the insights it provides about a population or geographical area (for example, Māori and iwi, Pacific peoples, Asian and other smaller ethnic groups, young and old New Zealanders, and migrants), as well as by family types and occupation groups.
- **Administrative data** refers to records that are collected mainly for operational rather than statistical purposes but that are then used to produce official statistics.
- Administrative data can be held in **registers** – for example, Stats NZ's Statistical Location Frame register, which lists the location of all dwellings in New Zealand.

Types of census[7]

- A **full field enumeration** (also referred to as a **traditional census**) collects census data by field staff going door-to-door or by online- or paper-based methods, or by a combination of these methods.
- A **combined methodology** census model counts the population using a combination of full field enumeration and other surveys and administrative data.
- A **full register-based census** uses only administrative data.

Other terminology

- **Hard to count groups** are groups in the community who are known to be hard to motivate to participate in the census, or to face barriers to participating, or to live in regions with low response rates.
- **Meshblocks** are the smallest geographic unit for which statistical data is published.

[7] Three census models are listed. The United Nations recognises 5 census models in total.

THE ROLE OF THE CENSUS IN OUR EVERYDAY LIVES

The purpose of the census is to provide an accurate picture of everybody who usually lives in Aotearoa New Zealand, including key details about their lives, for the long-term benefit of all New Zealanders

In New Zealand, the Census of Population and Dwellings is one of the biggest peacetime projects the government undertakes.

It is the country's widest-reaching and longest-running questionnaire. Every five years since 1881, the entire population and housing stock has been counted – with only three exceptions: the Depression in 1931, the Second World War in 1941, and the deferral of the 2011 census to 2013 in response to the Christchurch earthquake.

The comprehensive picture the census provides is without comparison. Its data gives us counts for population, households and dwellings, and information about family and relationships, ethnicity, and characteristics about our health and wellbeing. Trends can then be explored, and forecasts can be derived and used to plan for our future.

Census data is available to a very granular level, down to single meshblocks that each cover just a few streets and approximately 80–120 people. When it is integrated with other information sources the true power of the census is unleashed.

Delivering government services to improve the wellbeing of the people of Aotearoa

The census directly influences the way the government regulates industries and delivers services to the people of Aotearoa, by providing data for developing evidence-based policy and informing difficult political choices.

The census provides a unique and authoritative source of information about population groups whose outcomes are poorer than those of many other New Zealanders. Policy making for these groups across government agencies is stronger because of the greater precision and deeper insights the census data provides.

Here are some examples:

- **More certainty for long-term decisions and investments** – Census data is an important input into the government's Long-Term Fiscal model, which informs choices about tax and expenditure policy up to a 10 to 50-year horizon, and produces the forecast of New Zealand's long-term fiscal position. The forecast is crucial to helping the public understand the long-term consequences of policy decisions and helping the government make fiscally sound decisions.
- **MSD forecasting** – The census informs the Ministry of Social Development's forecasting of uptake for the many forms of financial assistance it provides.
- **Labour market research** – Census data helps MBIE with: labour market research into factors affecting regional supply and demand for selected occupations; monitoring outcomes for migrants and their settlement patterns; and regional labour market reporting.

- **Deprivation index** – The census forms the basis for the New Zealand deprivation index, which measures neighbourhood deprivation based on nine socio-economic variables. The index is used in a wide range of research and policy work to inform the way services are delivered to help the country's most vulnerable people. This is used to, for example:
  - allocate funding for health services
  - assess social housing needs, now and in the future
  - estimate labour demands for the Canterbury rebuild.

Directly shaping public health services so that resources are targeted more accurately towards the highest needs

Through its role in producing official population estimates and projections, the census directly influences how our primary health care and hospital care is organised and delivered throughout the country. This means health services more closely match the needs of the population and that New Zealanders have access to appropriate levels of health care.

Most of the annual funding for each of the country's 20 District Health Boards – over $13 billion in 2019/20 – is allocated by the MoH's Population Based Funding Formula and this relies heavily on census data.[8]

Investing in infrastructure projects to enable thriving and resilient communities

Census data allows government and the private sector to make better decisions about infrastructure asset use and investment, including for built space, three waters, roading and recreation assets. Pressure points on existing infrastructure are more accurately anticipated, and the need for costly fixes avoided. As a result, communities are more resilient and able to thrive.

A Treasury report that examined the variables influencing long-term investments found that the census is significant in informing investment decisions.[9] The report writers spoke with organisations that made significant investments in infrastructure, such as Meridian, Solid Energy, Transpower, Ministry of Education, Ministry of Health, NZTA and some port and airport companies. Together, those organisations had a total of $9 billion per year in long-term investments. The report found that population forecasts (which are derived from the census data) influenced 98% of the investment decisions. (Other key variables affecting decisions included exchange rates, and energy and GDP estimates.)

Of the organisations studied by Treasury, population forecasts influenced 98% of the investment decisions of an estimated $9 billion of capital expenditure

Informing the delivery of education services

Census data informs the Ministry of Education's decisions about the number and size of new schools and early childhood services in the community. As a result, schools are more accurately resourced to meet the needs of the community.[10]

8 Source: Ministry of Health.

9 Carl Bakker: Valuing the census; 2014; and, National Infrastructure Plan 2011: https://treasury.govt.nz/sites/default/files/2018-03/nip-jul11.pdf. Accessed November 2019.

10 For example, a 2018 Ministry of Education report states, for the period 2019–2022, 14 new schools are forecast to open and $332 million allocated in Budget 2018 for new teaching spaces for 7,500 students. Source: https://www.education.govt.nz/assets/Documents/1-OIA-releases/1166366-new-schools.pdf. Accessed November 2019.

Census data is also used to forecast school rolls for 20 years and provide a basis for the Ministry of Education to estimate teacher numbers and to forecast salaries and schools' operational funding requirements.

Informing social housing measures to address overcrowding and homelessness

Crowding and poor-quality housing severely impacts the health of vulnerable populations. Census data is used to estimate the numbers and characteristics of people experiencing severe housing deprivation in New Zealand and to help forecast the demand for social housing by government and NGOs.[11]

This information helps to identify population groups who are more likely to experience these issues. It also helps to assess social housing needs now and in the future, and to inform local and central government's policy responses. Information about crowding is used by the Ministry of Health and DHBs to target health campaigns: for example, the 2019 measles outbreak, rheumatic fever and meningitis.

Underpinning New Zealand democracy

The census underpins the workings of democracy in our country by providing the population data that allows us to ensure all New Zealanders have equal representation in Parliament.

Using census results, the Government Statistician first calculates the number of Māori and general electorates there should be, and the Representation Commission adjusts electorate boundaries to make sure each electorate has about the same number of people.[12]

As a result of population growth since 2013, there will be an extra electorate seat in the North Island at the 2020 election and roughly one-third of electorate boundaries will change.

The official population estimates derived from the census have also played a role in defining territorial authority boundaries, as well as the areas for community and local boards that enable democratic decision-making at a community-level.

Monitoring progress towards emissions reductions targets and understanding environmental impacts

Census data is used to estimate the Greenhouse Gas Inventory, which informs the Ministry for the Environment's policy recommendations on climate change. The census also enables New Zealand to monitor its progress towards emissions reductions targets.[13]

Census data also helps provide an understanding of the effect of climate change on New Zealand's communities (for example, the proximities of populations to flood prone areas), and calculate all environmental intensity measures (for example, emissions per capita).[14]

Informing local government's district planning and optimising the delivery of infrastructure and services to communities

Census data is used by local government to understand the demographic and business demands on communities. It informs the work of New

11 Alan Johnson, Philippa Howden-Chapman and Shamubeel Eaqub: A stocktake of New Zealand's housing; February 2018.

12 The Representation Commission is an independent body that includes the Government Statistician.

13 Ministry for the Environment; New Zealand's Greenhouse Gas Inventory 1990–2017; April 2019. Submitted to the United Nations Framework Conven ion on Climate Change

14 The Health and Air Pollution in New Zealand model. Source: http://www.hapinz.org.nz/. Accessed November 2019.

Zealand's 67 territorial authorities and 11 regional councils, including district planning and council services.

"Having that growth officially on the Statistics NZ books will help, because until now it's all been guesswork…. [T]he Census gives us … the evidence to show where and why we need to invest in Whanganui" – *Whanganui Chronicle editorial discussing the city's increased population in the 2018 Census* [15]

These examples highlight the role of the census in local government decision-making. Census data:

- informs decisions about capital investment in infrastructure, such as the capacity of water pipes installed into a community (the wider role of the census in infrastructure investment is discussed above)
- helps provide an understanding of the extent of housing affordability issues in a community and developing policy responses.

Informing private-sector decisions and helping businesses understand their customers

The private sector uses census data to understand what their customers want and where best to locate their services, including services that are essential for the community (such as aged care). Information is available to enable efficient and effective investment decisions, so that organisations can avoid unnecessary costs, and communities have access to the goods and services they need to thrive. For example, census data informs decisions about:

- where to locate retail stores, by helping to identify target markets
- the current and future demand for residential aged care beds in a community, and decisions about when and where retirement villages should be developed.[16]

Underpinning academic research

Economic and social researchers use census data to generate new knowledge and insights.

Examples of major research projects that have relied on census data include the NZ Census Mortality Study, Cancer Trends, the Family Whānau Wellbeing Project, Modelling Social Change in New Zealand, and Labour and Population Dynamics.[17]

Maintaining our reputation on the international stage

High-quality, timely census data underpins the international community's trust in the New Zealand government.

Per capita statistics (which depend on accurate and reliable population counts) are used in a wide range of domains and applications such as international trade negotiations and compulsory UN and OECD reporting (for example, GDP per capita).

15 Zaryd Wilson: Whanganui Chronicle, Whanganui; 25 Sep 2019.
16 Carl Bakker: Valuing the census; 2014.
17 *ibid*

Building capability to produce a wide range of official statistics

Each census cycle, Stats NZ develops systems and processes for delivering the next census. This capability is also available for reuse by other statistical surveys in order to produce a wide range of rich official statistics – for example:

- The introduction of the Statistical Location Register (a list of all dwellings in New Zealand) opens new and better opportunities to produce social statistics.
- A new customer relationship management application (Salesforce) supports census field operations and other social surveys.
- A new statistical data processing system now provides processing support for other surveys.
- The census is used to establish a framework for surveys of specific populations such as Te Kupenga and the Disability survey.
- A specialist Data Management and Operations Group has brought together personnel who have delivered the census, with the purpose of growing capability in data management, processing and analysis. This capability will be provided to future censuses and other surveys using an 'as a service' delivery model.

How the census helps to improve the wellbeing of Māori and whānau

The census provides an authoritative source of information that gives visibility to Māori, and contributes to Aotearoa New Zealand's sense of national identity and belonging, which is linked to positive outcomes in areas such as health and education.[18]

Understanding cultural wellbeing

The census is the only survey to provide a complete record of Māori ethnicity and descent together with iwi connections and related household information.

The importance of census data to Māori and iwi was made clear by the reaction to Stats NZ's decision not to release iwi counts from the 2018 Census due to very poor data quality. The Data Iwi Leaders Group – which is liaising with Stats NZ to develop solutions to 2018 Census data gaps – described the census results as a big setback for Māori data.

The census is critical for the effectiveness of other surveys about Māori, such as Te Kupenga, which provides insight into the social, cultural, and economic wellbeing of Māori across four wellbeing domains: wairuatanga (spirituality), tikanga (Māori customs and practices), te reo Māori (the Māori language), and whanaungatanga (social connectedness).

Increasing the number of te reo speakers

The census is also the sole reliable source for information on the state of the Māori language. Census data enables an understanding of the potential pool of te reo speakers in New Zealand, including size, location and competency. It provides a basis for understanding the demand for te reo teachers, and informs investment decisions about future te reo training.

[18] Treasury discussion paper 19/02 and Ministry of Social Development, 2016.

Helping to lift outcomes for Māori

The census provides an authoritative source of information about Māori, who have a much younger population profile, have higher fertility and lower life expectancy than non-Māori, and are more geographically mobile.[19]

The design and execution of policy and services is stronger because of the data and insights the census provides. Benefits arise from gains achieved as a result of policies or services that contribute to improved wellbeing for iwi-Māori – for example, reduced household crowding, and getting better skills at school and receiving better health treatment.

"Everything we do is based on/derived from census data"

– Te Puni Kōkiri

Te Puni Kōkiri works within government and communities to support Māori success. Its role includes measuring Māori wellbeing and trends over time, and influencing and designing programmes and policies that promote Māori success. It also has direct funding responsibility for te reo, for promoting Māori culture, and for the Whānau Ora programme. As part of consultation to identify the census's monetary value for Māori, Te Puni Kōkiri observed that 'everything we do is based on/derived from census data'.

Ethnicity data combined with highly localised Māori population information informs investment decisions for both iwi and government. Census data also provides an evidence base for Māori to access government and NGO funding sources for their communities.

Putting a dollar value on the census

The value to New Zealand

The total cost of a census is significant – the 2018 Census, for example, is expected to finally cost around $126 million. This reflects the considerable complexity involved in carefully planning and executing a census over a seven-year cycle.[20]

While this cost is large, the previous section demonstrates the unique and critical role of the census in New Zealanders' everyday lives. To quantify these benefits, Stats NZ commissioned Carl Bakker to estimate the monetary value to New Zealand of using census information.[21]

The report noted the significant difficulties associated with valuing the benefits of the census – the data is freely disseminated, no market prices exist for its direct outputs, and there is no proxy to compare the census to.

Despite those challenges, the author was able to quantify and monetise some – but not all – of the benefits of a census. The conclusion was clear: the census delivers benefits well in excess of its direct costs.

19 Statis ics NZ and Motu.

20 This is longer than a normal census cycle because of remediation work to produce the census data.

21 Carl Bakker: Valuing the census; 2014.

The census generates an NPV of $1 billion over 25 years – or put another way, every $1 invested in the census generates at least $5 in the economy

The report estimated a net present value of nearly $1 billion for the benefits to New Zealand gained through the use of census and population statistics and information over 25 years. In other words, every dollar invested in the census generates a net benefit of at least five dollars in the economy.

The Economic Case used the approach developed by Carl Bakker to estimate the monetary benefits of alternative approaches for the next census. This analysis was one of a number of inputs that were used to identify the preferred approach for the next census.

Australian measurement of the value of a census

An independent report found the 2016 Census in Australia generated a similar level of benefits. The Australian Bureau of Statistics' AUD670 million census investment generated AUD832 million a year (AUD 4.1 billion over five years); equivalent to a six dollar return for every dollar spent.

The value to Māori and iwi

Carl Bakker did further work to value the benefits of the census specifically for Māori.[22] The analysis found that every dollar invested in the census generated a net benefit to Māori of eight dollars.

The return to Māori is relatively higher than for other New Zealanders because the valuation focused on government services to improve wellbeing, many of which disproportionally serve Māori.

[22] Carl Bakker: Value of the census for Māori; 2019.

WHY CHANGES TO THE CENSUS MODEL ARE NEEDED

For the last 33 censuses, Stats NZ has, like most international counterparts, delivered a full-field enumeration census – called a 'traditional census'.

This approach has required multiple pieces of paper to be delivered to every New Zealander in the lead-up to the census. On or before census night, every New Zealander and visitor in the country completed an individual form, and one person from each household completed a dwelling form.

Before and on census night, one of around 7,000 trained field officers knocked on the door of every dwelling in New Zealand and collected the forms.[23] About nine months after census night, a large-scale statistical production process culminated in the release of census data to the public.

A trend of declining response rates

Even before the issues with the 2018 Census (discussed later in this section), response rates in the New Zealand census were declining over time. Between the 1996 and 2018 censuses, national response rates declined from 95.6% to 83.3%.

The bar graph to the right shows this decline relative to the performance of countries that run similar full field enumeration censuses. The view of statistics offices internationally is that there will be major data quality issues within the census dataset if national-level response rates drop below 92–93%. Most countries aim for national response rates of 94% or above.

Source: Independent Review of the 2018 Census

Most concerning in New Zealand is the steeper drop in response rates for population sub-groups such as Māori whose outcomes are often poorer than those of many other New Zealanders. Between 2006 and 2018, response rates for Māori and Pasifika declined from 93% and 92% respectively to 68% and 65%. Youth response rates dropped from 92% to 75%.

Low response rates for population sub-groups affect Stats NZ's ability to produce rich data about the wellbeing of groups that are of high policy interest.

Falling response rates are not an inevitability. Canada increased its overall census response rate between 2011 and 2016. Similarly, the 2011 England and Wales Census (a key part of the UK Census) made

[23] Figures based on 2006 Census.

significant improvements to the population sub-group and small area response rates that had fallen to very low levels in the 2001 Census (this did however require the budget to be more than doubled – from £211 to £484 million).

Three main drivers of change

The three main reasons for transforming how the census is run are:

- The changing make-up of New Zealand
- Opportunities and challenges from new technologies
- The increasing availability of alternative viable data sources.

Together, these drivers for change have increased both the risks and the cost of a census design that relies solely on the traditional collection mechanism of knocking on doors. These trends also mean that a 'one size fits all' model is no longer fit-for-purpose.

These three reasons are discussed in more detail below.

The changing make-up of New Zealand

The changing make-up of our country has increased the complexity and cost of collecting census data. The national population has increased, meaning there are more people to count.

Some parts of the population are much harder to count than others. Stats NZ is finding the same problem with its other statistical surveys. Its team of permanent survey interviewers are now having to visit homes up to 10 times to achieve a high enough response rate – compared to three times in the 2006 Census.

Young people are more mobile than many other groups, often moving houses and cities several times during a census cycle. They can be more disengaged from government processes and less inclined to complete census forms.

Changing family dynamics and less affordable housing are making it harder to count families. More families are living across multiple households, and there are more cases of multiple families living in a single dwelling.

There is a big rise in the number of people living in apartments. Often the entry points to the apartment buildings are secured and field staff cannot access the buildings.

New Zealand also has high levels of immigration and ethnic diversity. People who face language barriers or who have had negative experiences with governments in other countries may be less willing to participate in the census.

Opportunities and challenges of new technologies

New technologies – such as the online collection mechanism[24] – are opening doors to more effective ways of engaging with the public, and for collecting and disseminating data to customers. However, the way these technologies are applied needs to be considered carefully.

Adding impetus to the rise of these new technologies are the mounting challenges with paper-based solutions – such as the decline in the use of the postal system and a reduced capacity to print large volumes of paper.

The media landscape is more fragmented, making it harder and more expensive to connect with the public. Newspapers and TV are no longer the main engagement channels. While social media can be more

[24] The online collection mechanism was first made available in the 2006 Census, with a 7% take up, which increased to 34% in the following census in 2013 and 71% in the 2018 Census.

effective for reaching many groups than traditional mail-outs, new channels can become more popular quickly, meaning new methods of contacting people may need to be considered across the census life-cycle.

Increasing availability of alternative data sources

Data is being generated at an unprecedented rate – 90% of the data in the world today has been created in the last two years. Advances in technology and analytical techniques have redefined how vast amounts of data can be used to generate knowledge and deep insights.

The significance of the role of other sources of data that can be used to produce census outputs has grown – and will continue to do so – as more and more is learnt about the applications and limitations of alternative data sources.

The 2018 Census design was significantly different from previous censuses

Responding to these drivers, Stats NZ embarked on an ambitious plan for a 'digital first' approach to the 2018 Census, which sought to transition New Zealanders to a self-response model.

While the majority of the population would still receive census materials delivered to their letter box, only a small percentage would be contacted on the doorstep by field staff.

Instead, the internet would be the main response channel. Respondents were encouraged to complete their census questionnaires online. The target was to achieve 70% of responses online, with paper-based responses limited to those who chose not to, or could not, complete their census online. All of this was to be supported by a strong public communications campaign.

There was also a reasonable amount of content change planned for the census. Questions about housing quality and activity limitations were introduced after extensive testing. Stats NZ planned to make limited use of administrative data to support the operation of the census by filling data gaps.

The design in the 2018 Census Business Case called for a significant reduction in the number of field staff compared to the census before it. The design required only 3,000 field staff and this was further reduced to 2,300 (compared to 7,500 in the 2013 Census). To support the reduced field staff numbers, mobile technology was introduced and new processes were designed to prioritise and assign their work. In the end, about 1,800 field staff were deployed.

To support the new 'digital first' approach, new enterprise systems were built. One example was the Statistical Location Register, which provided a complete list of addresses in New Zealand, allowing Stats NZ to mail out information in the lead-up to the census and visit households during the collection process.

The design for the 2018 Census was not implemented as intended

An account of the implementation of the census and of the challenges that were encountered has been well established in the Independent Review and by internal reviews undertaken by Stats NZ, and has been agreed by the Minister of Statistics and Stats NZ.

There were a number of positives in the 2018 Census. The new model appeared to have been accepted by the New Zealand public, with 71% of the population completing their individual forms online. New ICT systems were developed that have been deployed by Stats NZ for other surveys and future censuses. Suppliers were used effectively to help deliver the

census. A successful communications campaign promoted the census to New Zealanders and encouraged online responses.

Despite this, there were major problems. The design proved to be overly complex and involved so much change that it could not be executed, especially with unexpected challenges such as the Kaikōura earthquake and difficulties with printing enough forms.

Significant data gaps exist in the 2018 Census

Although the communications campaign created a high level of public awareness, there was not enough engagement, including on the doorstep, to motivate people to complete their census forms. Across all levels – national, subpopulations, and small geographic areas – response rates dropped significantly from 2013.

The lower response rates created significant challenges for Stats NZ as it processed and evaluated the census data. It was forced to devote significant effort at short notice to develop strategies to improve data quality and meet its customer and statutory requirements. This delayed the release of census outputs.

The efforts to find solutions combined census responses with administrative data. While this enabled Stats NZ to meet its statutory objectives, it was not able to release official statistics for all topics and geographies.

Official statistical counts of iwi were not released because of missing iwi count data (the response rate for Māori was too low at 68.2%) and the lack of administrative data to fill the gaps.

For similar reasons, there were significant gaps in family and household-related data – for example, missing responses for young adults (the 18–30 age group) affected the census dataset. It was difficult to place these young people at a ‘usually resident’ address because they shifted houses more frequently.

THE LONG-TERM VISION FOR FUTURE CENSUSES

New Zealand's Data System

Stats NZ's leadership role as Chief Data Steward

In 2017, Stats NZ was given the Functional Leadership role for data and analytics across government. Called 'the Government Chief Data Steward', the role provides leadership and coordination across New Zealand's data system to maximise the value of data for everyone.

A Data Strategy and Roadmap for achieving the benefits of the data system

Working closely with stakeholders, the Chief Data Steward developed a Data Strategy and Roadmap for New Zealand's data system. Taking a three- to five-year view, the Roadmap sets out the pathway to realise the benefits of greater data use for all New Zealanders – including communities, businesses, government and NGOs.

The important role of administrative data in official statistics

Administrative data refers to records that are collected by government agencies, NGOs or private-sector organisations primarily for operational purposes and that are then transformed into official statistics.

In New Zealand, administrative data already has an established role in producing official statistics; for example, administrative data provided by businesses in their tax returns is the basis for creating economic statistics, including the country's quarterly economic growth.

Administrative data makes up much of the data in Stats NZ's Integrated Data Infrastructure (IDI) – a large research database with microdata about people and households. Over 15 agencies and NGOs provide datasets that are included within the IDI, covering social services, education, location of property and regions, health, housing, income and work, and justice.[25][26]

Benefits of using administrative data in a census

One of the main benefits of using administrative data in a census is that it provides customers with data that is more frequent and more up-to-date. It potentially allows the population count to one day be updated annually, rather than every five years in a census.

Other potential benefits of using administrative data in the census include the ability to:

- use real data to identify New Zealanders who do not respond to the census survey and to identify characteristics of small groups in the population

[25] A full list of these datasets can be found at http://archive.stats.govt.nz/browse_for_stats/snapshots-of-nz/integrated-data-infrastructure/idi-data.aspx#restricted.

[26] Access to the IDI is carefully controlled. The IDI can only be accessed inside a secure room. Stats NZ vets and approves each researcher and their reason for the research. Data protection controls and encryption prevent individuals from being identifiable in the datasets.

- reduce the burden on respondents, either by reducing the number of questions or reducing how often they are asked
- improve the quality of survey outputs.

A future census based mainly on administrative data

Census Transformation Strategy

Stats NZ has set out a long-term strategy to modernise and transform the census within the wider context of New Zealand's data system.

This strategy, called the Census Transformation Strategy, sets a course away from a full field enumeration census to one that is based mainly on administrative data and supported by large-scale surveys.

The strategy includes the following Vision and Goal:

Vision: *Transform to an administrative data census supported by surveys.*

Goal: *To be able to describe New Zealanders and their lives without needing everyone to actively contribute, while maintaining relevance and public trust in the data.*

In 2012, Stats NZ set up a Census Transformation programme to give effect to the Census Transformation Strategy in a managed and achievable way.

The increased use of administrative data will be phased over several census cycles

For several reasons, the Census Transformation Strategy recognises that a full field enumeration will be required in the medium term, before Stats NZ reaches its long-term vision of a census based mainly on administrative data.

There are currently limitations on what administrative data can provide for in a census – for example, some enduring census topics (like iwi affiliation or family and household structure) or population characteristics (such as the number of smokers).

Stats NZ needs to invest further in understanding the scale of these limitations before any decision can be made to replace field-based collection processes with administrative data. Stats NZ will continue to collaborate with counterparts in the UK, Canada, Ireland, Australia and the US to research methodologies for conducting censuses using administrative data.

It is possible that some limitations of administrative data will never be overcome. Census questionnaires may continue to have an important niche role in producing population and social statistics that contain highly targeted and localised data.

One of the enduring concerns about administrative data is the extent to which New Zealanders and the organisations that collect the data for operational reasons feel comfortable about how Stats NZ re-purposes it to produce official statistics. Stats NZ will continue to engage with stakeholders to promote the understanding of, and secure support for, the increased use of administrative data, and enable input from technical specialists and other stakeholders.

The 2018 Census provided an unexpected opportunity to prove the feasibility of using administrative data in a census

Shortly after conducting the 2018 Census, Stats NZ was faced with the real possibility that its census outputs might not meet statutory requirements. The organisation urgently needed to develop remediation strategies to fill significant gaps in its census data as a result of the low response rates.

The organisation turned to its Census Transformation programme to immediately begin applying its knowledge of administrative data to supplement the census information. While it was far from certain at the time, it turned out that the knowledge and experience that the programme team had gained from its earlier research was crucial in enabling Stats NZ to create a viable census dataset.

The use of administrative data was so significant that, after the census, it was defined as New Zealand's first ever combined methodology census (whereas the original design was classed as a 'traditional census' model).

The Census Strategy sets the amount of change for the next census

For Stats NZ, the value of the insights gained from using administrative data in the 2018 Census was significant. It proved Stats NZ was getting closer to being able to use administrative data to meet some of the core needs of the census – for example, helping to set electorate boundaries and make funding allocations for district health boards.

However, the 2018 Census also demonstrated that there is a way to go before this future becomes a reality. It is still unclear to what extent the other needs of a census – rich data that provides insight into New Zealand's social dynamics – can be met with administrative data in the future.

Recognising the significant challenges, risks and uncertainties associated with achieving the Census Transformation Strategy, Stats NZ has developed the shorter-term Census Strategy to set out the parameters for the next census.

Seeking to leverage administrative data, the Census Strategy moves Stats NZ closer to an administrative data future based on a careful assessment of the amount of change that is achievable over the next census cycle.

WHAT CUSTOMERS AND STAKEHOLDERS WANT

Recent trends and issues

The requirements of customers and stakeholders are evolving

Over the last few years, demand for social and population information has become more sophisticated, and information needs are far broader than what has been provided in the census.

Customers want subjective data that is accurate, up to date, more frequent, easy to find, and more detailed, as they seek to understand the 'Why' and not just the 'What'. Customer requests for very granular data is increasing, and the data for hard to count groups is highly valued.

The Government's wellbeing focus has increased demand for more and richer attribute data to enable it to measure and understand wellbeing. In response, Stats NZ has created new surveys and products in the social statistics portfolio. It has expanded the sample size for the Household Economic Survey (HES) to support the production of child poverty statistics.

Customers' and stakeholders' preferences for how Stats NZ engages with them are also changing. Customers, including Māori and Pasifika, no longer want to be contacted every five years as part of the census planning cycle. Instead, they expect Stats NZ to involve them more substantively in decision-making about the census content and the trade-offs associated with the different statistical methods that can be used to gather that information. For example, additional census questions support richer data, but make the transition to an administrative census harder and risk higher levels of partial or non-responses.

The 2018 Census problems dented public trust and confidence – but also highlighted the value customers place on the census

The Independent Review concluded that the limited communication with customers in the aftermath of the census, and the delay in producing census results, led to a significant erosion of stakeholders' trust – as shown by numerous public comments and negative media publicity during 2019.

On the flipside, these issues raised the public profile of the census, and of Stats NZ. The level of concern made it very clear that the census has a significant role in decisions that impact the day-to-day lives of New Zealanders, at both local and national levels.

The challenge now is for Stats NZ to harness this increased public awareness and use it as an opportunity to engage with its customers and stakeholders, to help Stats NZ plan and deliver the next census.

Stakeholder engagement to inform the design of the next census

To inform the development of the Business Case, Stats NZ has met with stakeholders around the country, held workshops in major centres, and facilitated an online consultation forum.

Stats NZ has increased the level of engagement considerably compared to the previous census. It is engaging with central and local government, Māori and iwi, Pacific peoples, representatives of people with disabilities and

increased accessibility needs, the rainbow community, and migrants, including people for whom English is their second language.[27]

An effective partnership with Māori is needed to achieve a successful census and the ongoing Census Transformation. Stats NZ is engaging with Māori and iwi in a much wider context – this includes:

- a mana ōrite relationship agreement with the Data Iwi Leaders Group
- discussions with the Māori Council about their involvement in the next census
- working with data system partners (Inland Revenue, the Department of Internal Affairs, and the Ministries of Health and Education) to improve the administrative capture of iwi affiliation data
- projects with individual iwi to co-design short, medium and long-term solutions to meeting their data needs.

Key messages from stakeholders

Stats NZ has captured feedback form the engagement process in an internal report.[28] A condensed summary of the feedback is included in Appendix 4.

Some of the common themes in the feedback are listed below.

- Overwhelming desire for early data.
- Administrative data is largely accepted but concerns about quality, accuracy and feasibility remain.
- It must be easy to participate in the census, with equal access to paper and online options.
- "Door knockers" are required, kanohi ki te kanohi – face to face – with strong preference to use local people and tailored approaches.
- Customers want help to build their data capability – and different data users need different types of help.

[27] In all, 249 external stakeholders were invited to engage with Stats NZ across 8 customer segments and 19 stakeholder sectors, including sub-populations and geographies with low response rates. A total of 310 feedback responses were received from 150 individuals and organisations.

[28] Business Case Stakeholder Engagement Summary Report. October 2019.

WHAT THE NEXT CENSUS MUST ACHIEVE IN ORDER TO BE SUCCESSFUL

What does success look like?

Investment objectives

The investment objectives provide a succinct description of what needs to be achieved in the next census in order to meet statutory requirements and deliver on the needs of customers and stakeholders. These objectives, along with the critical success factors, are used in the Economic Case to assess different approaches for the design of the next census.

The investment objectives and the measures are listed below and discussed further on page 67 in the Economic Case.

INVESTMENT OBJECTIVE 1

Deliver a census that produces data of enough statistical quality to meet statutory requirements

Measures:

- Every person counted is assigned a Māori Descent indicator and an accurate usual residence meshblock.
- Net population coverage rate no less than 98%.
- Real data (either from census forms or administrative data) for Electoral Māori Descent for at least 90% of the population.
- Census data quality and availability supports electorate boundaries to remain fixed for no more than two general elections.
- Sufficient statistical quality defined by international census standards (see measurement for Objective 2).

INVESTMENT OBJECTIVE 2

Provide customers with timely and equitable access to rich and statistically sound data to support nationally and locally significant decisions

Measures:

- Timeliness – census data available with sufficient frequency to meet customer needs (5 years or less since last census data released).
- Accuracy – collection of at least 90% of responses from forms (individual and dwelling) at the national level and for Māori, Pacific and Asian sub-groups.
- Relevance – target concepts for units and attributes use standard frameworks that are achievable for Stats NZ and relevant to customers.
- Consistency – appropriate balance between customer need, quality improvements and real-world change. Any changes in time series is open, transparent and can be explained.
- Accessibility and interpretability – Census data and information is equally accessible to customers.

INVESTMENT OBJECTIVE 3

Deliver a census model that positions Stats NZ to meet the future needs of its customers

Measures:

- Design and test with at least 2 census cycles in mind.
- Clarity of the design for the following census by testing methods and concepts in the current census cycle and develop implementation plans for any new infrastructure.

What the next census needs to do to meet the investment objectives

The following six elements must be in place in order to achieve the investment objectives. The first three elements are focused externally on the 'what', and the remaining three elements have a strong internal focus on the 'how'.

The elements are consistent with both the Census Transformation Strategy and the Census Strategy. They draw on the Data Strategy and Roadmap, the lessons from the Independent Review and internal reviews, and census designs adopted by overseas jurisdictions.

Each of the elements is discussed in more detail on the following pages.

1. **Earn and maintain the trust and confidence of all New Zealanders**
2. **Make it easy for everyone to participate**
3. **Deliver on the needs of Māori and iwi**
4. **Enable effective programme leadership, supported by the right systems and processes**
5. **Identify a resilient census design that adapts quickly to external change**
6. **Leverage administrative data**

1 Earn and maintain the trust and confidence of all New Zealanders

The public's trust and confidence in the census – as well as a healthy Stats NZ 'brand' – is critical to success. Achieving the desired response rates necessary to producing rich data, and countering increasing levels of indifference, requires a willing public who believe in the purpose of the census.

Each person must decide to make the time to provide information about themselves. They need to trust Stats NZ to protect the confidentiality of their data.

Given the results of the 2018 Census, it is more important than ever to earn and preserve the public's trust and confidence. Customers must see timely census outputs and be convinced of the quality of the data. Failure to maintain public trust will mean that people stop providing the information needed to make the census a success.

Earning support of the media

In the lead-up to the 2018 Census, the media took a negative stance, reporting on the 'digital by default' approach, the operational challenges, and the lower response rate.

The next census must earn the support of the media in order to help raise awareness among communities about the census and motivate people to complete their census forms.

2 Make it easy for everyone to participate in the census

'Making it easy' is an objective shared by many of the overseas jurisdictions that are planning their next census.

At its heart, this element recognises that different communities and people prefer to respond to the census in different ways. Stats NZ must enable this to happen, and that means making sure that people know about and are motivated to participate in the census, that it is easy for them to respond, and that effective follow-up procedures get those who have not yet responded to complete their census form.

Build partnerships

Both the Data Strategy and Roadmap and the Census Strategy recognise the importance of building strong partnerships, both within and outside government.

In the context of the census, these partnerships:

- enable a customer-centric, 'outside-in' approach to informing the census design – encompassing all aspects of planning, testing and implementation
- help with the collection process – intermediaries such as community leaders, Māori Wardens and health providers can play a much bigger role in helping to reach people in hard to count groups and motivating them to participate in the census.

A 'one size fits all' approach does not work

There is still a digital divide in New Zealand and it will exist to some extent at the next census, with significant parts of the country suffering from no or poor internet connectivity.

Stats NZ must make it easy for people to use an alternative method to complete their census form – regardless of whether they cannot do their census online or simply choose not to.

Similarly, contact centres and other help systems need to recognise that some people, particularly the elderly, struggle with 'automated help' and that outcomes are better if they can speak with a human.

Applying a compliance approach

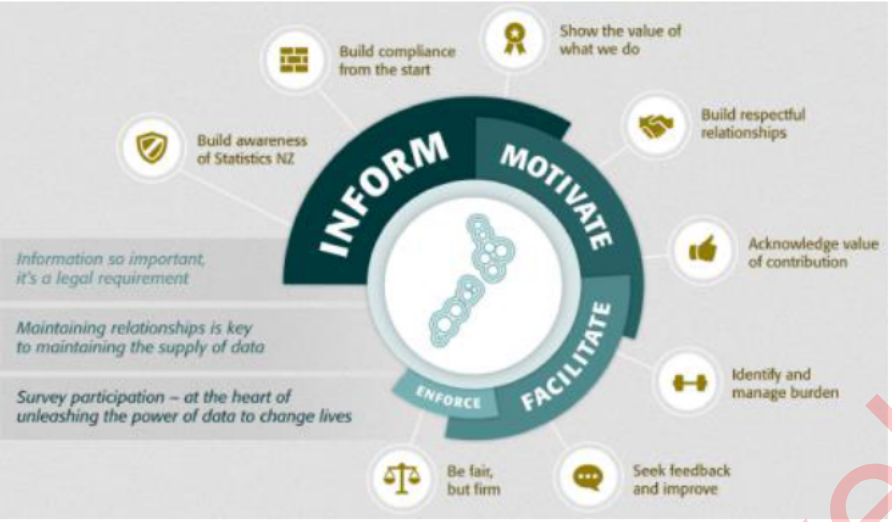
Stats NZ uses the term 'compliance approach' to describe how it encourages and helps participants to comply with their survey obligations. This approach is consistent with frameworks adopted as a matter of good practice by regulatory agencies across the New Zealand public sector and in international jurisdictions.[29]

The approach, shown in the following diagram, first seeks to make sure participants have the right information (including about their legal obligations) and that they understand the value of their contribution and the information that is produced.

If those initial **'Inform'** and **'Motivate'** steps fail, Stats NZ will seek to **'Facilitate'** ways to make it easier for those who find it difficult to take part. Census field staff have an important role here in engaging with people and, for those who do not self-respond, helping them to respond.

[29] Maritime NZ apply a 'best practice' approach to compliance with their regulations, described here: https://www.maritimenz.govt.nz/about/what-we-do/compliance/compliance-model.asp (accessed October 2019).

At the 'tough end' of the compliance approach – **'Enforce'** – Stats NZ can prosecute people for not participating in the census and the courts can impose penalties. This has a demonstration effect that affects the compliance behaviour of others.



Source: Stats NZ survey compliance framework

3 Deliver on the needs of Māori and iwi

The next census must support the commitment under Te Tiriti o Waitangi that establishes Māori as partners with the Crown. The importance of this is reflected in the Data Strategy, which recognises that having the right data available is essential to support Crown-Māori relations.

"Unfortunately, the 2018 Census was a big setback for Māori data. But … this situation has created an important opportunity for ourselves, and Stats NZ, to develop innovative solutions that will result in better data outcomes – both for Iwi Māori, and for New Zealand as a whole."

– Data Iwi Leaders Group [30]

The low response rates for Māori in the previous census must be lifted – otherwise, critical data such as iwi counts will not be available, and the benefits of rich, localised data about Māori will be lost.

At the same time, Stats NZ will continue to work with Māori and iwi and across government to improve the collection of Māori and iwi data in administrative sources.[31]

30 http://www.scoop.co.nz/stories/PO1908/S00188/iwi-forging-closer-relationship-with-stats-nz.htm. Accessed October 2019.

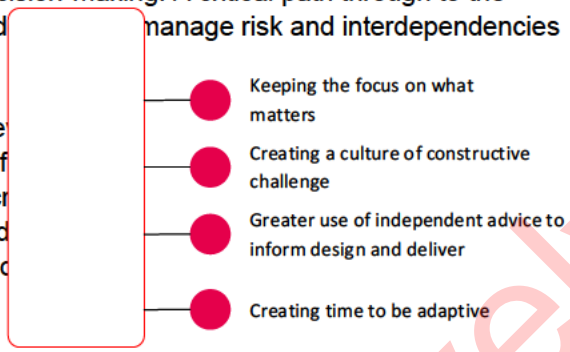
31 A summary of initiatives undertaken in partnership between Māori and Stats NZ is here: https://www.stats.govt.nz/assets/Uploads/Data-leadership-fact-sheets/fact-sheet-partnering-with-maori-apr18.pdf. Accessed October 2019.

4 Enable effective programme leadership, supported by the right systems and processes

This element received significant attention in the Independent Review and is the focus of the Management Case. It is critical that, for the next census, Stats NZ has the right capability and capacity in place.

Governance and management roles and responsibilities must be well defined, clearly understood, and executed properly. Management information systems need to produce reliable, meaningful results that can be used effectively to inform decision-making. A critical path through to the census evaluation must be id manage risk and interdependencies across the programme.

The Management Case is de these issues in the context of set of considerations. It descr how the next census will be d according to four themes, sho opposite.



An implementation Business Case will be completed in March 2020 to provide further detail about the census programme.

5 Identify a resilient census design that adapts quickly to external change

This element is the focus of the Economic Case. The census design must enable Stats NZ to scan the external environment, anticipate issues, adapt easily to changes in the environment over the census cycle, and learn for the next time.

- **Managed change** – The transition to the future must be staged so that the amount of change within a census cycle is balanced against the design and execution risk.
- **Testing** – International jurisdictions carry out large-scale tests relatively early on in their planning, and then incorporate the lessons from those tests. The failure to test as intended for the 2018 Census was also cited in the Independent Review.
- **Built-in redundancy** – Redundancy must be built into the design to enable the census to quickly deploy contingency plans in situations that are changing rapidly – simply having 'money in the bank' is not a sufficient precaution.

  The Australian example illustrates this point well. The Australian Bureau of Statistics (ABS) suffered a denial-of-service attack on census night, forcing them to shut down their online collection mechanism for 48 hours. The ABS responded by using their entire field staff (some 30,000 officers), including those recruited as contingency for data collection problems. As a result, the response rate for that census was as high as the previous ones.
- **Leverage other statistical surveys** – The delivery of other social statistics products (produced on a smaller scale and more regularly) provide an opportunity to trial new models and methods. This helps de-risk change and provides a way for customers to assess and become more comfortable with new techniques.

- **External suppliers 'in the tent'** – Third-party providers will be a key part of a successful census. Commercial arrangements need to enable suppliers to be involved early in the planning phase and testing programme, working closely alongside the Stats NZ census team to problem-solve throughout the census cycle.

  The approach for achieving this is discussed in the Commercial Case.

What other jurisdictions are planning

Stats NZ is a member of a number of forums and groups that shape the future of censuses internationally, and this guides the vision for the census in New Zealand. Examples of these groups include:

- the UN Statistical Commission
- the Conference of European Statisticians (CES) – Stats NZ is one of eight elected members from within the 60 participating countries
- the International Census Forum, which meets each year.

Since the mid-2000s, jurisdictions comparable to New Zealand such as the UK, Canada, Australia and the US have replaced the 'traditional census' method with a 'self-response' approach that offers a variety of response channels.

Appendix 6 summarises the objectives and the high-level design that these other jurisdictions have adopted for their next census. It shows several common objectives across jurisdictions:

- to deliver a positive respondent experience
- to increase the use of administrative data
- to maintain the public's trust and confidence.

6 Leverage administrative data

The Census Strategy calls for the continuing use of administrative data in the next census in a managed way. The Independent Review cited the importance of statistical methodology being 'front and centre' in guiding this change.

Although Stats NZ took a major leap forward in using administrative data in the last census, it also realised that the next census was too soon for it to be able to confidently transition to a model that used administrative data supplemented by large-scale surveys.

Consequently, the design for the next census needs to be constructed around a range of ways of delivering a full field enumeration census with the use of administrative data to fill the gaps.

Decisions about whether to change the census content will need to be made carefully and with 'eyes wide open'. For example, responding to customer demand to expand the census questionnaire into new areas may compromise Stats NZ's ability to achieve an administrative data-only census in the future.

RISKS, CONSTRAINTS AND DEPENDENCIES

Risks

The follow risks were identified in a risk workshop. Present were the SRO and Programme Manager, and members of the census management team and Stats NZ Executive Leadership Team. The main risks – those that would have the biggest impact on this proposal – were the focus of the workshop.

Risk	Existing controls in place	Treatment/ risk mitigation
Secure funding **Probability**: Possible **Impact:** Severe		
If Stats NZ does not secure enough funds to fully deliver the census as designed or does not have enough funding certainty over the next five years to deliver the census there is a risk that the quality of the data produced will not meet all customer needs and expectations. The implications of this risk are discussed further in the Financial Case on page 80.	• Existing relationships with relevant agencies • Central agency relationships • Assurance process (Gateway and IQA) • Quantitative risk analysis • International evidence base • Cost model and cost process • Budget bid and Business Case • Community and stakeholder engagement • Engagement of external suppliers for financial modelling support and business case writing	• Further communications to support the Minister • Defining and communicating our bottom line • Working with Treasury on appropriate funding mechanisms
Recruitment **Probability**: Possible **Impact:** Severe		
If Stats NZ does not have the required level of resources at the right time in the right place, there is a risk that Stats NZ will not have the capability and capacity to manage, design, plan and deliver the next census. This could occur because of insufficient: • recruitment of resource in the core stats NZ teams such as specialist analytical, technology, logistical and project management skills • recruitment of the large temporary field team in a tight labour market environment.	• Required resources have been identified in the cost model • Built in contingent workforce in field design	• Creating and implementing a resourcing critical path • Create appropriate and flexible job design. Priority recruitment commences now • Agreement to a recruitment team with a dedicated census resource • Procurement strategy to be developed • Census recruitment strategy to be developed – including a decentralised approach • Partnering with community organisations to recruit locally

Risk	Existing controls in place	Treatment/ risk mitigation
Census design **Probability**: Possible **Impact:** Severe		
If the census design and its underlying assumptions are not fit-for-purpose, then delivery of outcomes and benefits will not be successful.	• Design team creating the design using a recognised approach/ framework • International best practice considered and integrated • Best practice evidence from field collections • International Review (lessons learnt) • Redundancy built into existing design • Statistical contingency within design	• Identify key assumptions and test early – where possible • MIS designed and used to alert design issues • Incoming Design Authority • Implement a change control framework across the entire programme • Impact thinking and analysis design culture • Implement scope management into the design framework • Appropriate escalation for risk and change management • Impact thinking and analysis • Ensure end to end testing is built into the design
External environment **Probability**: Likely **Impact:** Severe		
If external environmental conditions exist (PESTLE) or occur that impact the public's willingness/ ability to participate and the census programme is not robust enough to identify, manage and adapt then the quality of census outcomes will be affected.	• Costed and planned resourcing • Engaged community and stakeholder team	• Building contingency planning throughout the programme – scenario testing (census specific and organisational) • Conduct environmental phased scans earlier • Conduct impact assessment and planned mitigations for response • Effective stakeholder management • Ensure organisational decisions include a census lens • Timely draw down of financial contingency • Developed communications plan earlier ready for implementation
Partnership **Probability**: Possible **Impact:** Major		
If effective partnerships between Stats NZ, Māori and iwi, Pasifika, and other hard to count groups are not established, then they might not support the census which would impact Stats NZ's ability to produce rich data for sub-population groups and/or small geographic areas.	• Mana ōrite relationship agreement • Census community engagement team • Compliance communications • Stakeholder engagement planning and segmentation	• Development of social and cultural approach • Decentralised management of delegations • Community data-hubs • Strong organisational focus at the senior level • Building partnerships with media • Funding to support local count committees • Ensuring high quality stakeholder engagement • Building trust through transparent communication

Constraints

'Constraints' are limits within which the investment in the next census must be delivered.

Constraints
The level of available Crown funding allocated to the census investment
The amount of change that can be delivered in a census cycle
Availability of the right skills and capabilities, including of field officers and third-party suppliers who provide development and support for ICT systems

Dependencies

'Dependencies' are any actions or developments that are required of others outside the scope of this programme and that the success of the investment proposal depends on.

Dependencies
The Data Strategy and Roadmap
The Census Transformation programme
A review of the Statistics Act 1975 to ensure that New Zealand has legislation to guide how it manages and uses data and that the legislation can work within a context of rapid change
Work led by the Chief Data Steward to establish government-wide standards for key data
Programmes within Stats NZ such as the Data Leadership Hub and Data Knowledge Centre
Close out of 2018 census
Enterprise systems used by census (such as the Statistical Location Frame register)
Post-census surveys (such as Te Kupenga and the Disability survey)
The Digital Inclusion Blueprint[32]

[32] https://www.digital.govt.nz/digital-government/digital-transformation/digital-inclusion/digital-inclusion-blueprint/. Accessed December 2019.

ECONOMIC CASE

The Economic Case identifies and describes a preferred approach for the next census, one that is expected to provide the best value for money.

What this Economic Case seeks to do

1. Describe the approach to the Economic Case and the role of stakeholders in developing it
2. Identify the long-list of options and make an initial assessment of those options
3. Develop a short-list of approaches to take forward for further analysis
4. Summarise the results of the analysis of the short-listed approaches
5. Identify the preferred approach for the next census design

INTRODUCTION

Summary of the approach used

Longlist identification and assessment

- Reviewed international best practice, Independent Review recommendations and expertise developed from delivering previous census
- Identified a long list options, grouped into a number of different dimensions
- Undertook an initial assessment of the long list options using investment objectives and critical success factors to identify "non-feasible" options
- Collated supporting evidence for the assessment
- Tested the assessment of the long-list with internal and external stakeholders

Development of shortlisted approaches

- Identified the most feasible from each dimension in the long list
- Developed a set of "straw-person" approaches
- Socialised shortlisted approaches with internal and external

Assessment of shortlisted approaches

- Developed a framework to assess the shortlisted options and agreed with Treasury
- Set out the parameters, variables and inputs required to quantify the benefits and costs
- Calculated the monetary cost and benefits for each option and the net present value (NPV)
- Undertook risk analysis and quantitative risk analysis (QRA)
- Assessed the options against the framework in workshops with internal and external stakeholders

Identification of preferred approach

- Identified the preferred approach
- Undertook scenario testing to assess robustness

Role of stakeholders

Over four months, a large number of internal and external stakeholders were involved in developing and assessing design options for the next census and then identifying the preferred approach.

Stats NZ staff

A core full-time design team worked with nearly 30 subject-matter experts from across Stats NZ to develop the options and carry out an analysis to inform the assessment of the options.

The programme governance and executive were involved in developing and assessing the options, and approved the output at key stages of the Better Business Case framework. The Stats NZ Executive Leadership Team approved the preferred approach.

Overseas jurisdictions

As discussed in the Strategic Case, international best practice was drawn on to inform the design of options. This included findings from the High-level Group on the Modernisation of Official Statistics, and other jurisdictions, including the Australian Bureau of Statistics, the UK Office for National Statistics, Statistics Canada and the US Census Bureau.

Customers and external stakeholders

The external engagement process described in Appendix 4 provided the voice of the customer.

Central agencies

Stats NZ consulted with SSC, the Treasury and the Government Chief Digital Officer about the development of the short-listed approaches and the analysis used to identify the preferred approach.

LONG-LIST IDENTIFICATION AND ASSESSMENT

How the long-list was developed

To develop the long-list of options, 10 design dimensions were identified that together covered all aspects of the design of a census.

Each dimension was broken down into subtopics, with each of those subtopics represented by a question. For example, the dimension ‘Census scope’ included questions such as ‘What are we trying to count?’ and ‘How will we reach people and dwellings?’.

These questions were used both as a basis for illustrating the scope of each dimension, and to draw out the range of possible options. For each question or subtopic, a set of possible options was generated – 169 options in total.

The table on the next page lists the 10 dimensions and the key questions under each dimension, along with the number of options generated in response to each question.

Further detail about the long-list
Appendix 7 summarises each option in the long-list and gives an assessment of the option. Appendix 2 lists the key artefacts that were used to inform this stage of the Better Business Case framework.

How the longlist compares to previous business cases

The long-list changes incrementally from census to census. The long-list generated in this Business Case contains options similar to the long-list for the previous census.

What has changed, however, is the external environment, and this affects how the long-list has been assessed. Technological improvements, more sophisticated data systems, and growing and changing populations unlock new opportunities and require new approaches.

Census approaches that rely solely on a full field enumeration are no longer considered acceptable. By contrast, an increasing number of approaches involving administrative data are not only possible, but are necessary to achieve high coverage and response rates and to produce census data in a cost-effective way.

Design dimensions	Key questions	Number of options generated
When	What year will the next census be held?	4
Statistical methodology	What are the UN statistical division's over-arching methodological approaches?	12
Census scope	What are we trying to count?	5
	Who are we trying to count, and where?	7
	How will we reach people and dwellings?	6
	What information are we trying to provide?	6
	How will we assess coverage?	5
Māori and iwi	How will Stats NZ and Māori work together?	7
	How will supply of administrative data about Māori be facilitated?	6
	How will Stats NZ support Māori to build data capability, use and demand?	4
Field enumeration	How is participation in the census enabled?	6
	What languages will be used to communicate the participation requirements and support the public in responding?	3
	How is respondent information captured (that is, what channels are used) and what are respondents provided with?	5
	What languages will the communication channels be provided in, and what languages can respondents use?	10
	What non-response strategies will be needed?	7
Administrative data	How much administrative data will be used for the information need (both attributes and units)?	7
	How will we assess the quality of administrative data?	6
	How much administrative data will be used for operational efficiencies?	5
	How will data supply be facilitated?	6
Registers, processing and evaluation	How far do we go with a register-based statistical system? How much infrastructure will we build?	7
	What statistical processes and infrastructure options are there?	5
Information outputs	What products will we produce?	9
	How will we deliver the products?	8
	How will confidentiality be guaranteed in the outputs?	4
Communication and stakeholder engagement	What extent of communication and engagement is needed?	4
Quality assurance	What quality assurance options are available for design, implementation and data quality?	15
Total number of options identified		**169**

Narrowing down the full range of options

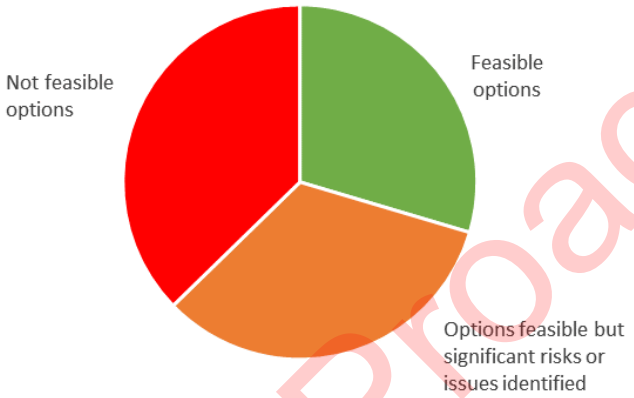
The long-list of options was assessed against the investment objectives and critical success factors. Options that could not satisfy a critical success factors were assessed as 'not feasible'.

The evaluation resulted in 63 options being rejected (37% of the total options identified). In the table in Appendix 7, these options are coloured red.

The remaining 106 options in the long-list (63% of the total) at least partially satisfied the criteria and were assessed as being possible candidates to be used in developing the short-listed approaches.

Of these, 56 options (33% of the total) were assessed as having significant risks or problems, but strategies were identified that could mitigate these in some way (these options are coloured orange in Appendix 7). The remaining 50 options (30% of the total) were assessed as having no significant risks or issues (coloured green in the appendix).

The pie chart below shows the proportion of the options that were rated as red, orange or green.



Options assessed as 'not feasible'

The rest of this section summarises the options that were assessed as 'not feasible'. The discussion is grouped according to the 10 design dimensions in the table above.

The analysis that was used to inform the assessment is documented in a series of papers that are listed in Appendix 2.

When: The timing of the next census

The Statistics Act 1975 states that 'the census of population and dwellings shall be taken in the year 2013 and every fifth year thereafter' (section 23(1)).

Although this requires the next census to be held in 2023, the legislation could be amended to require the census to be held either earlier or later.

The assessment reached the same conclusion as the Independent Review, that a census before 2023 would be 'unsafe'. There would not be enough time to incorporate the lessons from 2018 and properly design, test and implement a successful census.

Options after 2023 were also considered. However, it was decided that a date between 2023 and 2026 would not be feasible as those options failed to achieve any of the benefits associated with having a longer planning period or aligning our census cycles with those of other countries.

Statistical methodology

For the reasons explained in the Strategic Case, the census model used in New Zealand before 2018 is no longer feasible or achievable without change. This full field enumeration-only model involved field staff making multiple visits to all dwellings across the country to deliver and collect forms.

Variations on another census model, the ‘register-based census’, were also discounted and not considered further. This model relies mainly on administrative data.

Although Stats NZ is getting closer to producing an administrative data census supported by surveys, it is not something that Stats NZ could confidently deliver in the next census for data quality reasons.

As discussed in the Strategic Case, improvements in the availability and quality of administrative data have made it possible to meet some census information needs using administrative data, but limitations remain. Currently, administrative data on its own cannot produce rich data at sub-population and small area levels for topics that are important to customers, including Māori.

In addition, issues relating to the public’s trust of the use of this data need to be resolved, and research is needed into new systems and registers that might be required.

Census scope

The long-list considered options to narrow the census scope to meet no more than the legislative requirements – that is, a count of people and dwellings only. This was at odds with the strong views expressed by customers, stakeholders and Treaty partners for a richer set of data, including iwi affiliation data.

Conversely, a substantial widening of the scope of census questions would increase the burden on respondents and probably lower the response rate. A substantial increase in the number of new questions would also make it harder for Stats NZ to achieve its strategy of making greater use of administrative data in the future. It would also require a degree of change in the next census cycle that Stats NZ could not confidently deliver on.

One of the sub-groups in this dimension considered options for assessing the accuracy of coverage (the undercount and overcount) in the census. Given this is a critical part of the assessment of census outputs and production of official population estimates, any options that were not tried and tested or fit-for-purpose were assessed as being ‘not feasible’.

Field enumeration

Options that drove a ‘one size fits all’ approach were rejected. Examples included a ‘digital only’ approach. Stats NZ assessed this as being not feasible given the results of the previous census and the focus it placed on online responses to the detriment of other forms of responses. Also, options that placed significant barriers on people who wanted to respond via paper-based methods were discounted.

Options that only allowed for the census to be conducted in a single language were not considered further because they would limit accessibility. Conversely, options that placed no limit on the number of languages were also rejected. This was because of limits to the number of languages that field staff could speak, and cost and technology constraints on translating communication materials into other languages, and respondent’s answers into English.

Māori and iwi

The long-list considered options about how Stats NZ and Māori would work together to increase the supply of rich data and grow Māori capability to use the data to best effect.

The Te Arawhiti engagement framework was used to assess possible options.[33] Given the significance of the census to Māori, options involving 'inform' and 'consult' were discarded, leaving open options that involved 'collaborate', 'partner and co-design', and 'empower'.

Administrative data

Options that precluded the use of administrative data in the next census were assessed as 'not feasible', as they are inconsistent with both the Census Transformation Strategy and the Census Strategy, as well as the recommendations of the Independent Review.

For the reasons set out above, options that took an 'administrative data first' approach were also discounted for the next census – however, the long-term goal is for those options to be part of future short-listed approaches.

Registers, data processing and evaluation

Options that used Stats NZ's existing registers (such as the Statistical Location Frame register) 'as is', without any further development, were rejected. The assessment determined that these registers required at least some improvement for them to be fit-for-purpose for the next census.

The assessment also rejected options at the other end of the spectrum that required significant change to Stats NZ's register 'environment' and so would introduce too much system and business process change for a single census cycle.

Information outputs

Identifying the long-list included considering how census data could be released to customers. Options that involved Stats NZ giving data access to third-party organisations were rejected as they introduced an undesirable level of privacy risk.

Communication and stakeholder engagement

The assessment rejected options that narrowed the approach to communications and external stakeholder engagement compared to the 2018 Census. Those options would inhibit Stats NZ's ability to develop a partnership with Māori and would also negatively affect response rates, especially with hard to count groups.

Quality assurance

Options that did not include independent review in the quality assurance process were discounted, as they risked constraining Stats NZ's ability to produce outputs of sufficient statistical quality and risked undermining customers' trust and confidence in the data.

The next section introduces the short-listed approaches that were developed from the long-list.

[33] https://tearawhiti.govt.nz/assets/Maori-Crown-Relations-Roopu/451100e49c/Engagement-Framework-1-Oct-18.pdf. Accessed November 2019.

DEVELOPING A SHORT-LIST OF APPROACHES

Introduction

As described above, the evaluation of the long-list options rejected nearly 40% of those options. The remaining options formed a basis from which to develop a **short-list of three design approaches**, each of which incorporated a different selection of those long-listed options that had not been rejected.

The development of the short-listed approaches was guided by **five design principles** that were grounded in the findings of the Independent Review:

Key design principles
Alignment to the Census Transformation Strategy
Alignment with the needs of customers and external stakeholders
Careful management of change in any one census cycle to reduce delivery risk
An adaptable census design that can anticipate, respond and learn from changes in the external environment over the census cycle
Additional capacity that is operationally-ready for quick deployment in fast changing situations

Important note about the level of detail in the Business Case

The census is a major national event that is five years in the planning. In this Business Case, each short-listed design approach has been only partially developed – significant design and planning is still needed to ready the options for testing and implementation.

The purpose of the Business Case is to provide enough certainty about the approach to support Ministers to make a funding decision about the next census. It is not intended to precisely define the parameters of each approach to a high level of certainty.

If funding approval is given, this Business Case will provide a platform for Stats NZ to begin the next stage of more detailed planning for the census.

Introducing the short-list

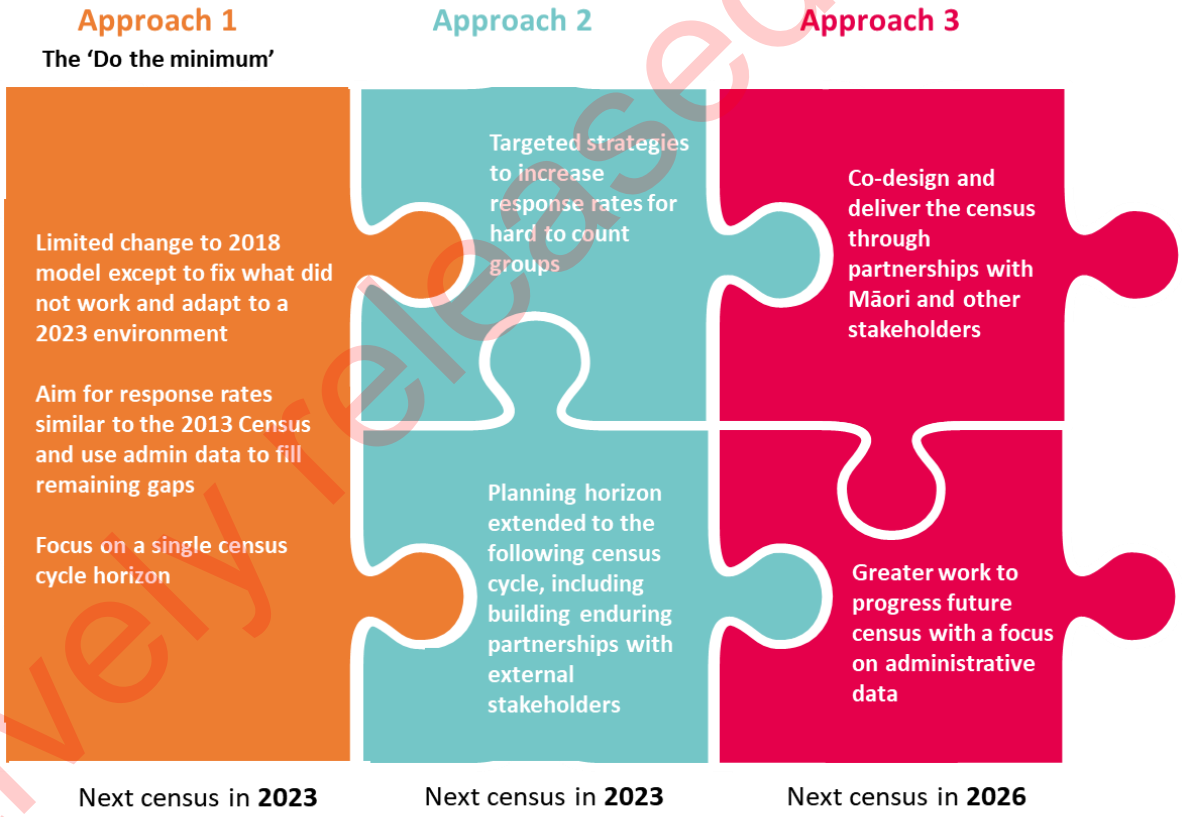
Three short-listed approaches were developed – ‘1’, ‘2’ and ‘3’.

The approaches have some common characteristics. They all seek to achieve acceptable response rates and produce census data of sufficient statistical quality. All use administrative data to fill in data gaps.

The approaches differ in terms of cost, how far they progress Stats NZ along its strategic pathway with the use of administrative data, the approach they take to increase participation of hard to count groups, and the level of risk that response rates for some groups (including Māori and Pasifika) could be unacceptably low.

The three short-listed approaches should be seen as being on a continuum. Approach 1 is a viable ‘Do the minimum’ approach at one end while Approach 3 sits at the other, more ambitious end. Approach 2 falls in between them.

The diagram on the right introduces the three approaches, including outlining the additional features of Approaches 2 and 3.



The following pages summarise the approaches. Appendix 8 compares the detailed design attributes of each approach. The section concludes with a discussion about the ‘Do the minimum’ approach and how it compares to the 2018 Census.

What Approach 1 will achieve

- Response rates comparable to the 2013 Census, which did not achieve very high response rates among hard to count population groups including Māori and Pasifika.[34]
- Census outputs that are of sufficient statistical quality and meet legislative requirements.
- Continuation of the current data time series.
- Meet the basic needs of key customers and stakeholders, including outputs that enable electoral boundaries to be redrawn, district health board funding allocations, and iwi affiliation data.
- Stats NZ will grow its enterprise capability to support the increased use of administrative data in the production of official statistics through the development of a new Statistical Person Frame register and new business rules for its existing processing platform; but, any further progress to the Census Transformation Strategy is limited.

What Approach 2 would achieve in addition to Approach 1

- Better response rates for population sub-groups (similar to 2006 Census) that will produce richer data about Māori and hard to count groups that better meets the needs of customers and stakeholders.[35]
- Rebuild the trust and confidence of customers and stakeholders in the census.
- Build partnerships with Treaty partners and stakeholders and provide support to help them grow their own data capability to use census data more effectively.
- Advancement of the Census Transformation Strategy. A longer-term view, looking beyond a single census cycle, will research methods to improve the population count and improve the quality of administrative data.
- More resilient census design; for example, research beyond a single census cycle will limit the amount of change needed over consecutive census cycles. Personnel working on this workstream can also be quickly redeployed to fix problems with the 2023 Census.

What Approach 3 would achieve in addition to Approach 2

- Aligns data time series with international jurisdictions.
- More change to the census content, and census outputs that better meet stakeholders' and customers' needs.
- Develops deep-seated partnerships with Māori to co-design and deliver the census and build greater data capability for Māori.
- Allows Stats NZ to make greater managed progress along its strategic pathway, over a longer time.

Trade-offs associated with the later census date of 2026

- Does not maintain the current New Zealand data time series.
- Does not enable electoral boundaries to be redrawn for a 2026 election.
- Does not meet stakeholders' and customers' needs for timely information.

[34] 2013 collection response rates: national 92.2%; Māori 88.5%; Pasifika 88.3%.

[35] 2006 collection response rates: national 94.5%; Māori 93.1%; Pasifika 92.4%.

Approach 1 high level design

- A combined methodology census model consisting of full field enumeration and the use of administrative data to fill gaps.
- Delivers the successful parts of the 2018 Census with limited change to its design, changing only where needed to fix what did not work well, and to deliver the next census in a bigger, more diverse population.
- Limited change to the 2018 Census content and planned outputs.
- The main response methods are paper and online options. Some barriers are reduced for people who cannot, or who choose not to, respond online.
- The minimum level of field staff required to motivate and educate people about the census, to support many – but not all – of the hard to count groups to respond, and to follow up on groups that are not responding. Reserve field officers who can be quickly deployed in fast-changing situations.
- Frequent community engagement throughout the census cycle for hard to count groups.
- Coverage surveys to assess data collected from field enumeration data.
- Sole focus on a single census cycle.

Approach 2 high level design compared to 1

- More census resources to focus on the growing part of the population that is hard to count. Targeted methods will increase response rates for hard to count groups – for example:
  - collection strategies that have been developed in collaboration with Māori
  - more options to respond to the census (such as face-to-face and telephone-assisted interviews)
  - more engagement centres for people to learn about the census and complete their questionnaire.
- Continuous community engagement throughout the full census cycle, tailored to different groups who are known to be hard to motivate or to face barriers to participation.
- Focus on collaboration and building enduring partnerships with Māori and other stakeholders over the census cycle.
- Research and development to test the feasibility of options that might be used in future census cycles after 2023. For example:
  - new ways to connect with people using email, text messages or phone apps
  - small-scale tests to evaluate potential new survey content and availability of administrative data.

Approach 3 high level design compared to 2

- Legislative change to hold the census in 2026.
- Less detail can be provided for Approach 3 here than for the other approaches. There is a longer timeframe for research and development to identify ways to improve the population count and improve the quality and availability of administrative data.
- Greater use of administrative data to produce census outputs than under the other two approaches.
- Establish an enduring partnership with Māori to co-design and deliver the census, which will influence the design of future censuses. A focus on developing greater capability to support Māori to use census data better.
- Strengthened stakeholder relationships, with a focus on collaboration and partnerships to inform changes to census outputs. More change to content than other approaches.

Main cost differences

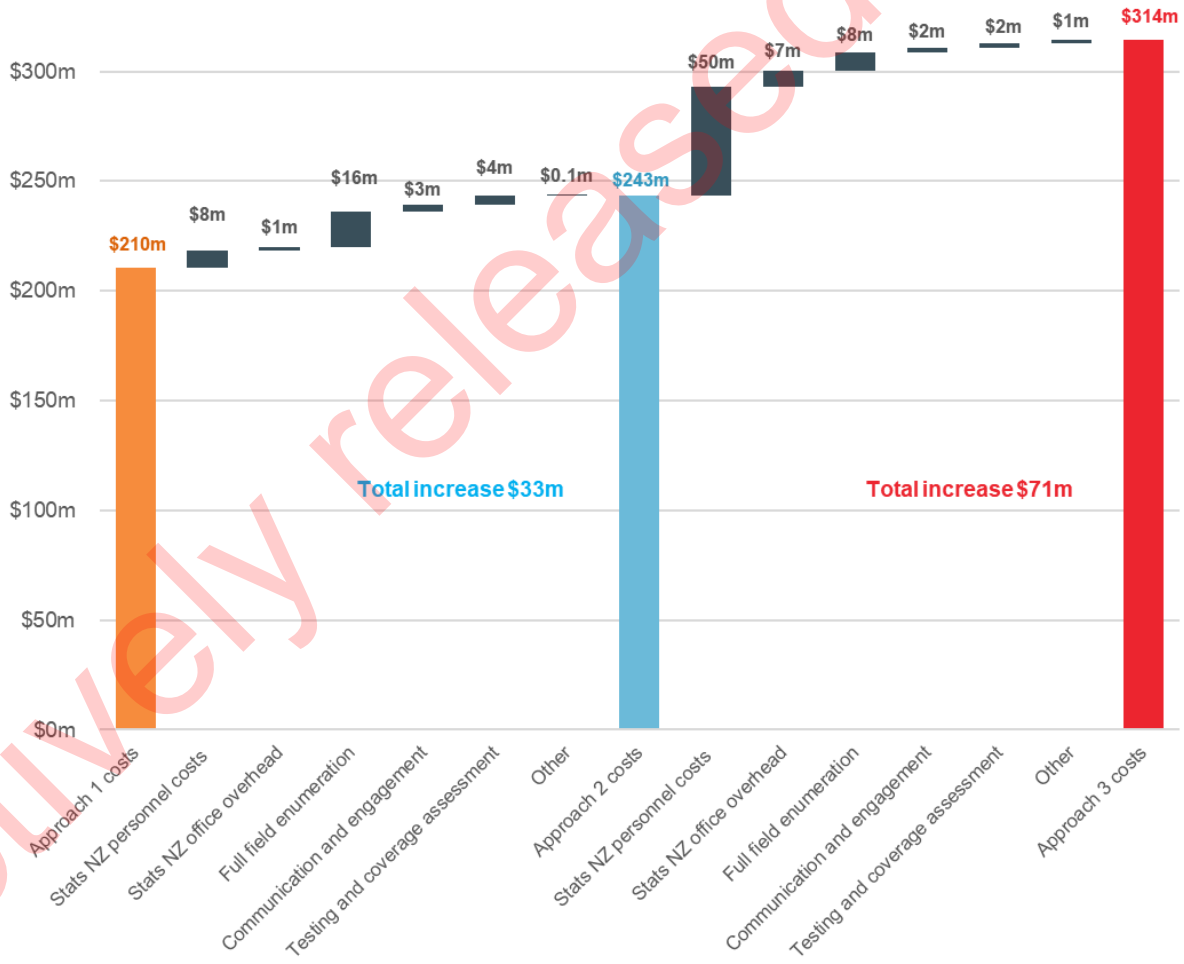
The ‘waterfall graph’ shows the main cash items for each of the three approaches. All figures exclude contingency calculated by the quantitative risk analysis.

Approach 1 has the least cost ($210 million), followed by Approach 2 ($243 million) and then Approach 3 ($314 million).

The main differences in cost between Approach 1 and 2 is full field enumeration ($16 million), which includes field officers and associated recruitment, training, equipment and travel-related expenditure, paper and printing, and systems and infrastructure.

The main cost difference between Approaches 2 and 3 is personnel cost and related expenditure for Stats NZ staff ($50 million).

The next page explains the reasons for the differences in cost between the approaches.



Key reasons for difference in cost

Census programme

Census programme personnel include management and programme management office staff, as well as personnel associated with all aspects of the census design. This includes technology services, communications and engagement, field enumeration, testing, processing, production of census outputs, and coverage assessment.

The approaches have two main differences in personnel. Approach 2 and 3 have staff doing research and development to improve the population count and the quality and availability of administrative data in future census cycles after 2023, whereas Approach 1 does not.

Personnel in Approach 3 remain in the census programme for a longer time. Assumptions about increasing labour cost produce a higher cost per FTE.

	Approach 1	Approach 2	Approach 3
Stats NZ person-years over census cycle	692	772	1,166
Stats NZ FTE in census year	217	241	244
Cost per FTE	$137,872	$138,164	$147,139
Contractor % of cost	8%	8%	8%

Communications and engagement

All three approaches seek to raise New Zealanders' awareness of the next census and to convert this awareness into higher response rates.

Engagement staff will develop relationships with people of influence in hard to count communities to plan **with** stakeholders rather than **for** them. They will build communities' understanding of the census, and encourage a high level of community support and, ultimately, of participation in the census.

In practice, this will mean tailored solutions to minimise or remove barriers to participation. This will include: providing 'local' information on how to participate in areas where there are different respondent models; increased compliance messaging; and more 'assisted completion', for example at engagement centres, maraes and churches.

The level of community and engagement activity is different for the three approaches. The table below shows that Approach 1 has the least amount of engagement resources. This means that, in communities with hard to count groups, fewer local partnerships will be formed and fewer community-based solutions will be developed to lift response rates.

Approach 1 also has less investment in media campaigns than the other approaches. This will limit New Zealanders' awareness of the census and their understanding of the value of participating in the census, further increasing the risk of unsatisfactory response rates.

	Approach 1	Approach 2	Approach 3
Community engagement personnel	24 FTE	36 FTE	36 FTE
Campaign development and media placement investment	$7.4 million	$8.3 million	$9.0 million

Collection operations

Tailoring collection activity according to 'difficulty to count'

All short-listed approaches tailor collection activity according to how hard a dwelling is to count. Dwellings are grouped into five categories, described in the table below.

The two groups that are easiest to count make up 70% of total dwellings in New Zealand. Three-quarters (76%) of total online responses come from

these two groups and they have lower per-dwelling collection costs than other groups.

The two hardest to count groups require the biggest lift in 2018 response rates and the most resource-intensive interventions to achieve this. Their per-dwelling collection cost is the highest of all groups. The people in these dwellings are those with high levels of deprivation and often with poorer outcomes than other New Zealanders. Rich data about these people is of significant policy interest and highly valued by customers.

	Group based on difficulty to count	Required lift in 2018 Census response rate	Expected response mode
Easiest to count	**Group 1:** Approximately 50% of all dwellings in NZ. Mostly compliant; willing and able to respond online. 65% of this group responded with no personal contact in 2018.	7%	63% online 37% paper or other
	Group 2: Approximately 25% of all dwellings in NZ. Mostly compliant; possible barriers to responding online; may require paper. 65% of this group responded with no personal contact in 2018.	9%	13% online 87% paper or other
	Group 3: Slightly harder to access; geographic or engagement challenges; may need support and/or face-to-face prompting. Located in mainly medium deprivation index areas.	9%	13% online 87% paper or other
	Group 4: Historically undercounted by census; mostly urban; some access challenges; face-to-face contact preferred. Mainly highest deprivation areas.	23%	6% online 94% paper or other
Hardest to count	**Group 5:** Historically undercounted or missed by census; highly rural and remote; hard to access; require face-to-face assistance and early community-supported engagement. Mainly highest deprivation areas.	18%	5% online 95% paper or other

Collection activity

The main types of collection activity are described below.

- **Field staff** tailor both the number and nature of their visits to dwellings based on difficulty to count. A small proportion of the dwellings in the easiest to count groups will receive a visit (for example, to deliver a printed pack to a dwelling in a hard-to-reach location without a letter box). By comparison, carefully planned visits will be made to each of the dwellings in the hardest to count group, with multiple visits over several days, including a final visit to collect the completed census questionnaires.
- **Letters** are sent to all dwellings in the two easiest to count groups only (70% of the total dwellings). Previous censuses have demonstrated that letters are not effective at lifting response rates for the hardest to count groups.
- **Engagement centres** provide a place for people to learn about the census and complete their questionnaire, as well as an operation base for field officers. In locations where groups are expected to be easier to count, engagement centres will be set up for a short time (for example, at the local library). Most engagement centres are in communities that consist of harder to count groups and the centres will have a more enduring presence.

Collection cost

The direct cost of the collection activity varies by approach. The table below compares the direct collection cost for Approaches 1 and 2. The main differences are shown in yellow highlight. Approach 3 is not included in the table because the collection design is less clear at this stage (although it is expected to be like Approach 2).

Approach 1 has the absolute minimum amount of resources needed to conduct an effective collection operation. It directs a smaller proportion of its collection resources to the 10% of dwellings that make up the hardest to count groups (30% compared to 36% under Approach 2). This is because

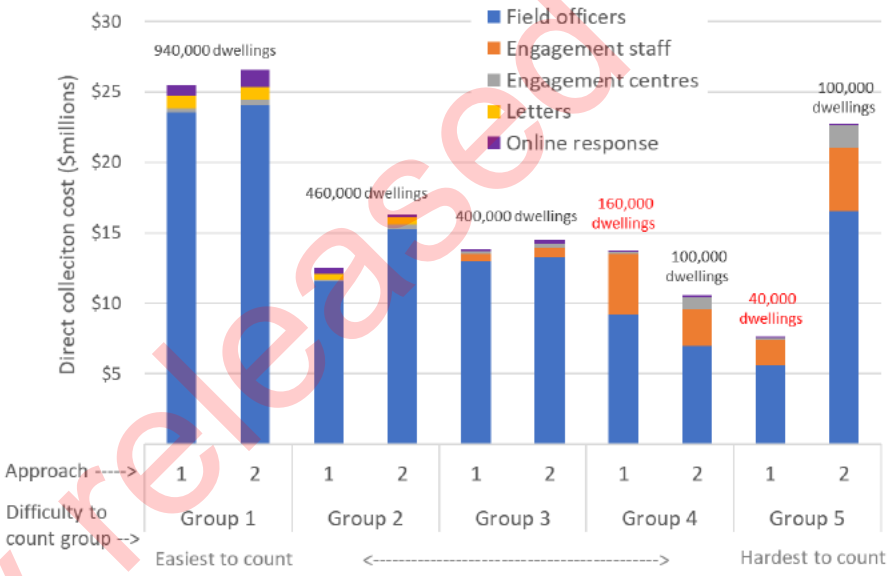
Approach 1 needs to allocate enough collection resources to the 90% of the other dwellings in order to achieve the target national response rate.

Approach 1 has 33% less ($11.3 million) collection resources for the two hardest to count groups than Approach 2. Under Approach 1, 60% fewer dwellings receive interventions designed for the hardest to count group.

	Number of dwellings in the 'difficulty to count' groups		Direct collection cost ($millions)	
	Approach 1	Approach 2	Approach 1	Approach 2
Easiest to count	940,000	940,000	26	27
	460,000	460,000	12	16
	400,000	400,000	14	15
Hardest to count	160,000	100,000	14	11
	40,000	100,000	8	23
	2,000,000	**2,000,000**	**74**	**91**

Key differences

The bar graph on the right compares the direct collection cost of Approaches 1 and 2. Cost is shown by the type of collection activity and the 'difficulty to count' group.



The main differences in the collection operations between Approach 1 and 2 are described below.

404 fewer field officers to deliver interventions to the 10% of dwellings that are hardest to count. Also, each field officer has to visit more dwellings in these groups than the other approaches, shown in the table below.

Difficulty to count grouped by dwellings		Dwellings per field officer		
		Approach 1	Approach 2	Approach 3
Easiest to count	Group 1	816	816	816
	Group 2	816	630	630
	Group 3	630	630	630
Hardest to count	Group 4	356	299	299
	Group 5	146	126	126

60,000 fewer dwellings receive interventions designed for the hardest to count group. This equates to $15 million less in community-facing resources directed at this group.

60 fewer engagement centres located in the highest priority communities, with a number of in-need communities missing out. The distribution of engagement centres is shown in the table below.

Difficulty to count grouped by dwellings		Engagement centres		
		Approach 1	Approach 2	Approach 3
Easiest to count	Group 1	5	8	8
	Group 2	2	8	8
	Group 3	4	8	8
Hardest to count	Group 4	3	20	20
	Group 5	3	36	36

The content of the letters will differ between the approaches. To reduce the cost, the vast majority of letters under Approach 1 will include an access code for the online collection option, but no paper forms to complete the census. People will need to ask for paper forms if they want them. As a result, it will be harder for some people to respond to the census, and there is a higher risk of lower response rates for these groups and more negative publicity about barriers to responding.

By comparison, under Approach 2 and 3, approximately 420,00 dwellings (one-third of the dwellings in the easiest to count groups) will be mailed paper forms in addition to an access code. People in these groups will be able to choose between paper and online response modes without having to make any further contact with Stats NZ.

Summary of collection inputs

Approach 1 will have less engagement with hard to count groups in the lead-up to census day, and reduced capacity to identify strategies for how to get these groups to participate in the census. Fewer dwellings will receive interventions designed for the hardest to count group.

As a consequence, Approach 1 will only be able to achieve response rates like those in the 2013 Census, which was of borderline data quality. Approach 1 carries a high risk that response rates for some groups and areas fall to an unacceptable level and that rich data is not produced for these groups.

The table below compares the main collection inputs for each of the approaches.

	Approach 1	Approach 2	Approach 3
Field officers			
National manager	1	1	1
Area manager	37	43	43
Team leaders	317	380	380
Field Officers	3,710	4,308	4,308
Reserve field officers and team leaders	832	645	645
Total field staff (headcount in census year)	**4,897**	**5,377**	**5,377**
Average officer employment	5 weeks	5 weeks	5 weeks
Engagement centres			
Number of engagement centres	20	80	80
Average duration of the centre (varies from 1 month to a year)	2 months	2 months	2 months
Letters and postage			
Number of printed packs	2.7 million	2.7 million	2.7 million
Number of letters sent	2.5 million	2.5 million	2.5 million

Māori and iwi

Stats NZ and Māori have committed to develop partnerships over the next census cycle to improve the collection of Māori and iwi data. As part of this commitment, both Approach 2 and 3 pilot two data hubs in the community, which are long-term initiatives to help Māori grow their data capability and make better use of official statistics. Approach 1, by comparison, does not pilot any data hubs.

Processing and outputs

Personnel are the main inputs for processing raw census data and producing census outputs. There is no significant difference between the approaches, other than that staff remain in the census programme for longer under Approach 3.

Testing and quality assurance

All three approaches include a number of tests to ensure the census design can be implemented as intended, with testing taking place earlier in the census cycle. Approaches 2 and 3 do further testing as part of the research and development towards a census in 2028.

The table below shows the number of tests for each approach.

	Approach 1	Approach 2	Approach 3
Experimental design	1	1	1
Dress rehearsal (operational readiness)	1	1	1
Content or targeted field methodology	2	2	4
End-to-end (integration/ performance)	1	1	1
Testing for a census in 2028	n/a	11	11
Total census tests	**5**	**16**	**18**

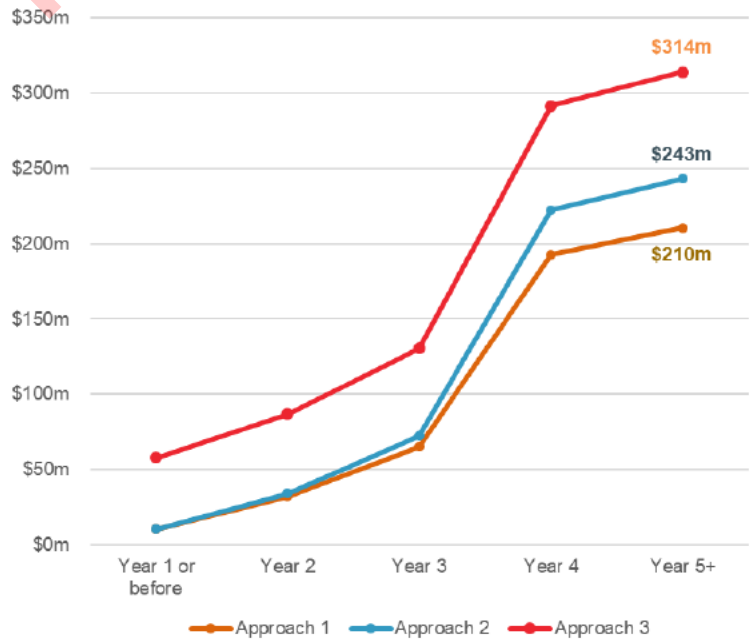
Coverage assessment

Coverage surveys estimate the extent to which populations and dwellings are counted in the census and are a vital input to Stats NZ's production of official population and dwelling estimates.

Approach 1 will address previous deficiencies in coverage assessment by increasing the sample size of the post-enumeration survey. Approaches 2 and 3 expand on this, assessing the quality and coverage of administrative data used in the census for the first time.

How costs compare within the census cycle

The graph below compares the total cash cost of the three approaches over five years. It shows that the biggest variances are in years 4 and 5. All figures exclude contingency calculated by the quantitative risk analysis.



Comparison to other censuses

Field staff numbers are one of the biggest cost drivers in the census. The number of field staff and the length of their employment are built up from detailed assumptions relating to the number of dwellings visited, the number of visits (and repeat visits), and the duration of visits.

The bar graph on the right-hand side compares the ratio of field officers to population size for previous censuses in New Zealand and other jurisdictions. A lower value on the x axis means there are a higher proportion of field officers to the population.

The figure shows that all three approaches have more field officers than New Zealand's unsuccessful 2018 Census, but well below the 2013 Census levels. All approaches have a similar ratio of field officers to Canada and a smaller ratio than all other international jurisdictions except for the UK.

A comparison of census cost to other jurisdictions is in the Financial Case on page 86.

The level of change required under each approach

Traditionally Stats NZ has followed a pattern of conducting a number of censuses with little change followed by a high-change census, a practice that increased complexity and delivery risk (as was the case in 2018). Citing international best practice, the Independent Review recommended instead that a smaller amount of change be introduced each census cycle.

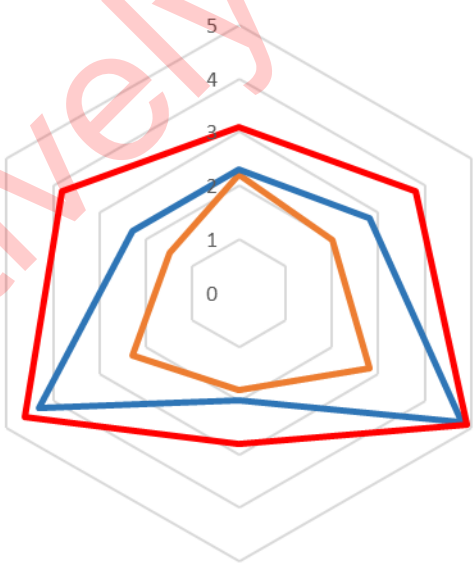
The 'radar graph' below compares how much change each approach requires for the next census, and the reason for that change. Each approach is plotted against six points. The area inside an approach represents the overall amount of change required.

The points on the graph are arranged in an order to show the relationships between them. The 'Strategic pathway' driver, for example, sits opposite the 'Social licence' driver, reflecting the fact that increased use of administrative data depends on the public's level of comfort with this.

The radar graph shows that, overall, Approach 1 requires the least amount of change and Approach 3 requires the most change.

The approaches differ in how much they advance Stats NZ towards its Census Transformation strategy. Approaches 2 and 3 achieve similar amounts of change to improve the respondent experience and produce richer data for hard to count groups.

Strategic pathway: extent that the option progresses toward the goals of the Census Transformation Strategy



Customer focus: the extent that the needs of customers are met including the data needs of Treaty partners.

Quality: the degree to which the census outputs are accurate, relevant and timely

Respondent focus: the experience of respondents and the ease that they can participate in the census.

Inclusiveness: the extent that everyone can see themselves in the data, including hard to count groups and Māori

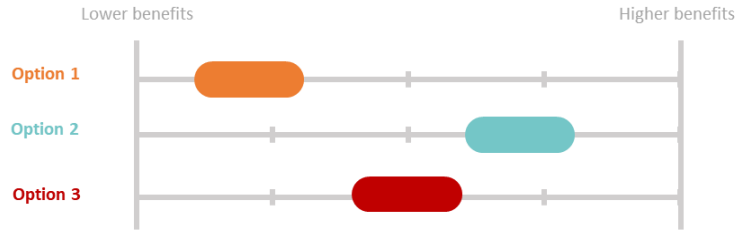
Social licence: the level of comfort that the public has with the use of administrative data in the census.

Key attributes

The diagrams below provide a high-level overview of each approach, looking at some key attributes: alignment with strategy and with customer and stakeholder need; and their overall levels of benefit, risk and cost.

In summary, Approach 1 costs less but generates less benefit and is higher-risk compared to Approach 2. Approach 2 best meets the needs of customers and stakeholders. Approach 3 delivers less benefit than Approach 2, costs more, and is higher risk.

Relative level of overall benefits realised

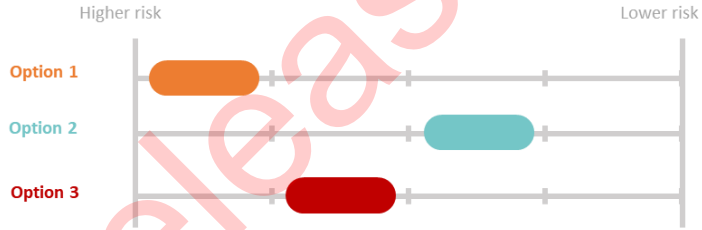


Approach 2 delivers the benefits of a census that are described in the Strategic Case on pages 16–22.

Approach 3 also achieves these benefits but to a lesser extent because the later census date disrupts the current time series of data, requiring customers to use older, less accurate data in the meantime.

Approach 1 achieves the lowest level of overall benefit. Response rates for ethnicities over-represented in high-deprivation populations like Māori and Pasifika will be lower than ideal. As a consequence, census outputs will be less able to describe Māori, Pasifika and other population groups who often have poorer outcomes than those of many other New Zealanders. Census data will not be able to develop evidence-based policy to the same extent as Approach 2 or 3, or directly inform the delivery of essential public services like health, education, social housing, and built infrastructure. Other benefits will also be lost under this approach, such as providing a deeper understanding of New Zealand's cultural identity and growing the Māori language to the same level as the other approaches.

Relative level of overall risk

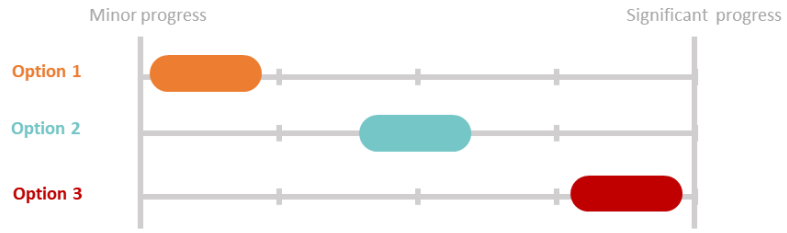


Approach 1 is higher risk than other approaches and is also high-risk in absolute terms. Relatively minor implementation problems could cause response rates for some hard to count groups (including Māori and Pasifika) and geographic areas to fall to unacceptably low levels, which will mean the rich, quality data that is most highly valued by customers is not available.

Approach 1 is also less suited for people who prefer to respond to the census using paper, which could affect response rates for these groups and trigger negative publicity. Without a research and development workstream for a census in 2028, Approach 1 requires more change over consecutive census cycles.

Approach 3 has higher risk that the external environment will change considerably before census day. There is more uncertainty about what the census design should be and the technology solutions to achieve the design. Early design and planning may need to be re-worked and there may be complacency in the early planning stages.

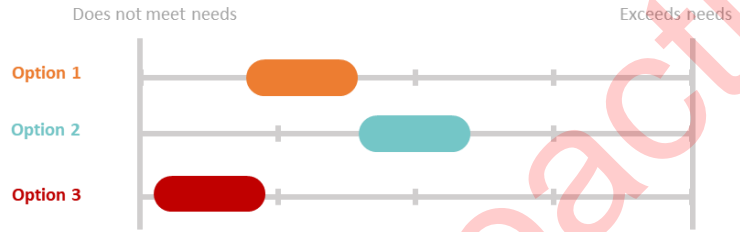
How far the approach progresses Stats NZ along its strategic pathway



Approach 1 develops Stats NZ's enterprise capability for greater use of administrative data, but limits further progress toward the goal of a future census based mainly on administrative data.

Approach 2 and, to a greater extent, Approach 3 strengthen Stats NZ's understanding of methods to improve the population count and the quality and availability of administrative data. This minimises the amount of change needed over consecutive census cycles and moves New Zealand sooner towards a census based mainly on administrative data.

Alignment with the needs of customers and external stakeholders

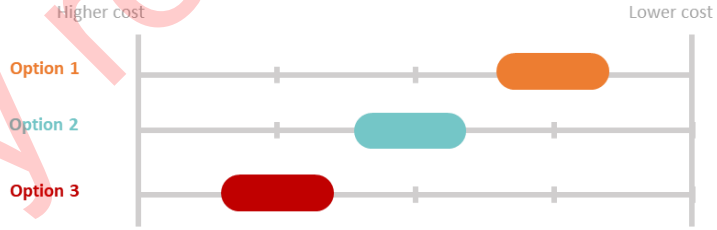


Approach 1 is less likely to restore customers' and stakeholders' trust and confidence in official statistics to pre-2018 Census levels. It does not meet Stats NZ's commitment to partnering with Māori and iwi throughout the census cycle, and it does not help Māori and iwi grow their data capability to use official statistics more effectively. This approach will be less able to describe Māori, Pasifika and other population groups whose data is most highly valued by customers, Treaty partners and stakeholders.

Stakeholder feedback strongly favours Approach 2 because it provides richer, high-quality data about small groups of the population and it maintains the current time series of data.

Approach 3 develops deep-seated partnerships with Māori and allows for more change to the census content and outputs, but fails to meet the needs of stakeholders, including Māori and iwi, for timely information.

Relative cost



The cost is different for each of the three approaches. A cost comparison is included in the next section of the Economic Case.

Why Approach 1 is the ‘Do the minimum’ approach

The objective of Approach 1 – the ‘Do the minimum’ approach – is to deliver a better outcome than the last census. Specifically, this means response rates that are comparable with the 2013 Census, and timely, high-quality census outputs that meet the basic needs of customers and stakeholders, including Treaty partners. Approaches 2 and 3 build on that approach.

This section explains why Approach 1 is in fact the ‘Do the minimum’ scenario – why there is not another approach that is smaller in scope or scale that could also deliver an acceptable outcome.

Role of the Independent Review in defining the ‘Do the minimum’ scenario

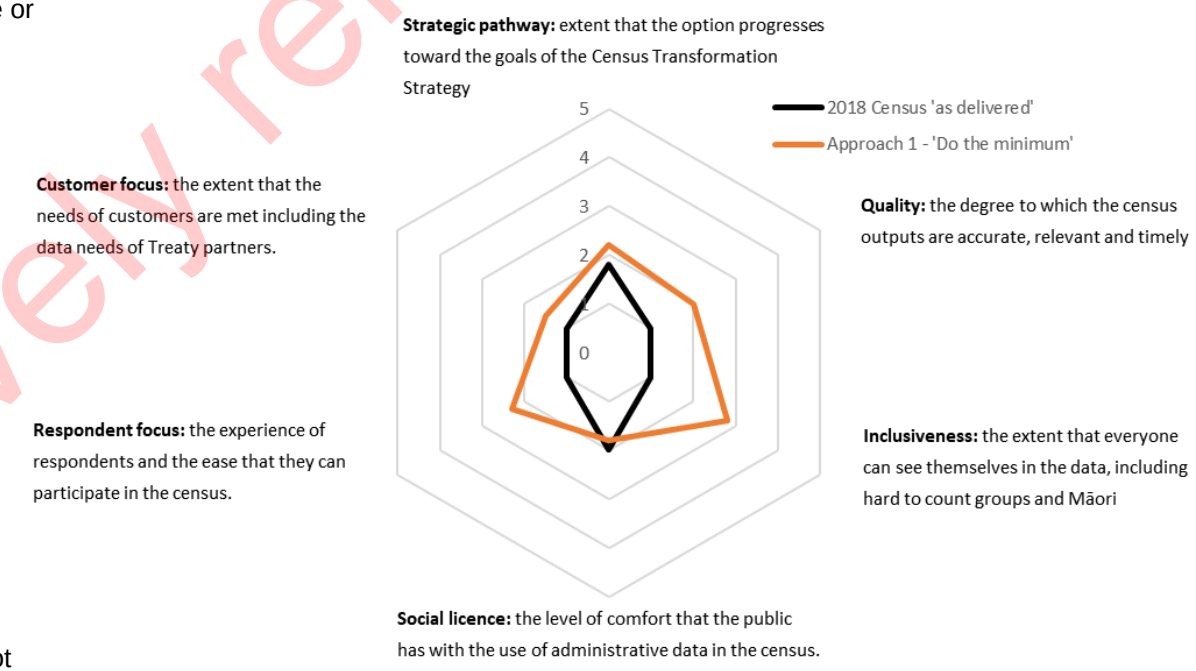
The Independent Review made 15 recommendations to fix problems with the 2018 Census and ensure the next census is successful. Cabinet has noted that Stats NZ is working to implement all the recommendations. These recommendations have provided a clear frame for constructing a ‘Do the minimum’ scenario.

Amount of change between the 2018 Census and Approach 1

The radar graph on the right is a useful way to illustrate the amount of change between the last census as it was delivered (shown as a solid black line) and Approach 1 (the orange line).

As noted above, Approach 1 sets a conservative course and does not advance Stats NZ along the pathway set out in its Census Transformation Strategy, other than growing essential enterprise capability to support the increased use of administrative data (this consists of a new Statistical Person Frame register and new business rules for its existing processing platform).

Where there are changes under Approach 1, these are needed to fix aspects of the 2018 Census that did not work well and to ensure that a successful census can be conducted in a bigger population with more diversity than before. This is reflected in small but significant shifts to the ‘Customer focus’, ‘Inclusiveness’, ‘Quality’ and ‘Respondent focus’ plots.



Main cost differences

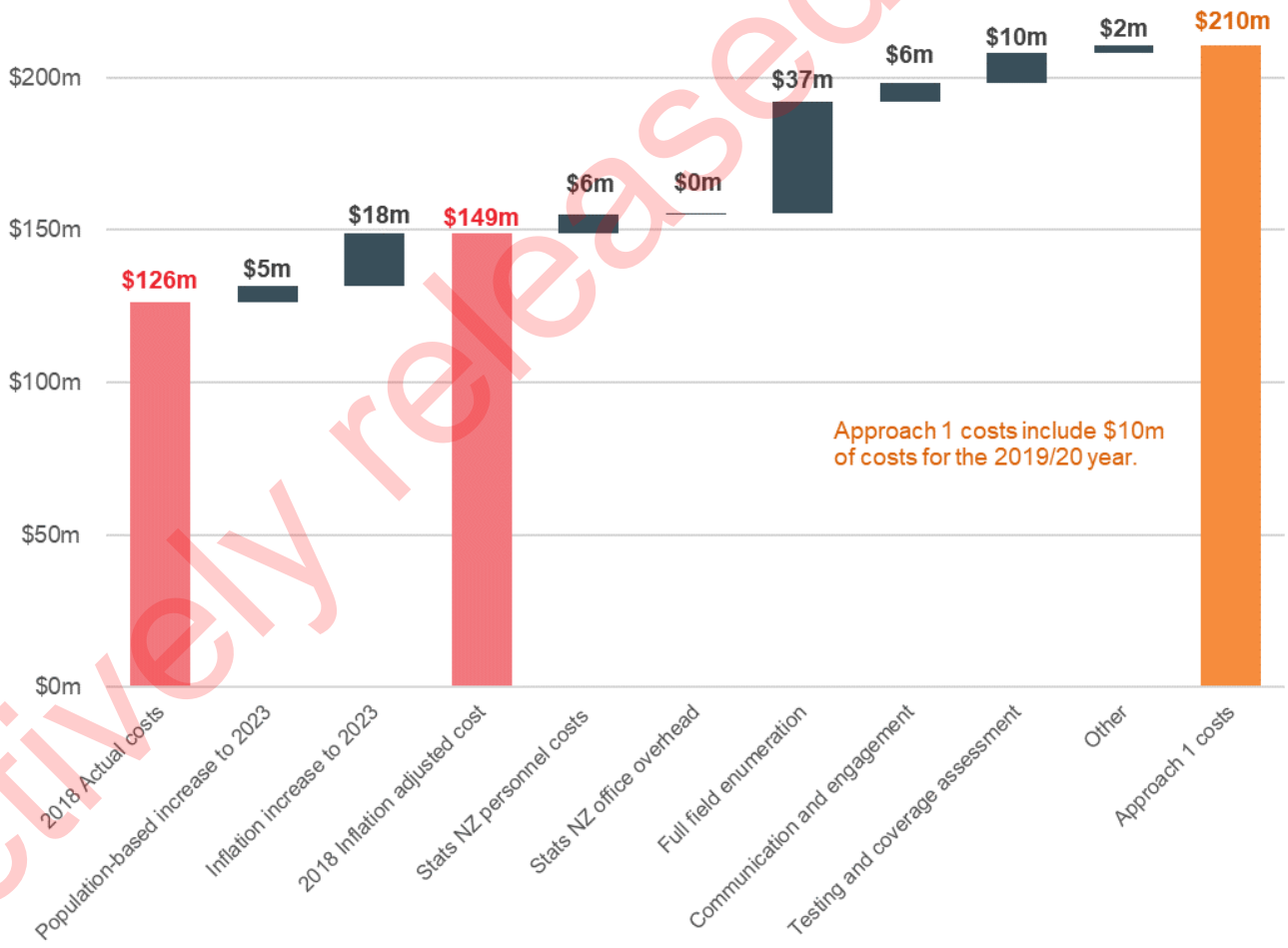
The 'waterfall graph' on this page shows the main cash items that cause the 'Do the minimum' approach to be more expensive than the 2018 Census.

The graph begins with the actual census costs for 2018 ($126 million) and adjusts for population increase and cost inflation ($23 million). The biggest increase in cost is field enumeration ($37 million), which includes field officers (and associated recruitment, training, equipment and travel-related expenditure), paper and printing, and systems and infrastructure. All figures exclude contingency calculated by the quantitative risk analysis.

It is important that 2018 Census costs are not used as a benchmark. The census produced unacceptable response rates due to field staff reductions that the Independent Review said were too aggressive. To have had enough field staff to produce acceptable response rates, the 2018 Census would have cost considerably more than $126 million. Further, the 2018 Census was under-designed to meet its needs and so was underfunded. It was also built on an underfunded and 'minimal change' 2013 Census.

The Financial Case provides details of how previous censuses were funded.

The next page explains the key reasons for the differences in cost between the 2018 Census and the 'Do the minimum' approach.



Key reasons for difference in cost

Collection operations

Approach 1 deliberately moves away from 2018's 'digital first' census. The approach reduces some barriers, especially for people who cannot, or who choose not to, use online forms, and makes it easier for Māori and hard to count groups to participate in the census.

This shift is largely achieved through having more field officers, shown in the table below.

	2018 Census	Approach 1
National manager	1	1
Area manager	22	37
Team leaders	180	317
Field Officers	1,550	3,710
Reserve field officers and team leaders	0	832
Total field staff (headcount in census year)	**1,753**	**4,897**
Average length of field officer employment	9 weeks	5 weeks

While Approach 1 includes substantially more field officers (180% more than 2018 field staff), it will still not be enough to lift response rates for Māori and Pasifika and other hard to count groups to above 90% (pre-2013 levels). This produces a heightened risk that response rates for these groups fall to unacceptably low levels and that rich data cannot be produced.

The field design for Approach 1 is built from the 'bottom up' using a detailed model. The ratio of management roles to field officers is improved. Field officers will also be engaged for a slightly shorter time, and brought on earlier in the census cycle. To ensure that non-response follow-ups can be completed by Easter (which in 2023 is four weeks after Census day) more field officers are needed over a shorter time.

There are no alternatives at this stage to reducing field officer numbers by using more administrative data. While this is the goal, Stats NZ is not confident it can overcome the barriers to using more administrative data before 2023. In particular, it will be some time before administrative sources of iwi affiliation data will be of sufficient quality to be used in the census.

Approach 1 also provides for a contingent workforce of field officers who will be recruited and trained and, if not needed, stood down. This has been previous practice in New Zealand censuses and overseas. The Independent Review recommended increasing the size of the field force to ensure enough contingency to respond to challenges in collection operations.

Other areas of field enumeration will remain unchanged. The online response channel will still be the main collection method. There will be no change to the number of languages supported.

Administrative data

Stats NZ will build a Statistical Person Frame register, which is an enterprise system that would sit alongside the already built Statistical Location Register.

Before census day, the Statistical Person Frame will be used to create an administrative data file. The file will be linked with census form responses and this will enable gaps to be filled. The linking will be timelier than in 2018, so that there is no delay in the release of census results. Improvements will also be made to how the quality of administrative data is assessed.

Māori and iwi

Approach 1 has dedicated Stats NZ personnel to collaborate with Māori and iwi throughout the census cycle in order to identify ways to improve their response rates in the next census.

Communications and engagement

Approach 1 introduces continuous engagement with stakeholders throughout the census cycle, focusing on Māori and iwi and on hard to count groups. The approach has more capacity in the communications and engagement team to work alongside field operations in specific geographic areas.

Processing and outputs

Approach 1 will make fixes to existing systems and business processes to produce timely outputs in an efficient way. For example, the 2018 Census delivered a new platform called EPIC to process raw response data and prepare it for producing census outputs. The platform was implemented as a 'minimum viable product' and specialist ICT personnel will tidy up the existing software code and write new business rules for the next census.

Change to census content will be limited to previous commitments made by the Government Statistician to the LGBTI+ community. Otherwise there is no change to outputs.

Testing and quality assurance

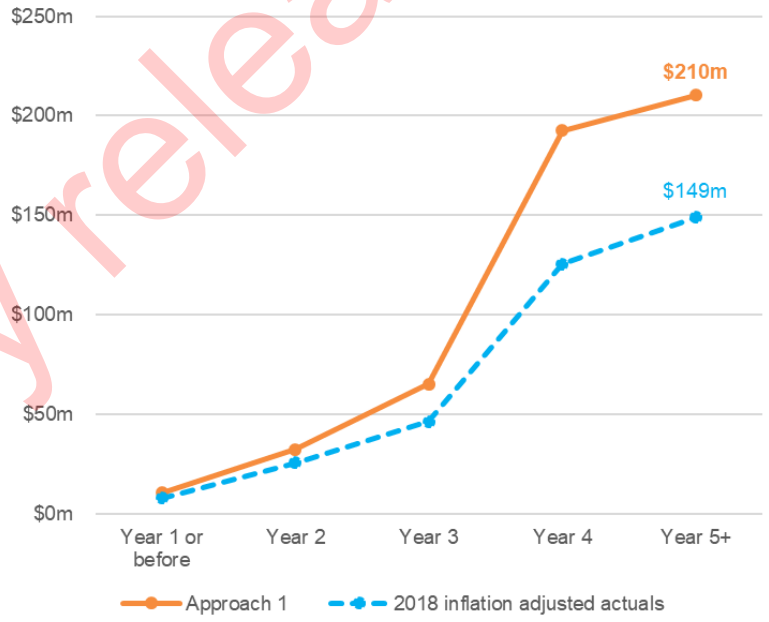
Approach 1 will increase the number of tests and make changes to the types of tests to ensure the census design can be implemented as intended. This includes an operational readiness test earlier in the census cycle.

Coverage assessment

Approach 1 will make vital improvements to the assessment of coverage, increasing the sample size of the post-enumeration survey to enable both dwelling and population coverage to be measured. Coverage of administrative data will also be assessed for the first time. The sample size of the 2018 post-enumeration survey was not large enough to support the assessment of dwelling coverage.

How costs compare within the census cycle

The graph below shows the distribution of total cash costs for Approach 1 over the five-year census cycle, comparing it with the 2018 Census 'as it was delivered'. The biggest variances are in years 4 and 5. All figures exclude contingency calculated by the quantitative risk analysis.



Further discussion of the short-listed approaches

Comparison with international approaches

A comparison of the short-listed approaches with approaches taken by international jurisdictions shows a high level of consistency with them. The UK, Canada, Australia and the US have all adopted a combined methodology census model and are seeking to use more administrative data. The short-listed approaches are also consistent with the findings of the High-Level Group on the Modernisation of Official Statistics.

Appendix 6 summarises the census designs used by other jurisdictions and highlights the similarities with the short-listed approaches.

Variations on the short-listed approaches

During the engagement process for this Business Case, customers and external stakeholders queried whether elements of the short-listed approaches could be ‘mixed and matched’ to make alternative approaches.

The most common query centred around Approaches 1 and 2. It was whether there was an in-between option that delivered some of the targeted strategies to increase response rates for hard to count groups.

While that in-between variation appears to be attractive, it would be difficult to achieve in practice. This is because Approach 2 also involves deeper relationships with its stakeholders as a function of its long-lens workstream. These deeper relationships provide Approach 2 with the knowledge needed to develop targeted engagement and collection strategies.

Any reduction of resources in Approach 2 would carry a high risk of unacceptably low response rates for some groups (including Māori and Pasifika) in specific geographic areas.

ASSESSING THE SHORTLISTED APPROACHES

The assessment framework

The diagram below summarises the framework used to assess the short-listed approaches.

Investment objectives and critical success factors were used to assess the short-listed options

The monetary cost and benefits of each short-listed option were estimated and a net present value (NPV) was calculated

Qualitative benefits were identified and an assessment was made of the extent to which the options would realise the benefits

The level of risk and uncertainty for each option was assessed and a quantitative risk analysis was undertaken

Investment objectives and critical success factors

Approach to identifying the investment objectives and critical success factors

A workshop to identify the investment objectives and critical success factors was independently facilitated by a Better Business Case expert practitioner and reviewer for the Treasury. Participants in the workshop included the census SRO and General Manager, Treasury, the GCDO and SSC.

The development of the investment objectives drew on recommendations from the Independent Review and internal reviews by Stats NZ of the 2018 Census. The objectives were reviewed by the Census Executive Board and Executive Leadership Team. The critical success factors were based on the BBC guidelines and tailored to the specifics of the census investment proposal.

Assessment approach

A series of workshops were held with Stats NZ subject-matter experts, census management and governance, and external customers and stakeholders, to assess the short-listed approaches against the investment objectives and critical success factors.

The criteria were ranked and the short-listed approaches were scored on a scale of 1–5 according to how well they met each criterion. An overall ranking and assessment were agreed by the 2023 Census Board.

The investment objectives and critical success factors are set out on the next page. A summary of the assessment of the short-listed approaches follows.

Investment objectives

Objective 1: Deliver a census that produces data of enough statistical quality to meets statutory requirements

This is an outputs-focussed objective. Key points:

- Requires New Zealanders to understand the value of their contribution, have trust and confidence in the census and to want to contr bute and be able to participate.
- 'statutory requirements' includes the Electoral Act 1993 and other acts including but not limited to Statistics Act 1975, Local Electoral Act 2001, and Privacy Act 1993.

Measurement:

- Every person counted is assigned a Māori Descent indicator and an accurate usual residence meshblock.
- Net population coverage rate no less than 98%.
- Real data (either from census forms or administrative data) for Electoral Māori Descent for at least 90% of the population.
- Census data quality and availability supports electorate boundaries to remain fixed for no more than two general elections.
- Sufficient statistical quality defined by international census standards (see measurement for Objective 2).

Objective 2: Provide customers with timely and equitable access to rich and statistically sound data to support nationally- and locally-significant decisions

This objective speaks to the value proposition of the census. Key points:

- Customers includes any data users who may be from government, private sector, Māori and iwi and hard to count groups.
- 'equitable access' refers to the ability to access outputs via technological or other means, and also the capability of the users to know how to access the data.
- 'nationally- and locally-significant decisions' is a purposefully broad definition and could include, for example, health funding allocation, placement of schools, and capacity of water pipes installed in a community.
- 'rich data' includes information on population and geography in addition to what has to be collected to meet statutory requirements.

Measurement:

- Timeliness – census data available with sufficient frequency to meet customer needs (5 years or less since last census data released).
- Accuracy – collection of at least 90% of responses from forms (individual and dwelling) at the national level and for Māori, Pacific and Asian sub-groups.

Investment objectives

- Relevance – target concepts for units and attributes use standard frameworks that are achievable for Stats NZ and relevant to customers.
- Consistency – appropriate balance between customer need, quality improvements and real-world change. Any changes in time series is open, transparent and can be explained.
- Accessibility and interpretability – Census data and information is equally accessible to customers.

Objective 3: Deliver a census model that positions Stats NZ to meet the future needs of its customers

This is an outward-focused objective, with a focus beyond the next census cycle. Key points:

- Requires Stats NZ to progress along the Census Transformation pathway in a managed way that balances change with delivery risk.
- Same definition of customers as above.

Measurement:

- Design and test with at least two census cycles in mind.
- Clarity of the design for the following census by testing methods and concepts in the current census cycle and develop implementation plans for any new infrastructure.

Critical success factors	
Strategic fit and business needs	How well the approach: • meets legislative requirements (*as defined in investment objectives*) • achieves response rates comparable to 2013 Census levels • balances advancements along the Census Transformation pathway with delivery of the current census • related business needs and customer requirements (including the needs of Māori and Iwi and minority stakeholder groups) • fits with strategies including, and other programmes and projects • delivers on the role of the Government Chief Data Steward.
Potential value for money	How well the approach: • optimises value for money (ie the optimal mix of potential benefits, costs and risks) • develops infrastructure that Stats NZ can deploy outside of the census.
Supplier capacity and capability	How well the approach: • matches the ability of potential suppliers (including NGOs, community groups and the commercial market) to deliver the required services • is likely to result in a sustainable arrangement that optimises value for money over the term of the contract.
Potential affordability	How well the approach can be met from likely available funding, and matches other funding constraints.
Potential achievability	How well the approach: • is likely to be delivered given the organisation's ability to respond to the changes required • can adapt to change in the current census cycle • can gain the trust and confidence of New Zealanders • matches the level of available skills required for successful delivery within Stats NZ • matches the level of available skills required for successful delivery of organisations that Stats NZ partners with.

Assessment of investment objectives and critical success factors

A summary of the assessment of investment objectives and critical success factors is set out below. On the following page, a table provides the overall score (out of 5) for each of the criteria.

Approach 1

Approach 1 is Stats NZ's bottom line, designed to achieve the absolute minimum acceptable level of quality outputs, with response rates comparable to the 2013 Census.

Relatively minor implementation issues could cause response rates for some hard to count groups (including Māori and Pasifika) and geographic areas to fall to unacceptably low levels. That would mean the rich, high-quality data that is most highly valued by customers is not available.

Lack of paper forms in the initial mailout to 70% of dwellings will make it less easy for people who prefer paper. This could trigger negative publicity, which could affect response rates.

Administrative data will still be available to mitigate the worst impact of the remaining non-response for key demographic variables. However, the experience of the 2018 Census highlighted that this will not provide information for some identity and personal outcome information that is of high interest to customers.

This approach consolidates but does not progress Stats NZ along its Census Transformation pathway. The transition to a mainly administrative data census in the future will take longer.

Approach 2

Approach 2 maximises the amount of useful improvements that can be put in place without increasing change risk to unacceptable levels, ensuring the next census can be confidently delivered in 2023.

This model will look to achieve response rates similar to the 2006 Census, which had smaller differences between the national response rate and the response rates for population sub-groups including Māori compared to 2018.

The approach will engage with the community on a larger scale, driving towards deeper relationships with stakeholders. Additional strategies to minimise non-responses from sub-populations reduce the risk of not achieving the national response rate.

The approach requires more complexity and change than Approach 1, but the 'long-lens' workstream provides redundancy to remediate issues with the 2023 Census if needed.

Approach 2 is more expensive than Approach 1 but provides better value for money because it will deliver rich data that meets customer expectations and embeds the mechanisms that will enable Stats NZ to build a sustainable future for the census.

This approach advances Stats NZ along the Census Transformation pathway.

Approach 3

Approach 3 balances the need for high-quality data with implementation risk; however, it reduces the value of the census by breaking the current data time series.

This approach allows time for more change to be made to census content. While customers welcome richer data, the weight of customer opinion is that 2026 is too far away for the next census outputs. Iwi prefer access to official iwi affiliation data as soon as possible.

Other key customer needs will not be met, including that electorate boundaries would not be redrawn for any elections held before 2027. The additional wait for census data means that funding decisions (such as for DHBs) would be based on older census data that becomes increasingly less representative over time.

While Approach 3 advances Stats NZ the furthest along its Census Transformation Strategy, providing for more change over a longer timeframe, it also brings increased risk that the external environment will change considerably. Early design and planning may need to be re-worked and there is a heightened risk of complacency in the early planning stages.

	Scoring ranges from 1 (does not meet) to 5 (fully able to meet)		
	Approach 1	Approach 2	Approach 3
Investment objectives			
Deliver a census that produces data of enough statistical quality to meets statutory requirements	5	5	2
Provide customers with timely and equitable access to rich and statistically sound data to support nationally- and locally-significant decisions	2	4	3
Deliver a census model that positions Stats NZ to meet the future needs of its customers	2	5	4
Total score	9/15	14/15	9/15
Ranking	2nd	1st	2nd
Critical success factors			
Strategic fit and business needs	2	4	3
Potential value for money	2	4	3
Supplier capacity and capability	3	3	4
Potential affordability	4	3	2
Potential achievability	3	4	3
Total score	14/25	18/25	15/25
Ranking	3rd	1st	2nd

Economic cost and monetary benefits

This section compares the economic costs and benefits of the shortlisted approaches.

Approach

Economic cost

The economic cost consists of two components:

- the cost of conducting the next census
- the cost of the time taken by people to fill in their census forms.

Economic costs include operating expenditure and capital expenditure and costs in the 2019/20 financial year, but exclude depreciation and capital charges (these are considered in the Financial Case).

The cost to the public of completing the census forms was based on the methodology used in *Valuing the Census,*[36] which was adapted for the 2018 Census business case.

Monetary benefits

The *Valuing the Census* report also provided the basis for valuing the census benefits in the Business Case. The analysis used the same purpose-built model that was developed for the 2018 Census business case. Inputs were based on discussions with Carl Bakker (author of *Valuing the Census*).

The monetised benefits relate to the use of census data to:

- make resource allocation decisions in MoH, TPK, MoE, Treasury and MSD
- set electoral boundaries
- inform investment planning decisions for local government, and some areas of central government and the private sector
- inform policy making in some government agencies
- support Stats NZ to produce statistical outputs using other surveys
- inform academic research.

How to interpret the results of the analysis

The Net Present Value (NPV) is calculated for a single census to compare the three approaches. The NPV for consecutive censuses over the same period is significantly higher ($780 million – $920 million higher over 25 years).

The 2014 *Valuing the Census* report provides the best way to calculate the monetary value of the census benefits. The report described the challenges of developing a valuation methodology. Most significantly, the author was able to value only some of the benefits of a census, and could not value benefits of producing a richer census data set.

For those reasons, the findings presented in this section should be treated with caution. They provide, at best, a partial view of the benefits of any one approach and should not be used as the sole basis for assessing the approaches. Careful attention should be paid to the wider assessment framework, including the investment objectives and critical success factors, and the qualitative benefits and the risk profile of the approaches.

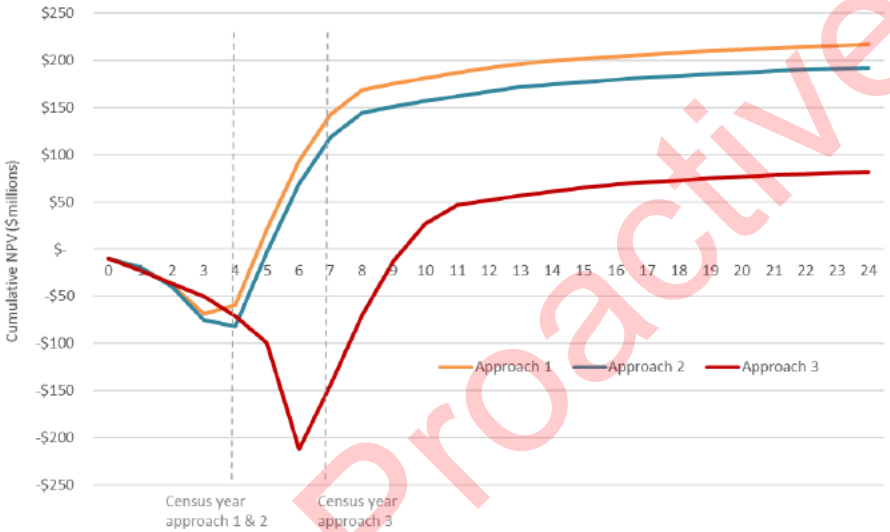
The following limitations of the findings should be noted.

[36] Carl Bakker: Valuing the Census; April 2014.

- **The monetised benefits are understated for Approach 2 and 3, and overstated for Approach 1.** This is because the methodology is unable to value the richer data that Approach 2 produces.
- **The cost to New Zealanders of completing the census form is understated for Approach 1.** This is because the methodology is not able to generate robust assumptions about the extra cost of people's time to request paper forms.

Key findings

The graph below compares the cumulative NPV for the approaches. Costs are incurred in the leadup to census day, with the final cost in the year following the census. Benefits begin in census year, once the census outputs are released. The biggest benefit occurs in that year ($140 million) when the data is most recent and accurate. Benefits decline each year after that, reducing to a steady-state benefit ($7.5 million) which is the value of the census data in a time series.



The following table compares the cash costs and the monetised benefits of each approach, as well as the net present value (NPV).

Given the limitations described above, little weight should be given to the difference in NPV of Approaches 1 and 2. The main finding from the analysis is the low NPV for Approach 3 compared to the other approaches. This is because the census benefits occur three years later.

$ millions	Approach 1	Approach 2	Approach 3
		Over 25 years	
Whole of life costs			
Cost of conducting the census	210	243	314
Cost to public of completing census	16	16	16
Whole of life costs	**$226**	**$259**	**$330**
Whole of life benefits from use of census data	**$673**	**$673**	**$651**
Present value of costs	174	200	226
Present value of benefits	392	392	308
Net present value	**$218**	**$192**	**$82**

Qualitative benefits

As demonstrated in the Strategic Case, the data that the census collects guides decision-making that affects many aspects of New Zealanders' lives. To produce rich data that meets customer needs, several criteria must be met, and these are described in the table opposite alongside a brief explanation of why they were included.

The criteria were ranked using the same workshops that assessed the investment objectives and critical success factors. Each approach was assessed as to how well it was able to achieve the criteria and, therefore, deliver the benefits to New Zealanders of using census data.

The table on the following page summarises the results of the assessment.

Non-monetary benefits	Description
National coverage and response rate targets are met	• The majority of census benefits rely on high coverage and response rates. • If the coverage rate is not maintained then census data quality is affected and therefore national and local benefits are significantly impacted.
There is less population sub-group variation	• Variations in population sub-group response rates have a significant impact on rich, high-quality data, and therefore on the value of census data. • The census is the only source of quality information for many small geographic areas, and small population groups. This data is sought after by customers.
Data is used by a wide range of customers and they have the capability to use the data to its full effect	• The value of census data is maximised when: – it is used by a wide range of customers, such as government agencies, regional and local councils, Māori, businesses, education providers, community groups, international statistical organisations, and individuals – customers know how to use the data and understand its true potential for more accurate analysis and to inform better decision-making.

Assessment of qualitative benefits

Scoring ranges from 1 (does not meet) to 5 (fully able to meet)

	Approach 1	Approach 2	Approach 3
National coverage and response rate targets are met	Frequent communications approach that is integrated with field operations throughout the census cycle (as opposed to focussing communications immediately before and after census day A greater focus will be placed on ensuring everyone has the tools they need to participate in the census. Field officers able to be quickly redeployed to target specific populations groups and/ or locations. **4**	In addition to Approach 1, this approach removes more barriers for the majority of New Zealanders and makes it easier to participate in the census. **5**	Similar to Approach 2. **5**
There is less population sub-group variation	For the reasons descr bed in the Economic Case on pages 53 – 56, this approach will not achieve very high response rates for hard to count population groups (including Māori and Pasif ka) in specific geographic areas. There are likely to be gaps in pockets of the census data about social characteristics and Māori descent and iwi connections. Approach 1 is higher risk than other approaches and also in absolute terms that relatively minor implementation issues could cause response rates for some hard to count groups (including Māori and Pasifika) and geographic areas to fall to unacceptably low levels. **2**	Approach 2 invests more substantially more resources into lifting response rates for hard to count groups including Māori and Pacif ka than Approach 1. There is earlier and more frequent communication and engagement with communities about the census. There are more targeted strategies, developed with the community, to lift response rates. More dwellings receive interventions designed for the hardest to count groups. **4**	In addition to Approach 2, more time and investment to develop deep partnerships with Māori to co-design the future censuses in a way that meets their needs. However, the longer time until the next census introduces uncertainty about the scale of challenges that lie ahead (eg apathy, barriers to responding) and how they might be addressed. **4**
Data is used by a wide range of customers and they have the capability to use the data to its full effect	Gaps in pockets of the census data will mean census outputs will be less able to descr be Māori, Pasifika and other population groups who often have poorer outcomes than for many other New Zealanders, barely meeting the needs of customers, Treaty partners and stakeholders. Census data will not be able to develop evidence-based policy to the same extent as the other approaches, or directly inform the delivery of essential public services like health, education, social housing, and built infrastructure. Less reliable coverage measures will limit Stats NZ's ability to further improve New Zealand's official population and dwelling estimates and projections, impacting the quality of data used by many organisations for their planning and investment. Stats NZ would be unable to meet its commitment to Māori and iwi to pilot community data hubs to help grow their data capability and understanding of the value of the census. **2**	Work with Māori and iwi and other groups to develop data-capability building approaches that utilise a combination of in-reach and out-reach activities. These may include Stats NZ internship opportunities, mentoring, and course offerings, and the pilot data hubs. This will improve Māori participation and foster the production and use of Māori-relevant data. **4**	Similar approach to building data capability to Approach 2. Greatest opportunity to change census content to meet customer and stakeholder need, but delay in producing new census outputs and break in the data time series negatively impacts the value of the census. **3**
Ranking (score)	3rd (8/15)	1st (13/15)	2nd (12/13)

Assessing risk and uncertainty

Risk identification and measurement

An independent quantitative risk analysis (QRA) was carried out on the census cost model to evaluate the uncertainty of major cost drivers of the census.[37] The results of the QRA are discussed in the Financial Case on page 84.

The biggest uncertainty on the cost was the productivity of field staff. To a lesser extent, the cost was sensitive to the length of visit for non-response follow ups. The cost was slightly sensitive to the proportion of dwellings in the hardest to count groups.

Sensitivity analysis

Sensitivity analysis was done on the cost model to explore the impact on the preferred approached when key variables were changed. This included analysis of the two main cost items; Stats NZ personnel and collection activity.

None of these changes had a material impact on the relative difference of the cost of the approaches. However, Approach 1 was least able to deal with any changes that resulted in a material reduction to the number of Stats NZ staff or field officers as resourcing levels were already set at the minimum threshold to conduct a successful census.

[37] Broadleaf Capital Interna ional: Census 2023 Cost QRA; 27 November 2019.

THE PREFERRED APPROACH

The Government Statistician has identified Approach 2 as the preferred approach: the next census would be held in 2023 using a conservative and well-tested full field enumeration design, and administrative data would be used to fill data gaps where responses are not received.

Approach 2 provides the best value for money. Household data will combine with information about social characteristics, and Māori descent and iwi connections, to produce rich, statistically sound data that meets statutory requirements.

Customers, stakeholders and Māori and iwi prefer this approach. It balances their need to maintain the current time series of data with a desire for ever-richer, high-quality data about small groups of the population.

The approach is consistent with the recommendations of the Independent Review, including that '*Stats NZ should build on the innovative approaches adopted for the 2018 Census, continue its Census Transformation Strategy for the increased use of administrative data and plan the next census accordingly.'*

A large proportion of census resources will focus on the growing part of the population that is hard to count. This will lift response rates above the unacceptable 2018 Census levels and produce census outputs that describe those population groups who often have poorer outcomes than other New Zealanders.

The census will count at least 98% of the population and at least 90% of census data will be collected directly via census forms, including for Māori, Pasifika and other hard to count groups.

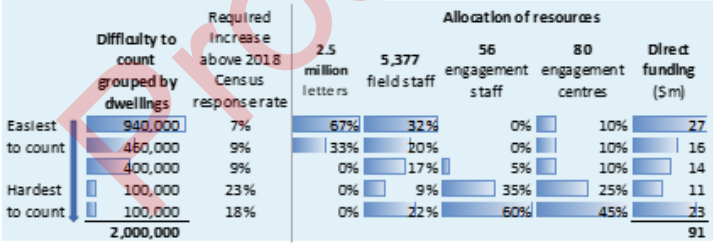
Improvements will be made to the wider data system. Focused research and development for a 2028 Census will limit the amount of change needed over consecutive census cycles. The approach will help to answer crucial questions about how well administrative data will be able to meet the future needs of census customers, and to what extent surveys will have a role in collecting census data. Stats NZ will grow its enterprise capability to support the increased use of administrative data in the production of official statistics.

By comparison, Approach 1 does not advance Stats NZ towards its vision for the census or progress its commitments to partnering with Māori and iwi. It will not achieve very high and equitable response rates for Māori, Pasifika and other hard to count population groups and will barely meet customer needs for rich data. It also carries a higher risk of unacceptably low response rates for some groups and geographic areas.

Approach 3 includes additional planning time to introduce new census content and move Stats NZ further along its strategic pathway; however, the longer wait for the next census means that Stats NZ would fall short of meeting Treaty partner and stakeholder expectations and customer needs. There is more uncertainty about what the future environment would be like and the technological changes that would be needed for a successful census.

Intervention logic map

The intervention logic map on the next page sets out the inputs needed to carry out the next census using the preferred approach, and the activities, outputs and outcomes that will be delivered.

Drivers and opportunity	Inputs (2019–2023)	Intervention (2019–2023)	Outputs (2023)	Short term outcomes (2024)	Medium term outcomes (2025–2027)
Successfully deliver the next census while moving New Zealand a step closer to its goal of a future census based mainly on administrative data.	**$239 million dollars over 4 years.** **Ongoing collaboration with Treaty partners and other stakeholders over the full census cycle.** **Everyone in New Zealand including Māori, Pasifika, Asian and youth responds to the census questionnaire.**	**The census is conducted in 2023 using a conservative and well-tested full field enumeration design with administrative data used to fill gaps.**	**Timely and equitable access to rich statistically sound data that meets statutory requirements.** **Improvements to the wider data system.**	**Stats NZ revises the official population estimates and projections.** **Customers use census data to generate knowledge and insights.**	**The census directly influences the way the public and private sector delivers services to the people of Aotearoa, and how government regulates.**
Stats NZ's Census Transformation Strategy charts a course away from a traditional census to one based mainly on administrative data* supported by surveys, recognising that full field enumeration will still be required in the medium term. The problems of the 2018 Census meant Stats NZ had to supplement information collected from enumeration with administrative data. The 2018 Census proved Stats NZ was getting closer to being able to use administrative data to meet some of the core needs of the census, but also demonstrated further investment is needed to understand how administrative data can meet other census needs such as iwi counts and insights into New Zealand's social dynamics. **Three drivers for change have created an impetus to move away from a traditional census.** The hard to count segment of New Zealand's growing and diverse population has increased. There is an increasing availability of alternative viable data sources to produce census outputs. New technologies provide more effective ways of engaging with the public, and for collecting and disseminating data to customers.	Up to 241 census programme personnel to design, plan and conduct the next census. Other resources include 5,377 field staff (enumerators), 80 community centres, 2.5 million letters, and supporting operations. A large proportion of these resources focus on a small group of the population that is hard to count in order to lift response rates well above unacceptable 2018 Census levels (see table below). Existing ICT systems are readied (eg business rules are refined) and new systems are built (eg a Statistical Person Frame) The census design is fully tested before Census Day and quality assurance procedures focus management attention on the highest risk areas. Independent expertise advises the census programme.  Difficulty to count grouped by dwellings / Required increase above 2018 Census response rate / Allocation of resources: 2.5 million letters / 5,377 field staff / 56 engagement staff / 80 engagement centres / Direct funding ($m) Easiest to count: 940,000 dwellings, 7% increase, 67% letters, 32% field staff, 0% engagement staff, 10% centres, $27m 460,000 dwellings, 9% increase, 33% letters, 20% field staff, 0% engagement staff, 10% centres, $16m 400,000 dwellings, 9% increase, 0% letters, 17% field staff, 5% engagement staff, 10% centres, $14m Hardest to count: 100,000 dwellings, 23% increase, 0% letters, 9% field staff, 35% engagement staff, 25% centres, $11m 100,000 dwellings, 18% increase, 0% letters, 22% field staff, 60% engagement staff, 45% centres, $23m 2,000,000 dwellings; $91m	**The census comprises seven phases of activity**: identify information needs; design the census model; develop and test the approach; collect data, process, analyse the data; measure coverage of the counts; and, publish census outputs; **Continuous engagement with Treaty partners and stakeholders** throughout the full census cycle, tailored to groups who are known to be hard to count or face barriers to participation. **Targeted activities** to educate people about the census, support people to respond, and follow-up on those that are not meeting their legal duty to respond. **Research and development for the 2028 Census** to manage the amount of change that needs to occur over consecutive census cycles.	**Census-related outputs:** ***Census outputs are of enough statistical quality and maintain the current data time series***. Quality is defined using 6 dimensions: accuracy; relevance; timeliness; consistency; interpretability; and accessibility. ***Rich data is produced about Māori and small groups*** in the population, combining household data with information about social characteristics, and Māori descent and iwi connections. ***At least 98% of the population is counted in the census*** and at least 90% of census data is collected directly from the census forms, including for hard to count groups. ***Stats NZ has a deeper understanding*** of methods to improve the population count and the quality and availability of administrative data. **Data-system-related outputs:** ***Stats NZ grows its enterprise capability*** to support the increased use of administrative data in the production of official statistics (eg a new Statistical Person Frame and new business rules for the existing processing platform). ***Longer term partnerships form with stakeholders*** including Māori and Iwi, and data capability grows.	**Customers use census data for planning and investment decisions.** Electorate boundaries are adjusted so that all New Zealanders have equal representation in Parliament. The Ministry of Health allocates funding to District Health Boards so that health services more closely match the needs of the population and New Zealand citizens have access to appropriate levels of primary health care and hospital care. Economic and social researchers generate robust and insightful knowledge. **The timely release of rich census data increases customers' and stakeholders' trust and confidence in official statistics**, and helps to maintain the international community's trust in the New Zealand government. **Treaty partners and stakeholders use official statistics more effectively** for the benefit of their communities and wellbeing.	**New Zealanders benefit from the use of more precise data and deeper insights to develop evidence-based policy.** The delivery of essential public services like health, education and social housing are targeted more accurately to Māori, Pasifika and other population groups whose outcomes are poorer than for many other New Zealanders. **Regions and communities benefit from better decisions by government and private sector about infrastructure use and investment**, including for built space, 3 waters, roading and recreation assets. Businesses better understand what their customers want and where to locate their services, including services that are essential to the community (eg aged care). **New Zealand better understands its cultural identity and wellbeing** which is linked to positive outcomes in areas such as health and education.

Long term impacts (2028 onwards)

Improved wellbeing for Māori and groups with highest needs
Communities thrive and are more resilient
Better quality official statistics that are used to greater effect

FINANCIAL CASE

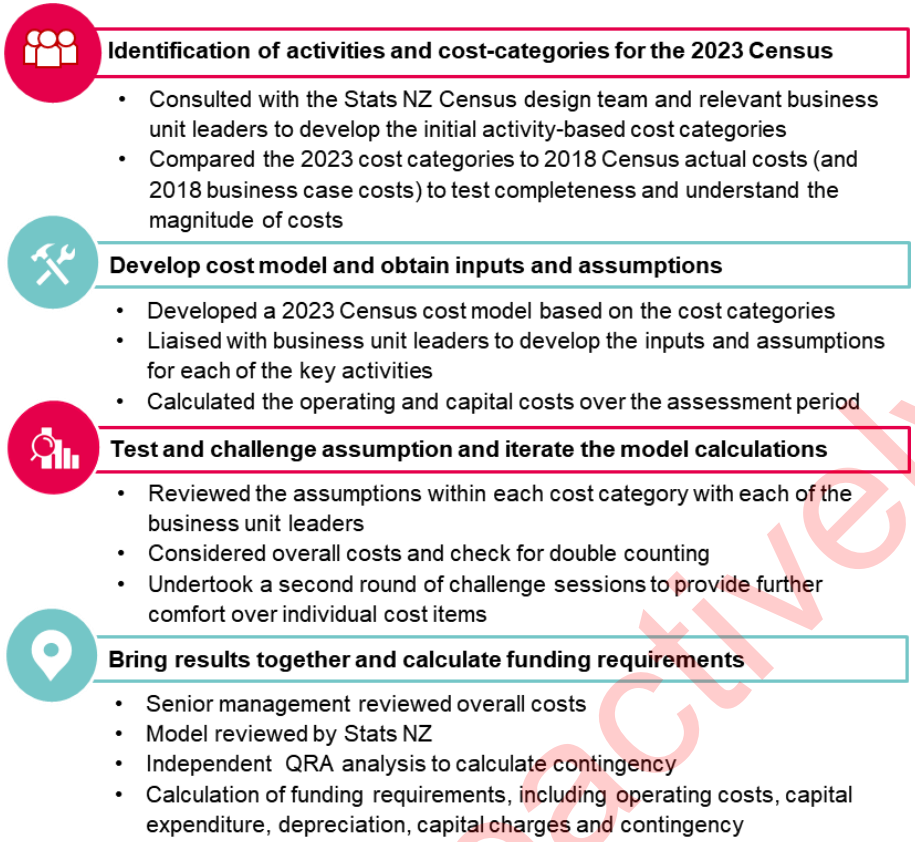
The Financial Case sets out the total costs of the preferred approach and the capital and operating funding required.

What this Financial Case seeks to do

1. Describe the process used to develop the cost estimates and the financial costing model
2. Identify the cost of the preferred approach
3. Describe the funding arrangements for the next census

Introduction

Summary of the approach used



Key financial risks

The two main financial risks are insufficient funding to fully deliver the census as it was designed, and not enough funding certainty over the next five years to deliver the census. If these risks were to eventuate, there are a number of implications for the census:

- Uncertainty about the affordability of the census design could force the census programme to design a cheaper or smaller-scaled census model, increasing the risk of an unacceptable census result.
- Stats NZ would be unable to change the scope of the census design once the implementation of the design begins. If funding constraints or uncertainty lead to a smaller census scope, Stats NZ would not be able to increase the scope later if additional funding is made available (that is, the design scope is locked in early in the census cycle).
- Funding constraints or uncertainty could result in less market competition for contracts that are tendered by Stats NZ. The census programme could find it harder to enter into contracts with providers that span multiple financial years.
- Funding constraints and uncertainty could also mean less competition for vacancies in the census programme and Stats NZ could find it harder to recruit high-calibre people.
- If it is frequently necessary to unlock funding throughout the census lifecycle (for example, as a result of funding stage gates), the census programme management team may need to divert a significant amount of its attention away from census planning in order to access the funding. This would increase delivery risk.

High degree of uncertainty

There is currently a high degree of uncertainty around the costs for the 2023 Census, mainly because it will use a design that is significantly different from previous years, and that design has yet to be fully detailed and tested.

The costs prepared for the Business Case are true to the proposed design of the next census. They have also been developed by the Stats NZ personnel who are best placed to understand both the design and the estimated costs. However, with this Business Case there is risk around changes both to the design and to the underlying cost assumptions.

Because of this uncertainty, quantitative risk analysis (QRA) has costed a relatively high level of contingency funding. Consistent with Treasury advice, the Business Case is seeking funding to the 85th percentile of the cost distribution calculated by the QRA.

The financial costing model

The Financial Case has been prepared based on a financial costing model – the Census Model – that was developed for this Business Case. The Census Model has been developed from the 'bottom-up', but the inputs and results have been tested against the actual costs of the 2018 Census, and they have also been compared against the cost categories in the Business Case for the 2018 Census.

The underlying inputs have been provided by the relevant business units responsible for each of the key activities undertaken in the preparation of the Census. Before they were finalised, the overall results were reviewed and challenged by members of the Stats NZ Executive Leadership Team and the Chief Financial Officer.

The financial years used in the model run from 1 July to 30 June the following year.

Treatment of costs and funding

The total costs of the 2023 Census include $10 million in costs already funded in 2019/20 for stakeholder engagement and planning, plus the unfunded costs that will be incurred over the five financial years from 2020/21 to 2024/25.[38] Cash costs include operating costs plus capital expenditure. Only costs associated with the Census are included in the financial model outputs. Where costs are related to other Stats NZ outputs, these have been removed from the results presented in this Business Case.

The allocation of costs to the census is based on assumptions around the value/use of the outputs from the activities undertaken. These were estimated by the business unit leaders closest to those activities.

The requested funding differs from the underlying costs in several respects:

- costs in 2019/20 have already been funded so are excluded
- costs in 2024/25 are outside of the standard five-year funding cycle so are not included in the current appropriation request (these are very small, less than 0.5% of costs)
- depreciation of new assets is added
- remaining depreciation on assets created for the 2018 Census is added (as this has not been funded in prior appropriations)
- a capital charge on net assets is added.

[38] Most costs have been incurred by he end of the 2023/24 financial year, with only minimal costs remaining in the 2024/25 year.

COST OF PREFERRED APPROACH

Census costs

As shown in the Economic Case the total cash cost for Approach 2 is estimated to be $243.3 million, excluding contingency funding.

The funding requirement for the four years from 1 July 2020 to 30 June 2024 is estimated to be $281.7 million including contingency. This consists of $12.7 million capital expenditure, $224.6 million operating expenditure, $42.9 million contingency and $1.5 million capital charge, and excludes $10.4 million of 2019/20 funding.

The table below shows the cash costs and adjustments from which the funding requirement is derived.

	$ millions
Cash costs for 2023 Census	**243.3**
Less 2019/20 costs already funded	(10.4)
Less 2024/25 costs not in funding request	(0.8)
Plus depreciation on new assets	4.9
Plus unfunded depreciation on existing assets	0.3
Plus contingency	42.9
Plus capital charge	1.5
Total 2023 Census funding requirement	**281.7**

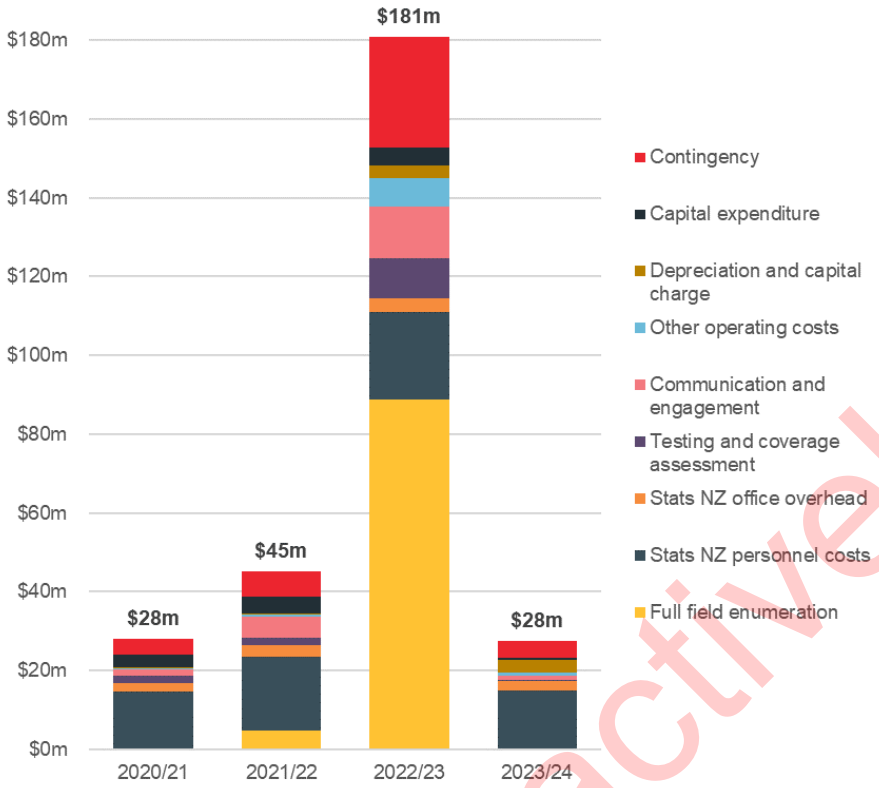
The table below shows the annual funding requirements and the key components of the costs.

$ millions	2020/21	2021/22	2022/23	2023/24	Total
Operating cash cost (excl capex)	20.7	34.1	145.1	19.5	**219.4**
Depreciation new assets	0.0	0.0	2.4	2.5	**4.9**
Brought forward depreciation	0.2	0.1	0.0	0.0	**0.3**
Total operating cost	**20.9**	**34.2**	**147.5**	**22.0**	**224.6**
Capital expenditure	3.0	4.2	4.8	0.7	**12.7**
Contingency (see below)	4.0	6.5	28.1	4.3	**42.9**
Total operating & capital cost	**27.9**	**44.9**	**180.4**	**27.0**	**280.2**
Capital charge	0.1	0.4	0.5	0.5	**1.5**
Total cost incl capital charge	**28.0**	**45.3**	**180.9**	**27.5**	**281.7**

In total, 64% of the costs are incurred in 2022/23 – the year of the census. The costs in this year include the field staff and other short-term costs associated with collecting and processing the census data.

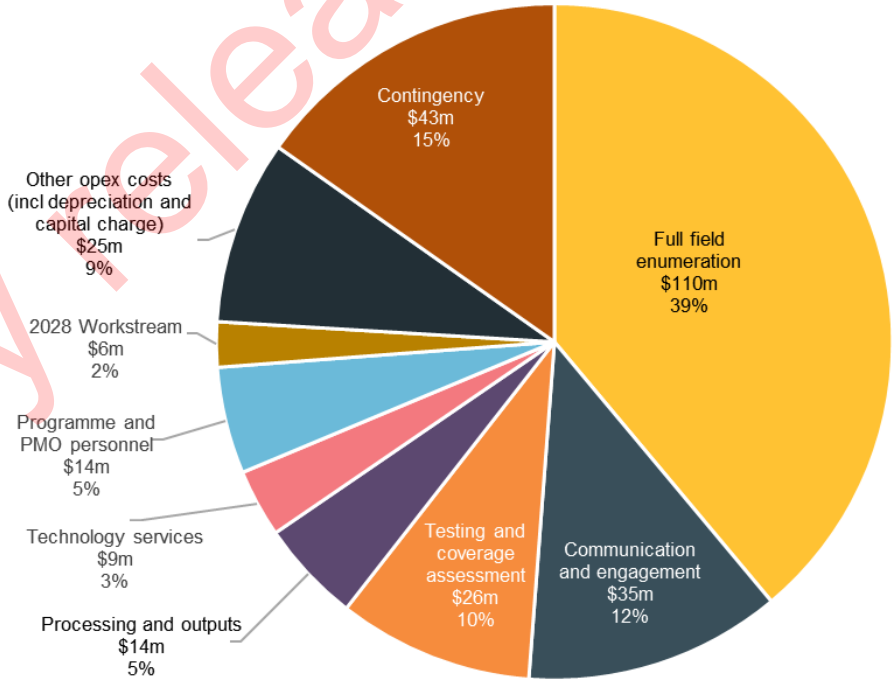
The Economic Case describes the key movements in costs from the 2018 Census 'as it was delivered' to the 'Do the minimum' approach (on page 62) and to the preferred approach (on page 53).

The bar graph below shows the key components of cost over the four years from 2020/21 to 2023/24. A table showing the components of costs is included in Appendix 9.



All Stats NZ staff, overhead and travel costs are included in 'Stats NZ personnel costs'.

Personnel costs include programme management roles – as well as roles associated with the other cost components including field enumeration, testing, and communications and engagement. After including the Stats NZ personnel costs within each of the key activities, the total costs to be funded are as follows:



Stats NZ staff, overhead and travel costs are included within each activity. Capital expenditure is included with the relevant activity. Other operating costs also include depreciation, capital charge and contingency.

The full field enumeration costs form 39% of total costs – with most of these costs being incurred in the census year (2022/23).

Quantitative risk analysis

An independent quantitative risk analysis (QRA) was carried out to establish the level of contingency needed and to safeguard against optimism bias.[39] The QRA evaluated the uncertainty of major cost drivers of the census. It considered the optimistic, pessimistic and most likely scenarios involving 29 cost drivers, and combined them in a simulation model to create a distribution curve of the overall likely project cost.

The QRA found that the cost model was most sensitive to two variables:

- the productivity of field staff – that is, how much time field officers spend on the doorstep obtaining responses compared to activities such as preparation and travel
- how long an average visit at a dwelling takes when trying to obtain a response.

A contingency was calculated based on the interplay between all the cost uncertainties. The QRA approach recognises that not all risks will eventuate – some costs will be lower and some higher than estimated. This approach means that the total contingency cannot be apportioned to individual cost elements.

Results of QRA

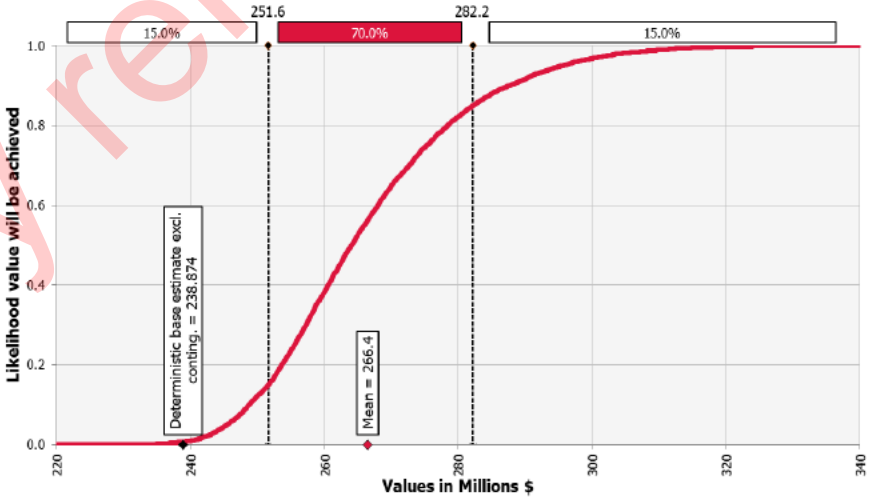
The QRA calculated the cost of the contingency for the 2023 Census as follows. 'Base cost' means the cost that was estimated using the census cost model.

- The 50th percentile is $27.1 million above the base operating cost, and $0.45 million above the base capital cost
- The 85th percentile is $42.9 million above the base operating cost, and $0.64 million above the base capital cost.

The table below sets out the base cost and the total cost including the contingency based on the QRA.

$ millions	Base cost	50th percentile	85th percentile
Operating	226.2	253.3 (12% higher than base cost)	269.0 (19% higher than base cost)
Capital	12.7	13.2 (3.6% higher than base cost)	13.3 (5% higher than base cost)
Total	238.9	266.4 (11.5% higher than base cost)	282.2 (18% higher than base cost)

The figure below shows the distribution of cost calculated by the QRA.



Source: QRA simulation model

Impact on contingency if funding levels change

If Stats NZ receives a level of funding different from that sought in this Business Case, it will need to adjust the design of the census model and do another QRA to calculate the contingency for the revised approach.

[39] Broadleaf Capital International: Census 2023 Cost QRA; 27 November 2019.

Key modelling assumptions

As noted in the Economic Case, the design of the next census is still at an early stage, and so some of the underlying assumptions used in the financial costing model will undoubtedly change.

The main assumptions used in the financial costing model are set out in Appendix 9. Further details of some of the major cost categories are as follows.

Full field enumeration

- The numbers of field officers required for the Census has been estimated using a detailed 'bottom-up' approach based on the proposed Census design. This approach estimates the numbers of dwellings and the different levels of effort that will be needed to get a response from those dwellings. Dwellings are grouped in five categories according to 'difficulty to count' (the categories are described on page 53).The numbers of field officers are based on self-response rates, numbers of initial and follow-up visits, and expected time per visit.
- The proposed design anticipates needing around 3,600 field officers to manage non-return follow-up work (NRFU), at a cost of around $12.7 million. These people would work for 5 weeks on average.
- About 1,800 of these people will also undertake preliminary 'enabling' work for about 3 weeks at a cost of $3.7 million.
- 645 field officers make up the 'contingent workforce'. They will be operationally ready to deploy quickly in fast-changing situations, with a cost of $2.6 million.
- There are an additional 420 field operations leaders and managers, with a total cost for all field and direct management staff of around $41 million.
- Agency costs related to hiring the contracted workforce are based on the mark-up and flat fee costs from the 2018 Census. In total these costs are forecast to be $11.7 million.
- On top of this, there are around 44 Stats NZ office personnel with full field enumeration responsibilities. These people are expected to be needed for three years, with an annual cost of $5 million (including overheads and travel).

Overheads

- Stats NZ overheads are charged to the Census based primarily on a per-FTE rate. Overhead costs calculated this way include equipment, IT, and the cost of corporate functions like HR and Finance. For the Business Case the current overhead cost per FTE was split between fixed and variable components in order to derive an estimate of the increase in the incremental overhead costs that would arise as a result of the increase in personnel for the 2023 Census.
- Accommodation costs have been calculated and included outside of this overhead cost, based on the specific needs of the Census.

Capital expenditure

- Capital expenditure is estimated to be around $12.7 million, about 5% of total costs.
- Some short-term assets (like tablets for field officers) are purchased for the census but are expected to be disposed within a year. These costs are expensed. Other longer-lived assets created during the 2023 Census are capitalised and depreciated over their useful lives. On average, assets have been depreciated over 5 years, reflecting that most are software-related assets.

Cost comparisons with other jurisdictions

The table below compares the cost of censuses in other jurisdictions with the New Zealand 2018 and 2023 Censuses. The table shows that the cost of New Zealand's 2018 Census – which produced an unsatisfactory result – was the second cheapest per capita. That is despite being without the benefits of economies of scale afforded to other, bigger jurisdictions.

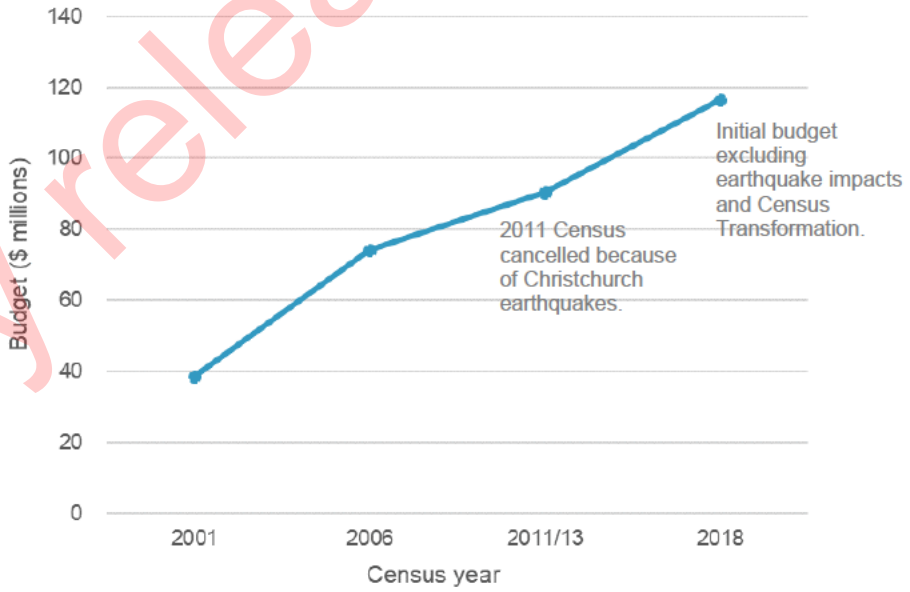
The per capita base cost (excluding contingency) for New Zealand's 2023 Census sits in the middle of the other jurisdictions. The 2023 Census would be expected to rate even more favourably if it was compared against the cost of jurisdictions' future censuses. This is because of the rising cost of censuses over consecutive census cycles.

In December 2010, the US Government Accountability Office noted that the cost of conducting the US census roughly doubled each decade since 1970. The same is also true for UK censuses. The total cost of the 2011 Census was more than double the cost of their 2001 Census.

Country	Census	Population at time of census	Census cost inflated to 2023 NZD	Cost per capita 2023 NZD
Australia	2016	23 million	$510 million	$22
New Zealand	2018	4.9 million	$141 million	$29
UK (England and Wales)	2011	23 million	$781 million	$34
New Zealand	2023	5.2 million	$239 million	$46
Canada	2016	35 million	$1.7 billion	$49
United States	2020	335 million	$26.3 billion	$85

Cost of recent New Zealand censuses

The figure below shows the budgeted costs of the last four census programmes. A description of each of the data plots follows. The rationale for the increase in the cost of delivery of the 2023 Census compared to the 2018 Census is in the Economic Case on page 63.



2001 Census – The budgeted cost was $38.4 million.

2006 Census – The census cost $78 million, compared to the census appropriation of $74.2 million. Stats NZ funded the difference from its baseline. Stats NZ commissioned an internal finance audit of the $3 million overspend in the census year.

2011 Census – The budget for 2011 was $90.4 million, set at the level of appropriation that Stats NZ was able to get after two budget rounds in the context of the Global Financial Crisis. For this funding, Stats NZ could only run a ‘no change’ census, with no changes to the census questions and re-use of the systems and processes from the 2006 Census.

This census was cancelled just before census day because of the Christchurch earthquake. In total, $64 million was spent on the 2011 Census, with $20 million spent in years 1-3 and $44 million in the final census year. The 7,500 field officers were paid out in full.

2013 Census – $72 million was spent on the 2013 Census. Had this census not been able to use the processes and systems built for the 2011 Census, it would have cost around $89 million, excluding depreciation and contingency.

Given the short lead time, this census was another ‘no change’ census. Response rates declined compared to 2006, particularly for Māori and Pasifika. Programme reviews concluded that inadequate resources were put into non-response follow-up, communications, and community engagement given the changes happening in society.

2018 Census – In the June 2014 Business Case, Stats NZ sought and received $116.4 million for the 2018 Census and $2.5 million for Census Transformation. Stats NZ is forecasting to spend approximately $126 million on the 2018 Census.

FUNDING ARRANGEMENTS

Stats has agreement for a multi-year appropriation

In Budget 2019, Stats NZ sought and got agreement from Treasury for a multi-year appropriation (MYA) for the next census (ie the 2023 Census). The MYA provides a high level of transparency of census spend through the regular public-sector reporting and monitoring mechanisms and mitigates many of the funding risks described on page 80.

Application of the QRA results

Stats NZ consulted with Treasury about the best way to apply the results of the QRA to the amount of funding sought in the Business Case. Based on this advice, Stats NZ is seeking operating funding based on the 85th percentile of the likely cost distribution modelled by the QRA ($269 million).

Stats NZ has decided to underwrite the relatively small capital contingency cost ($0.5 million).

Crown funding request

Stats NZ is seeking total funding in Budget 2020 of $281.7 million, made up of $269.0 million operating (including contingency) and $12.7 million capital.

The funding request is for all costs directly associated with the census. Where capital costs are to be incurred on assets that can be used by the census as well as by other parts of Stats NZ, only the portion attributable to the census has been included in this Business Case. Operating costs include cash costs as well as depreciation and capital charge.

$ millions	2020/21	2021/22	2022/23	2023/24	Total
Operating base cost	21.0	34.6	148.0	22.5	226.1
Contingency at 85th percentile	4.0	6.5	28.1	4.3	42.9
Operating funding sought	**25.0**	**41.1**	**176.1**	**26.8**	**269.0**
Capital funding sought	3.0	4.2	4.8	0.7	12.7
Total funding sought	**28.0**	**45.3**	**180.9**	**27.5**	**281.7**

Funding contingencies

Stats NZ is not expecting to draw down the full amount of funding sought. It will agree with Treasury on the amount of funding contingency that can be drawn down by the census programme and by Joint Ministers, and the mechanism for this to happen.

Stats NZ proposes to seek delegation to draw down funding, including a 'programme contingency' up to the 50th percentile of likely costs. The cost difference between the 50th and 85th percentile would be held as tagged contingency and release of this funding would require the approval of Joint Ministers. Requests for budget that would take census costs over the 85th percentile would trigger a consideration of whether the census programme should be terminated early.

As Stats NZ refines the census design (after a test, for example), it may do another QRA to see whether the risk profile changes. The mechanism agreed on with Treasury will include updates of the QRA and criteria for handing back surplus funding.

MANAGEMENT CASE

The 2023 Census is a six-year programme of work that began in 2018. This Management Case focuses on the last four years of that programme and demonstrates how the preferred approach will be successfully delivered.

What this Management Case seeks to do

1. **Provide an overview of the census programme including how it fits with Stats NZ's broader work programme, how it will be governed and managed, and the project's key risks**

2. **Describe the key changes to how the 2023 Census programme will be managed and delivered**

3. **An Implementation Business Case will be completed in March 2020 that includes:**

- **assurance plan**
- **detailed programme plan with critical path identified**
- **communications strategy and plan**
- **change management strategy and plan**
- **benefit management strategy and benefit profile maps.**

OVERVIEW OF THE CENSUS PROGRAMME

This Management Case was developed by the SRO and General Manager, Census, with input by Stats NZ personnel from both within and outside the census programme.

The 2023 Census is a very large project with a single major deliverable – the census dataset. Given its scale and complexity, it will be managed as a programme consisting of a number of large, interdependent workstreams that include projects.

Governance and programme management: An overview

This section describes the governance and programme management structure for the 2023 Census programme and how the programme sits within the broader Stats NZ structure. Some elements of the governance structure are already in place, and others are being established. The census governance arrangements will be reviewed regularly to ensure they continue to be effective.

2023 Census governance arrangements

Census governance sits within Stats NZ's wider governance arrangements, as summarised in the diagram on the next page.

Investment Board

The Investment Board is chaired by the CEO and is responsible for Stats NZ's investment portfolio.

2023 Census Board

The 2023 Census Board will be chaired by the Deputy Chief Executive, Census and Collection Operations, who is the Senior Responsible Officer (SRO) of the 2023 Census. The Board will include three additional members of Stats NZ's Executive Leadership Team representing user and supplier perspectives, and an external independent member with governance expertise. The Board's terms of reference describe its role and authority.

Design Authority

Stats NZ is re-establishing a Design Authority to review the technical input into the design and assess whether the design is feasible. The Design Authority will also monitor whether the design is being adhered to and escalate design problems to the Executive Leadership Team. Chaired by the Chief Methodologist, the Design Authority will report to the Executive Leadership Team.

Chief Methodologist

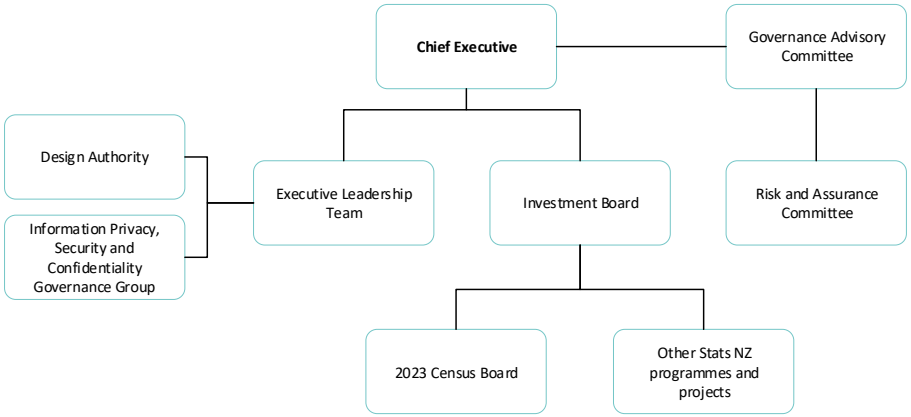
The Chief Methodologist will have a significant role in the next census, supporting decision-making on governance boards and chairing the new Design Authority.

Māori perspective in governance

Stats NZ is investigating ways of strengthening a Māori perspective within census governance. Currently the Kaihautū (Chief Māori Advisor) is a member of the Stats NZ Executive Leadership Team and meets regularly with the Senior Responsible Officer (SRO).

Stats NZ is seeking to add people who bring a Te Ao Māori lens to the independent expert advisory panel. Stats NZ is also exploring what effective

partnering with Māori would look like in practice, and has recently formalised its relationship with the Data Iwi Leaders Group through a Memorandum of Understanding.



2023 Census programme management

The diagram on the next page shows the reporting line from the census programme management to the Chief Executive and the structure of the 2023 Census programme.

Key roles

Senior Responsible Officer (SRO)

The SRO is the Deputy Chief Executive, Census and Collection Operations. The SRO reports to the Chief Executive and is accountable for the success of the 2023 Census and for realising its benefits.

As a member of the Executive Leadership Team, the SRO also sits on several senior leadership boards and groups in Stats NZ, including governance for census transformation. This ensures the 2023 Census programme is connected with the wider organisation.

Programme manager

The General Manager, Census reports to the Senior Responsible Officer and is responsible for the day-to-day management of the census programme. The role leads several teams, including a programme management office (PMO) (see below).

Programme management structure

Key management roles are being brought on earlier to enable better planning and earlier testing of operations. For example, the collection operations management layer will be recruited immediately, whereas in previous censuses the role was brought on one year before census day.

Programme management office

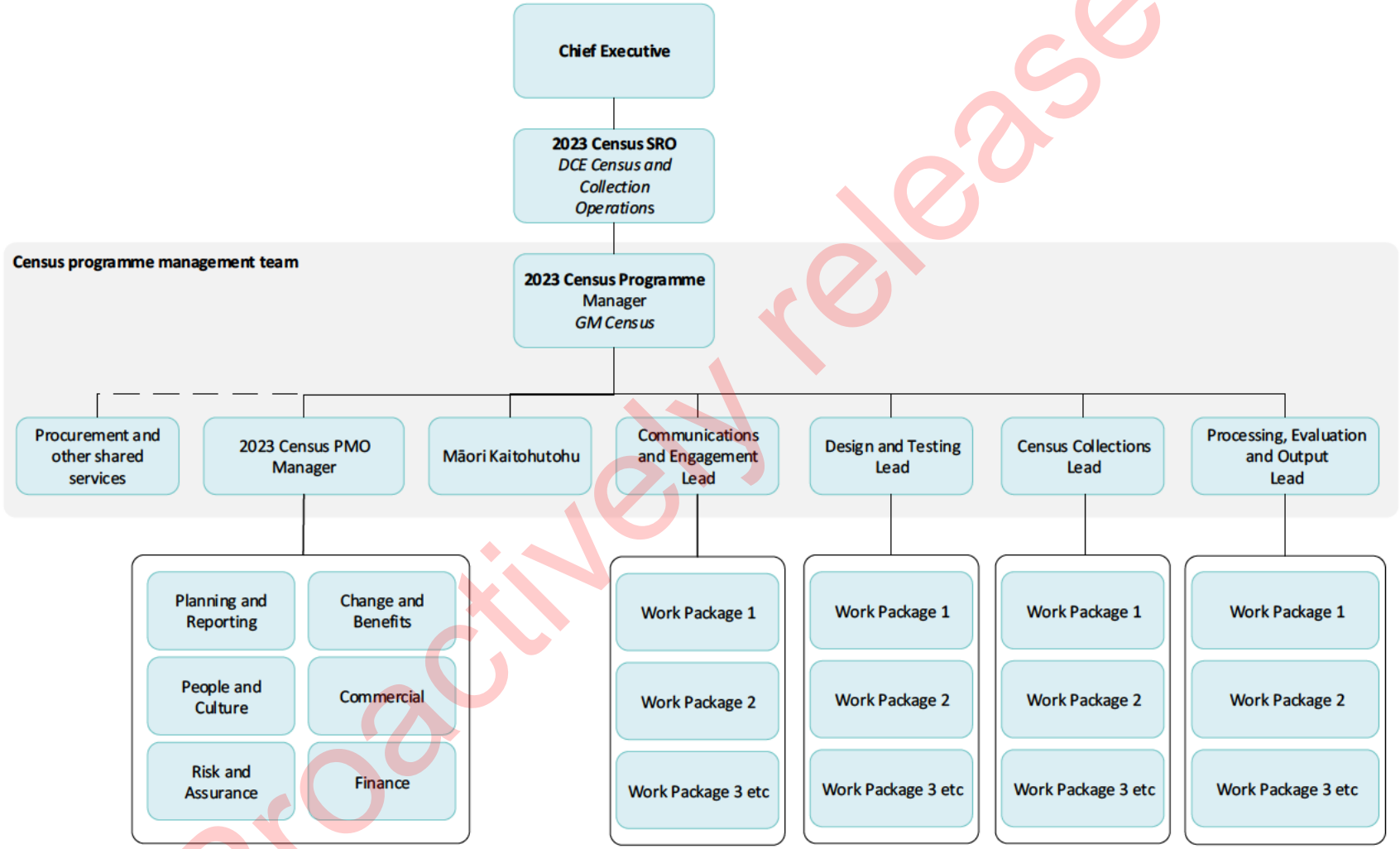
The PMO, led by the PMO Manager, provides independent input to the 2023 Census Programme Manager on programme delivery. The PMO reports on the critical path and supports the workstreams to plan activity and monitor progress.

The PMO Manager reports to the 2023 Census Programme Manager and is a member of the census programme management team.

Workstream leads

The organisational structure consists of a number of workstreams, with a lead responsible for coordinating activity and providing oversight.

2023 Census programme management structure



Managing growth

The Stats NZ team working on the census will grow significantly over the life of the 2023 Census programme, peaking at 241 staff during the collections phase.

Key changes in the 2023 Census programme to support this include:

- **Early recruitment of new staff** – A more flexible, proactive approach to recruitment will meet the programme's requirements.
- **Greater leadership capability** – Leaders will have appropriate subject-matter expertise and strategic acumen, and will cultivate an open and collaborative culture.
- **Well-designed, sustainable structure** – Teams will have an appropriate ratio of staff to managers and a balance of seniority.
- **A better onboarding and induction process** – Teams will have a good understanding of each other's roles and responsibilities.

Programme workstreams

The census programme consists of five interconnected workstreams. Each workstream has a set of key deliverables and milestones that are the basis for detailed planning, monitoring, testing and reviews.

Built into each workstream are quality assurance (including independent reviews), communications and engagement, risk management, and a Te Ao Māori view. The five workstreams are:

- **Planning and readiness** – responsible for ensuring robust planning across the programme, appropriate structures and processes, and implementation of the changes to the programme.
- **Design and testing** – responsible for the design and testing for the 2023 Census product and systems. This includes co-design with iwi. It involves engaging customers, stakeholders, and communities in the design and delivery of the census.
- **Census collections** – responsible for the activities required to successfully collect census data. It includes testing, planning, recruitment, community awareness campaigns, and collecting census information.
- **Processing, evaluation and output** – responsible for creating the administrative data file, and for processing and producing the census data releases. This includes building and further refinement and development of the processing, evaluation and output tools.
- **2028 Census** – focused on research and development of new elements and improvements for the 2028 Census.

Key changes

The workstreams incorporate the following changes in response to the lessons from 2018.

New to the Census programme

The following elements are new compared with the process for the 2018 Census:

- The re-establishing of the Design Authority and its assurance role in the programme
- Additional roles, including a larger Census Programme management office (PMO – with greater capability in planning and risk and issues management), and the capability to bring a Te Ao Māori view
- Annual reviews of governance arrangements
- A review and refresh of planning artefacts

- A readiness review
- Engagement with iwi, customers and communities to help design strategies to increase participation in the census
- Resource tests for Collections
- On-going engagement with Māori and iwi, and with Pasifika and other groups, about collections operations in the community
- Building the administrative data file
- A communications and marketing phase to rebuild trust and confidence in the census and its value, and in its privacy and security measures
- The 2028 Census workstream.

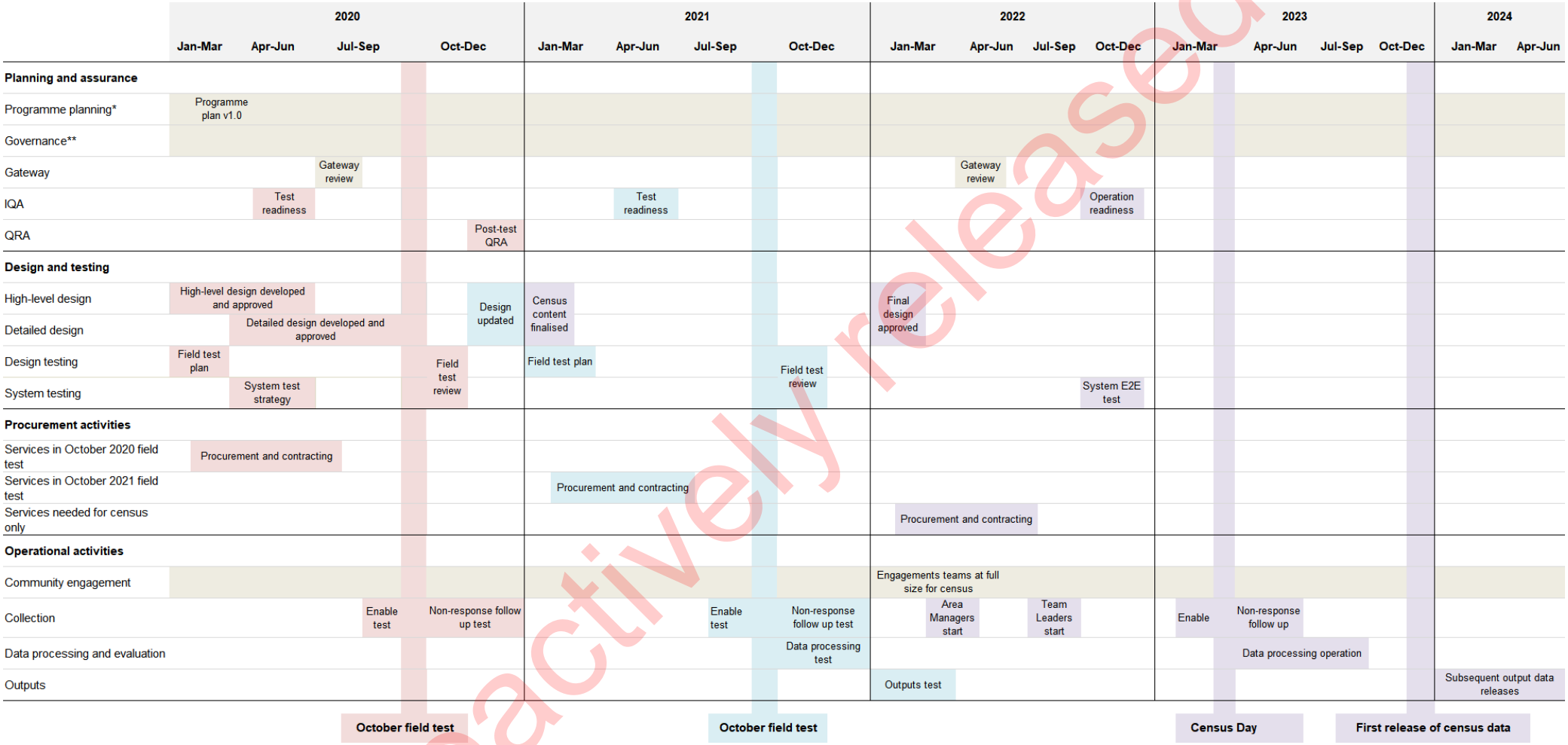
Earlier timing

The following steps are scheduled to happen earlier than in the 2018 Census:

- **First test, October 2020** – this is 5 months earlier (the first-test date for the 2018 Census was March 2016, and the equivalent for the next census would be March 2021)
- **Final content agreed, March 2021** – 15 months earlier (June 2017 would translate to June 2022)
- **Final question design, July 2021** – 15 months earlier (October 2017 would translate to October 2022)
- **Second test, October 2021** – 5 months earlier (March 2017 would translate to March 2022)
- **Regional Managers on board, August 2020** – 18 months earlier (February 2017 would translate to February 2022)
- **Collections manager and field staff recruited earlier** to allow for resource testing.

The diagram on the next page provides a high-level view of the five workstreams of the preferred approach, to be delivered over the next four years to June 2024.

High level view of activities for the 2023 Census



Notes:

* All workstreams will do programme planning and risk management activities.

** The 2023 Census Board will be involved in quarterly planning and risk workshops and do deep dives in specific areas of the programme.

Risk management

The Risk Management Strategy for the 2023 Census will focus on creating the conditions for risk management to be effective. This includes things like:

- focusing on the right risks
- using risk to inform decision-making
- ensuring people have the necessary knowledge, skills and tools to identify and manage risk effectively.

Better risk management practice

Stats NZ has spoken with its international counterparts to identify best practice and test ideas. These discussions have led to improvements to risk management practice, including:

- improving the process for identifying, analysing, evaluating and communicating risks so that it is based on international census best practice
- using best practice for risk templates, registers, and mitigation and contingency plans
- regular risk meetings, with risk registers being updated at those meetings
- better reporting, including use of risk dashboards.

A dedicated risk and assurance advisor

A new Risk and Issues Advisor role will be established within the PMO to embed good risk management practice into the census programme. This aligns Stats NZ with other jurisdictions like the US and UK.

More comprehensive risk reporting

There will be more comprehensive risk reporting throughout the census programme. This will include risk dashboards, risk summaries and risk deep-dives. The reporting will be based on international best practice derived from the Operational Risks and Contingency Planning Community of Practice.

The decision-making frameworks and templates used by the Australian and UK statistical agencies incorporate a risk perspective. Stats NZ may introduce the Australian risk and reporting management framework to help manage strategic and operational risks.

Improved capability and understanding of risk

Risk capability will be developed across the census programme, so that all staff have a better understanding of risk and how to manage it. This will include dedicated training sessions to help bring a consistent approach across the different aspects of the programme.

The Australian Census team does regular deep-dives on risk with its senior management team. Stats NZ will look to adopt this approach for the 2023 Census and will record all the deep-dives to document the findings.

The UK Census team does quarterly scenario tests, which includes senior managers. The feedback from the UK is that the regular tests helped to make stakeholders aware of the importance of contingency plans throughout the census cycle.

The census programme will have regular risk planning sessions. These scenario-based sessions will provide an opportunity to practise risk management and update plans and processes throughout the life of the census programme.

The QRA will be updated as Stats NZ refines its census design (after a test for example) to see whether the risk profile changes.

Programme assurance

Stats NZ is developing its Assurance Plan for the census programme. The plan is based on the following three-pronged approach:

1 **Assurance within the Census programme** – The 2023 Census Board will provide governance of the census programme, monitoring its critical path and managing risk. Workstreams within the programme will provide their own monitoring of the programme plan.

Earlier and more frequent tests compared with the previous census will help to shape design and planning.

Reporting and monitoring will adjust to the different tempos of the census programme during its lifecycle. During the collections phase, management information systems will provide metrics in real time to identify emerging problems and inform management responses. The 2023 Census Board will receive more comprehensive risk reporting based on international best practice.

The coverage assessment process will report publicly on the final coverage rate. The coverage assessment method will be expanded to include coverage of both dwellings and administrative data.

2 **Assurance outside the programme within Stats NZ** – The Implementation Business Case will describe the detailed arrangements of the census programme.

Design and planning will be informed and reviewed by Stats NZ specialists who sit outside the census programme – for example, the Design Authority and Kaihautū.

Stats NZ's corporate services, including the Chief Security Officer, the Chief Privacy Officer, the Enterprise Portfolio Office and the procurement, HR, legal and finance functions, will provide specialist advice to the census programme and assurance to the Chief Executive that corporate policies are being complied with.

3 **Independent assurance** – This final layer consists of independent expertise that will provide assurance to the 2023 Census Board and Chief Executive. This includes Treasury's Gateway reviews, independent quality assurance providers, international reviewers, and other external panels.

Stats NZ will work closely with central agencies including Treasury, SSC and the GCDO and will share independent quality-assurance reports with these agencies.

The Minister of Statistics will receive regular briefings about the census throughout its lifecycle.

Stats NZ will be subject to the normal monitoring and reporting requirements of the public sector, including of Audit New Zealand and the Officer of the Auditor General.

An independent post-implementation review will evaluate whether the census has met the Business Case investment objectives.

Communications and engagement strategy

The communications and engagement strategy will be based on feedback from Treaty partners, stakeholders and customers and will incorporate the following principles:

- Higher response rates require collaboration and partnership with communities.
- Engagement with communities needs to be earlier, wider and permanent.

- Customers and communities want to build their data capability, and have different needs for achieving this.
- Some groups have higher accessibility needs for participating in the census – for example, the elderly, people in remote locations, ethnic communities where language is a barrier, and disabled people.
- A Te Ao Māori lens is crucial. Māori have a desire to partner and co-design, and want to see the census data capture their 'lived experience'.

Change management strategy

The change strategy is being developed and will align with Stats NZ's change framework. The strategy will use change theory and models as and where appropriate – for example, Kotter's 8 steps and agile change management. Impact analysis will inform the strategy by identifying where key shifts and changes – for respondents, customers, and Stats NZ – are likely to occur.

The following change management principles will guide the development of the strategy:

- Engage to build trust and share the census story.
- Acknowledge the story so far, and draw on its lessons.
- Seek opportunities to co-design, using a human-centred approach.
- Focus on what will enable positive, sustainable change.
- Enable and leverage organisational culture shifts, creating and encouraging safe spaces to question and to challenge.
- Use clarity where certainty cannot be given.

Detail planning of census programme

Stats NZ and central agencies have agreed that an Implementation Business Case will be developed in consultation with central agencies and independent advisors.

Stats NZ and central agencies will agree the delivery timeframe and content of the implementation plan. At this stage, completion is expected in March 2020 and the implementation plan will be likely to include the following details about the census programme:

- Assurance plan
- Programme plan with workstreams, milestones and critical path identified
- Communications strategy and plan
- Change management strategy and plan
- Benefit strategy and benefit profile maps.

Key planning tasks

The table below lists the key programme management tasks that will be completed in the next 12 months.

Key task	By when
PMO Manager ready to start	15 November 2019
Revised governance terms of reference	29 November 2019
Tier 1 business processes agreed	20 December 2019
Test objectives agreed for 1st Test	20 December 2019
Communications and engagement draft plan	20 December 2019

Key task	By when
Programme structure agreed	20 December 2019
Design framework agreed	25 January 2020
Confirm numbers and skillsets of staff required to recruit by 1 July 2020	31 January 2020
Escalation pathways and register in place	31 January 2019
Programme methodology agreed	31 January 2020
Draft programme plan completed	31 January 2020
1st Tranche detailed plan agreed	31 January 2020
International peer review terms of reference agreed	7 February 2020
All programme leads appointed	29 February 2020
Programme culture strategy agreed	13 March 2020
Information management systems approach agreed	20 March 2020
Change benefits realisation plan	20 March 2020
Procurement strategy and plan agreed	20 March 2020
Risk management strategy/ plan agreed	20 March 2020
Implementation Business Case approved	30 March 2020
Long lens plan agreed	27 March 2020
Design authority established	31 March 2020
Testing plan agreed for 1st test	31 March 2020
Census branch restructure complete	31 March 2020

Key task	By when
High-level testing strategy and plan approved	9 April 2020
Scope for procurement of agency	30 April 2020
Communications and engagement strategy finalised and approved	30 April 2020
Community engagement leads recruitment process underway	30 April 2020
Accessibility advisor recruitment underway	30 April 2020
Quality management strategy and plan agreed	30 April 2020
Census integrated communication and engagement strategy	30 April 2020
2nd Tranche detailed plan agreed	30 April 2020
High-level design approved by Design Authority	5 June 2020
3rd Tranche detail plan agreed	30 July 2020
Detailed design approved	11 September 2020
1st 2023 Census Test	October 2020

KEY CHANGES FOR 2023 CENSUS

Stats NZ has considered the changes necessary for the next census and grouped these into four key change areas:

- **Key change 1: Keeping the focus on what matters**
- **Key change 2: Creating a culture of constructive challenge**
- **Key change 3: Greater use of independent advice**
- **Key change 4: Building in time and resources to be adaptive**.

Key change 1: Keeping the focus on what matters

A simple, shared purpose

To help stay focused on the things that matter throughout the programme Stats NZ will use a simple shared purpose and a critical path. These will guide everyone in the programme towards the same place, with the same purpose, and at the same pace.

In practice this will mean the following key changes for the 2023 Census programme:

- Simplifying role accountabilities across the programme structure, which will reduce the potential for confusion and duplication, and support greater coordination and strategic thought across workstreams.
- Articulating an agreed high-level design early in the programme, to drive development and testing.
- Defining the test objectives early on to inform the development of systems and help prioritise the business and technology work programmes.
- Ensuring the testing strategy is followed, and using monitoring and decision points to make sure the impacts of changes to timing and scope are fully understood across the programme.
- Designing the management information system to provide key metrics in real time to identify problem areas and guide decision-making. Management reports will include a new section on escalated issues so that they are visible and open to challenge.
- Greater focus on improving engagement with communities and how to partner with them to design, plan and deliver the census.

Clearer escalation processes for risk and other issues

As well as the changes noted above under ‘Risk management’, escalation processes will be integrated into the programme’s frameworks, including the Risk Management Strategy, the Change Management Strategy, and the terms of reference for governance bodies.

Staff training and collateral will explain the process for when and how to escalate issues. An escalation register will track problems and monitor how they inform decision-making.

Mitigation strategies and their implementation will also be tracked.

Reliable and timely management reporting

For the 2023 Census, planning documents will be regularly updated and management information systems will be improved to produce reliable, meaningful results that will be used to make timely decisions.

The Independent Review recommended improvements to management reporting to enable better monitoring of collection progress and inform decisions about follow-up efforts. It also recommended introducing daily progress and tolerance reports to the Executive Leadership Team during collection operations, and weekly reports during the processing and evaluation stages.

Key change 2: Creating a culture of constructive challenge

Many of the challenges faced during the 2018 Census could have been navigated better had there been a culture of constructive challenge, including a willingness to listen and take advice from both internal and external stakeholders.

The Independent Review recommended strengthening the leadership of the census programme to introduce leaders who can create and nurture an environment that is open to innovation and receptive to ideas, concerns and criticisms.

Role of the leadership

Stats NZ has begun a journey to address the cultural concerns raised in the Independent Review. The Executive Leadership Team understands this must begin with the senior leaders in the organisation before it can be addressed at a programme level.

Stats NZ's all-leaders forum in October 2019 marked the start of this journey. The forum focused on how to manage optimism bias and create a safe environment for constructive challenge.

Thinking about 'what if'

Stats NZ is working with overseas counterparts to learn how to embed risk awareness into the culture of the census programme. One example is the approach used by the UK Statistics Office, which does quarterly testing of scenarios.

The risk management changes described in the previous section and the changes under 'Key Change 1 – Keeping the focus on what matters' will also help to make it safe to raise ideas, concerns and criticisms and, if necessary, escalate problems.

Use of independent advice

An independent voice will help promote a constructive culture of challenge and protect against potential bias in decision-making. This is discussed under Key change 3 below.

Key change 3: Greater use of independent advice

A key finding from the Independent Review was that the 2018 Census lacked independent advice, and that when it was available, the programme was not as accepting of the advice as it could have been.

Stats NZ has strong networks in the local and international statistics community and will leverage its relationships in a structured and formal way

throughout the census life cycle to help ensure that the programme design is sound, and the delivery is feasible.

More independent reviews and advice

As well as re-establishing the Design Authority, Stats NZ will embed an 'outside in' perspective into the 2023 Census programme, in the following ways:

- External appointments to governance positions
- Gateway reviews throughout the lifecycle of the initiative. The next Gateway review will be a Gate 0/4 in July 2020.
- Dedicated positions within the census structure that are designed to provide the voice of customers and communities – for example, the Accessibility Advisor and Māori Kaihautū
- Greater use of external expertise to review plans
- More exposure of census staff to groups in the community – for example, analytical and technical staff accompanying the community engagement team in the field
- An Independent External Diversity and Inclusion Group to do regular equity impact assessments to ensure all New Zealanders' perspectives are considered in the census
- Integrating Stats NZ's specialist functional work units within the workstreams and activities – for example, Statistical Infrastructure for processing, and Collection Operations for field planning. This will bring in more diverse thinking and address silo mentalities.

Stats NZ will establish an External Data Quality Panel to help ensure that the quality of the final census dataset is appropriate. The Panel's input will inform collection contingency plans and post-operational activities such as the use of administrative data. The Panel will also advise on the development of key performance measures.

Using international networks more effectively

Stats NZ will work closely alongside its international counterparts to identify opportunities that can be adapted to New Zealand.

Adopting international best practice for operational readiness testing

The UK and US statistical agencies have structured testing models that can be adopted. The 2023 Census will have an Operational Readiness Plan that is reviewed by international peers. Stats NZ is a member of the Census Testing Community of Practice and will use this forum to refine the testing approach for 2023.

Greater use of the Operational Risks and Contingency Planning Community of Practice

The community of practice is made up of census agencies from different countries and meets once a month. As a member, and the chair, of this community of practice, Stats NZ has access to templates, plans, risk registers, best practice, and other resources from other countries. This will be used to develop templates and resources for the 2023 Census.

International Expert Peer Review

In the first year of design, Stats NZ will be using international experts to carry out several formal and peer reviews of the census design. Census experts from Canada, the US, Australia and the UK will spend several days

in New Zealand carrying out in-depth reviews. The Australian Bureau of Statistics did a similar review in 2014 before their 2016 Census.

Key change 4: Being adaptive

The census programme will build flexibility into the programme schedule so that it can adapt when faced with delays or adverse events that were not anticipated.

Creating time to be adaptive

This will be achieved by:

- Adapting governance and management processes to the different tempos that the programme will operate in during its lifecycle. For example, the collections phase will operate in a faster-paced environment and need faster decision-making than an early planning phase, and it will have different governance and management needs.
- Earlier engagement and collection activities to inform census design and planning and grow community partnerships
- Recruiting field team leaders earlier and involving them in Stats NZ's other surveys to teach them the Stats NZ 'way of working'.

Comprehensive testing

A comprehensive testing strategy will identify problems and inform contingency plans:

- **Defining requirements early** – This will enable systems to be built and tested early. These tests will inform the final design and planning for the census.
- **Ensuring systems are in place to support large tests** – Progress will be closely monitored, and effective escalation processes will be in place if risks emerge.
- **Operational response to end-to-end testing –** This significant test needs to happen early in the census programme so that the programme can respond to problems identified. The necessary staff will be in place to complete tests, and international best practice will guide the design and delivery of the end-to-end testing approach.

Earlier identification, planning and mitigation of risks

Improving risk management practice will free up time and resources to be more adaptive (shifts in risk management are discussed on page 96).

COMMERCIAL CASE

The Commercial Case details how procurement will be approached and managed to ensure that purchased goods and services will contribute to the successful delivery of the next census.

What this Commercial Case seeks to do

1. Define the need for outsourcing in the next census
2. Describe the procurement strategy
3. Define the roles of the procurement team and how they will support the census programme
4. Describe the procurement process and the approach to managing procurement risk

PROCUREMENT: WHY WE NEED IT

The Commercial Case has been developed with advice from an experienced public sector procurement consultant and probity advisor, and incorporates the lessons identified in the Independent Review.

Procurement: why do we need it?

Carrying out a census is a large programme of work with peaks and troughs of effort. Over time, it has become more complex and requires a range of capabilities, a number of which are not found in Stats NZ. This has presented the organisation with choices about which capabilities it develops internally and which it buys from external suppliers.

Unlike some major transformational initiatives that include one or maybe two large technology partners (for example, the IR transformation programme), the census is characterised by there not being a single dominant supplier. Instead, a range of procurements are necessary for census success, and therefore contract management needs to be sophisticated.

The scope of procurement activities

Procurement activity will begin with a thorough understanding of the census design, as illustrated in the following diagram. Working as part of the census programme team, the corporate procurement team will:

- plan and manage a range of interrelated procurement projects to go to market to identify suppliers of services
- select preferred suppliers and negotiate contracts
- agree with suppliers on the service design and the approach to planning, with a focus on risk management
- develop and manage relationships with suppliers. For some of the larger suppliers, this means relationships will be built at senior levels
- manage the suite of contracts in an integrated way to achieve the agreed outcomes and resolve emerging issues
- monitor contractual performance and put remedies in place to address any issues.

A focus on integration

The commercial arrangements for the census will require effective integration across the many suppliers and this will be a focus of procurement activity throughout the census cycle. In some cases, suppliers will need to develop relationships with each other to maintain a shared understanding of respective roles and responsibilities and manage the interface with other suppliers.

A focus on relationship management

All contracts will have a contract management plan. Relationships with Stats NZ and the larger suppliers will involve senior personnel. This will ensure that both parties are able to escalate issues quickly and deal with them effectively.

Services that will be procured from third parties

Consistent with the findings of the Independent Review, Stats NZ will continue to use external suppliers to provide services and resources to meet different needs. This includes to: secure additional capacity; manage risk; optimise the use of skills, tools, and expertise; source specialised components; and support a more efficient operation.

The table below lists the services that Stats NZ expects to buy for the next census. The list will be updated as planning for the census progresses.

Domain	Types of services that will be purchased
Data collection	• developing and hosting online forms • printing and delivering paper forms • printing and delivering respondent collateral (eg 'call to action' and reminders) • recruiting field workers and supporting Stats NZ direct recruitment of field workers • providing systems and supplies to support officers in the field • providing payroll services for field officers • delivering services in target communities to increase census participation • providing public contact centre services • scanning services
Communication and stakeholder engagement	• designing and implementing communication campaigns • supporting community partners and stakeholders to engage with Stats NZ • supporting and informing the public to participate in the census • undertaking community initiatives to increase census participation
Data processing	• recruiting processing staff
Tools for the census programme	• response management
Testing and assurance	• supporting field tests • providing system testing and assurance • providing census programme assurance
Travel/ Vehicles	• making bookings for travel and accommodation • providing rental vehicles

Services delivered by Stats NZ teams that are external to the census programme

The following services will be delivered by Stats NZ teams that are located outside the census programme. In each case, the services will be integrated into one of the census programme's workstreams. The 2023 Census Board will monitor progress of delivery.

- The data processing system, the Statistical Person Frame register and the statistical location register will be delivered by the Data Management and Operations Branch.

- Data evaluations and output services will be delivered by the Social and Population Insights Branch.
- ICT systems and system integration will be delivered by the Digital Services Branch.

Timing of procurement activity

There will be three tranches of procurement activity, based around the timing of the field tests.

Tranche 1 will procure suppliers of products and services that are essential for conducting the first field test at the end of 2020. This will include the online collection system supplier and printing supplier, shown in the table below.

Types of services that will be purchased		Milestones
Internet collection system and hosting	The system that New Zealanders will use to complete their census forms online. Services include application development, hosting, upstream services management and operational support.	Procure services: January–March 2020 Agree contractual arrangements: April–May 2020
Postal delivery services	The printing of all respondent and field materials including paper questionnaires, accompanying guide notes, access code(s), reminder letters and any required paper field materials.	Agree contractual; agreements: April–May 2020
Printing services	Provision of a marketing communications campaign for both the general population and specific sub-groups and regions. Includes integrated media promotion on TV, radio, print, internet and social media.	Procure services: March–May 2020 Agree contractual arrangements: June–July 2020
Regional recruitment panels	Increased capacity for recruitment of field officers in the regions.	Panel appointed May 2020

Tranche 2 will procure all other suppliers who will provide products and services that require development and testing in the second field test at the end of 2021. This will include the census communications campaign supplier and field staff recruitment providers.

Tranche 3 will procure products and services that are needed for the delivery of the census at the beginning of 2022 – for example, field offices and temporary data processing staff.

THE CENSUS PROCUREMENT STRATEGY

The census procurement strategy will describe how Stats NZ will apply commercial disciplines to buy services to deliver the census – in a way that achieves value for money and manages reputation, commercial and delivery risk. The procurement strategy sits within the frame of Stats NZ's procurement and contract management policies and procedures.

The procurement strategy will be developed in close consultation with the New Zealand Government Procurement and Property team and will incorporate the lessons from the 2018 Census and public-sector best practice.

For the next census, procurement arrangements will enable suppliers to be heavily involved in the design, planning and testing stages. When challenges are faced, suppliers, working as part of the census team, will be empowered to help develop the solutions.

Key themes

The procurement strategy will set the direction for procurement activity in the following ways.

Fit-for-purpose procurement

The procurement strategy will empower Stats NZ and its suppliers to draw on best-practice procurement approaches from across the public sector and implement fit-for-purpose solutions. The emphasis of the strategy is on procuring the right services in a way that best achieves the desired outcomes.

Government Procurement Rules

All procurement processes will comply with the Government Procurement Rules.[40]

Early timeframes

Consistent with the Independent Review findings, early timeframes will be emphasised throughout the strategy. This will enable all parties to undertake thorough due diligence to understand what they are getting into. Once on board, there will be more time to build stronger relationships with suppliers and for them to become true team members.

[40] This includes the following: open procurement processes for commercially available services; open invitations to identify community partners that wish to register interest to work with Stats NZ; secondary procurement processes from established All of Government or Stats NZ panels; 'opt out' procurements eg in the case of conditional grants for community development; and, permitted exceptions to the requirement to openly advertise opportunities.

The procurement process will be designed to ensure there is enough time for suppliers to be involved in the following activities. The process will include:

- Learn about Stats NZ's culture and 'way of operating'
- Design and planning activities
- Risk identification and mitigation workshops
- Robust service planning and critical path development
- Independent technical quality assurance of their services
- Monitoring and reporting
- Testing and 'dress-rehearsal' activities
- Onboarding requirements (for example, of field staff).

Outcomes-based contracts

Outcomes-based contracts will use joint planning and design processes to support suppliers to make agile decisions and respond quickly to emerging issues. These contracts will also clearly set out the inputs and outputs so that there is visibility of progress and of early warning signs.

Supplier capacity

Where there is a high degree of risk that suppliers might not be able to deliver the contracted services, Stats NZ will appoint a panel of suppliers who are pre-approved to provide goods or services and who can be engaged via a streamlined procurement process. This could be for services at a national level or to maximise reach into regions.

Existing All of Government Panels will be considered except where business needs require bespoke solutions. In these instances, panels or individual contracts will be set up using open, competitive procurement processes.

For critical services, contracts will specify the levels of support needed and the specifications for mobilising additional operationally ready resources at short notice.

Contingency plans

'Plan B' strategies will form part of all critical service contracts. These contingency plans will be developed in joint planning sessions with Stats NZ and the supplier. Where appropriate, multiple suppliers will be involved in contingency planning to ensure a joined-up response.

Supporting Government's broader outcomes

Stats NZ will consider how to support the Government's broader outcomes as part of its procurement approach; however, this will not be at the expense of the main goal of delivering a successful census. The table below shows the relationship between government outcomes and some of the services that will be purchased.

	Broader outcomes		
	Reducing environmental impact	**Supporting local economies**	**Opportunities for Māori and Pasifika businesses**
Key services	• Print • Field office supplies • Field offices	• Field staff recruitment • 'Census as a service' initiatives • Field offices	• 'Census as a service' initiatives • Field staff recruitment

RECRUITING FIELD OFFICERS

Stats NZ will again contract out aspects of its recruitment and remuneration of field staff; however, the approach will remedy the issues that plagued the 2018 Census.

The one-supplier model used in the previous census did not provide enough field officers and enough diversity of staff, or place competitive pressure on the supplier to perform. Opportunities were lost to motivate key urban and rural communities to participate in the census.

Disaggregating services

Stats NZ will disaggregate the services that it bought in the last census into three distinct contracts. This will free up recruitment providers to focus solely on the job of identifying field staff candidates.

A national provider will conduct interviews and referee checks of field candidates in a co-ordinated and consistent way. Stats NZ will appoint a specialist payroll supplier to pay field staff. The third contract service, recruitment of field officers, is explained below.

Recruitment of field officers

For the next census, four approaches will be used to get as many field staff as possible:

- ***Stats NZ*** will recruit officers directly.
- ***Large-scale providers*** will recruit field staff in the main centres.
- ***Regional panels*** of locally based recruitment suppliers will provide more capacity in the regions. Stats NZ will appoint the panel in 2020 and test it thoroughly in the delivery of other statistical surveys.
- ***Partnerships with the community*** will provide a tailored, localised approach to deliver a range of services – for example:
  - recruiting and engaging field staff
  - motivating communities to participate in the census
  - field activities such as distributing census packs, supporting respondents to complete their census forms, and returning completed census forms to Stats NZ.

Under the partnership model, procurement will take place as part of a wider commissioning approach,[41] to ensure field officers understand, and are recognised by, the communities they will work within.

[41] Commissioning is a broader concept than procurement involving the whole cycle, from identifying the issues, to considering the range of possible solu ions and putting a selected op ion in place.

CONTRACT MANAGEMENT

Control environment

Since the 2018 Census, Stats NZ has lifted its procurement capability and strengthened its control environment for procurement and contract management. This has been achieved by the following initiatives and investments, which respond to the findings of the Independent Review:

- Recruited additional procurement personnel for the census (discussed further below)
- Implemented a range of procurement policies, guidelines and templates (including templates for contract management plans)
- Delivered a programme of procurement and contract management training for all Stats NZ staff involved with external service suppliers. Future all-staff training programmes will cover Government procurement principles and rules.

For the procurement of services for the census, this means:

- Thorough market analysis to assess whether All of Government panels will provide the best solution
- Emphasis on identifying the best service solution for Stats NZ
- Suppliers actively undertaking their own due diligence to fully understand what they are agreeing to deliver, including the service outcomes, allocation of risk, interdependencies with the census programme and delivery expectations
- Thorough due diligence by Stats NZ of suppliers' capacity and capability, to make sure they can deliver on service outcomes and respond to emerging issues and risks
- Fit-for-purpose evaluation frameworks that enable Stats NZ to identify the right supplier and ensure value for money while delivering on the Government's broader outcome expectations
- External procurement experts to provide independent advice to Stats NZ.

Contract management plans

The contract management plan is an important management tool for the commercial manager and procurement advisors – helping to manage the performance of the contract and integrate the contracted services with other suppliers and the census programme's wider activities.

As recommended by the Independent Review, each contract for service will be the subject of a contract management plan.[42] This will enable centralised and coordinated management of all the services that are bought for the census.

Contracts will contain milestones that reflect interdependencies with the census programme and an explicit understanding of how the service contributes to the census programme's critical path.

[42] The MBIE template will be used for procurements valued at over $100,000.

For suppliers, this will mean mapping out the key tasks that are necessary to complete a milestone deliverable, and identifying the interdependencies of each activity across the census programme. The suppliers' progress along the critical path will be monitored and managed through centralised contract management, in accordance with the overall contract management plan.

Contracts will contain contingency plans to ensure appropriate risk mitigation measures are agreed in advance and are ready to be deployed quickly, as and when risks materialise.

Each supplier contract will contain principles that support suppliers to develop agile and outcomes-focused responses to risk.

What the contract management plan will cover

- Approval / sign-off process
- Key documents
- Contract basics
- Service delivery
- Key personnel
- Key stakeholders
- Transitioning-in arrangements
- Key Interdependencies with the census programme
- Location on the critical path
- Reporting, monitoring and evaluation
- Risk mitigation and management
- Dispute resolution
- Contract completion
- Contract management and governance structure
- Performance feedback
- Communications and external stakeholder engagement

SPECIALIST PROCUREMENT ADVICE

The census programme will be supported by strengthened procurement advice

Stats NZ will use its corporate procurement team to manage census procurement activity. A dedicated commercial manager will be appointed as a matter of priority, with responsibility for writing, planning and managing the portfolio of contracts and supporting procurement processes.

The Commercial Manager will be responsible for risk management of all contracts, working 'hand-in-glove' with the census programme to record and manage contract delivery-related risks (the Management Case discusses the census programme's approach to risk).

The Commercial Manager will be supported by Procurement Advisors that have specialist expertise in contract management and strong supplier relationship management skills. Additional advisors will be recruited to meet the census workload.

The Advisors will be responsible for a portfolio of services and support the census programme to identify the critical path across multiple contracts and opportunities to co-ordinate service delivery.

Procurement personnel will not be solely responsible for supplier relationships. For important contracts, senior Stats NZ personnel will have supplier relationship responsibilities.

Procurement personnel will business partner with the census programme

All procurement roles will report into Stats NZ's procurement team. The commercial manager and procurement advisors will report directly to the Senior Manager, Procurement. This will ensure procurement personnel maintain a strong connection with Stats NZ's centre of procurement excellence and work collaboratively with census category managers.

The roles will be co-located with the census programme to provide leadership, assurance and business advisory services, as shown in the figure below. Procurement risk

This section describes the role that procurement will play in the census programme's approach to risk.

Functional leadership to census programme	Assurance to Chief Executive	Delivery to census programme
The procurement strategy sets clear top down direction for purchasing services.	Fit-for-purpose controls are in place to ensure Stats NZ is externally compliant and integrity and risk is managed.	Census programme receives proactive decision support advice which demonstrates deep knowledge of the census and the external environment. Value for money of third-party expenditure is maximised. Transactional services are efficient, timely and accurate. Procurement solutions are fit-for-purpose and enable customers to get the job done.

Identifying procurement risk

Guiding principles

The procurement team will use the following principles to identify procurement risk early and ensure that it is properly dealt with in the procurement process to inform contractual arrangements.

- The tender process will allow bidders to provide fully-informed responses. This will be achieved by providing clear and accurate information about:
  - the services that are required and how they will contribute to the census programme
  - the proposed allocation of risk in the contract for service.
- The tender process provides enough time for all parties – Stats NZ and bidders – to explore risks and possible solutions, and properly understand what the potential impacts on service delivery and the wider programme might be.
- The process to agree contractual arrangements includes a formal risk-review process (jointly involving suppliers of related services) to inform discussions about risk and pricing and contractual principles.
- Stats NZ allows for enough time to evaluate the bidders' methodology, risk tolerances and approach to managing risk.
- An appropriate contingency is allowed for in the contract price, and provisions are made for responding to unforeseen risks.

Engaging with supplier markets

Stats NZ will adopt the following risk approach when it engages with markets for key services.

Pre-tender	Tender	Negotiate
Consider proposed delivery models and form of contract in context of the census programme and proposed risk allocation. Early market engagement (in form of bidder briefings) to discuss initial thinking to inform proposed risk allocation. Discuss learnings from other procuring agencies.	Include risk allocation tabled in tender documents setting out Stats NZ's proposed risk allocation. Hold risk allocation meetings with bidders to make sure they understand the proposed risk allocations. Consider feedback from risk allocation meetings and whether amendments are required to risk allocation tables. Re-issue risk allocation table to bidders if amended. Review bidder responses to risk allocation including cost and management approach to assess value for money.	Discuss further clarifications and amendments to the risk allocation table with the preferred bidder. Agree on the final risk allocation table with the preferred tenderer and include in contract documentation.

Potential procurement risks

One of the biggest procurement risks facing the census is effective integration of all suppliers. Examples of other potential procurement risks are listed in the table below. The risks are grouped according to five domains.

Domain	Example of risk
Commercial	• size of the supplier market and likely response to request for services • contract acceptance / compliance • approach to managing commercial contracts • contract transition
Technical	• business continuity solutions • interdependencies with other services • needs analysis / volumes estimates • changes to external environment over time • delivery risks
Legal	• clarity and compliance with service requirements • procurement and probity risks • potential for complex commercial arrangements • poor decision-making • health and safety
Stakeholder	• value for money • political neutrality • change communication • stakeholders' expectations • cultural and social issues • environmental issues • reputational matters
Financial	• budget risks • funding requirements • costs to ensure capacity required • costs of contingency plans

Treatment of risk in contracts

Both Stats NZ and its suppliers will spend more time to carefully consider the treatment of risk – whether risks should be retained by Stats NZ or transferred to the supplier, or shared by both parties.

Accountability for deciding how risk is treated in a contract will depend on the nature of the service. For large 'critical-service' contracts the SRO will be the decision-maker.

Where risks are transferred to the supplier (for example, in the form of financial penalties), this will be part of the supplier's due diligence and reflected in the contract.

Each contract management plan will include an assessment of risk for that service. Each risk will be assigned to a specific person in the census programme who will responsible for managing that risk.

Probity

A probity auditor will be appointed to ensure Stats NZ's procurement procedures and systems adhere to Government probity principles, including the principles set out below.

- Accountability of the participants and transparency of the procurement processes
- Fairness and impartiality in carrying out the procurement related processes
- Management of actual, potential and perceived conflicts of interest
- Maintenance of confidentiality and security of documentation and information
- Attainment of value for money under the prevailing circumstances
- Establishment of a complaints process

APPENDIX 1: CHIEF EXECUTIVE LETTER

5 December 2019

Stats NZ
Tatauranga Aotearoa

To whom it may concern

Stats NZ – Delivering New Zealand's next census of population and dwellings
Detailed Business Case

This Detailed Business case is a significant deliverable on a strategic project to investigate value for money options to deliver New Zealand's next census of population and dwellings.

I confirm that:

- I have been actively involved in the development of the attached investment proposal through its various stages
- I accept the strategic aims and investment objectives of the investment proposal, its functional content, size and services
- the indicative cost and benefit estimates of the proposal are sound and based on best available information

Should the proposal be successful I confirm that:

- the financial costs of the proposal can be contained within the agreed and available budget
- the organisation will have the ability to pay for the services at the specified price level, and
- suitable contingency arrangements will be in place to address any current or unforeseen affordability pressures.

This letter fulfils the requirements of the current Better Business Cases guidance. Should either these requirements or the key assumptions on which this case is based change significantly, revalidation of this letter of support should be sought.

Yours sincerely

Liz MacPherson
Government Statistician & Chief Executive

APPENDIX 2: KEY DOCUMENTS

The following documents informed the development of the Business Case.

Business case planning with central agencies

- Stats NZ 2023 Census strategic assessment, draft v2; 15 May 2019
- Stats NZ 2023 Census investment proposal; 4 September 2019
- 2023 Census risk profile assessment; 12 August 2019
- Agreement of an Implementation Business Case

Review and inquiry documents

- Report of the Independent Review of New Zealand's 2018 Census, July 2019.[43]
- Gateway review report for Stats NZ: 2023 Census; November 2019
- IQANZ: Independent Quality Assurance Review; 7 November 2019

Strategies

- Data Strategy and Roadmap For New Zealand, December 2018[44]
- Refreshed census transformation strategy; July 2019

Communications and stakeholder engagement

- Next Census Detailed Business Case Stakeholder Engagement – Summary Report; 2019
- Draft Communications and Engagement Approach – 2023 Census

Census benefits

- Carl Bakker: Valuing the census, July 2014[45]
- Carl Bakker Value of the census for Māori; 2019[46]
- Lateral Economics: Australian Burau of Statistics monetary value; 27 August 2019[47]

Identification of preferred approach

- Next Census – Short list design options
- 2023 Census Shortlisted Options – Master spreadsheet

Financial modelling and analysis

- 2023 Census business case cost model – version 7f (spreadsheet)
- Broadleaf Capital: 2023 Census cost quantitative risk analysis; 7 November 2019

2018 Census planning

- The Next Census Business Case; 6 March 2014
- The 2018 Census Focussed Detailed Business Case; 17 June 2014

43 https://www.stats.govt.nz/reports/report-of-the-independent-review-of-new-zealands-2018-census. Accessed September 2019.

44 https://www.data.govt.nz/assets/Uploads/data-strategy-and-roadmap-dec-18.pdf. Accessed September 2019.

45 https://www.stats.govt.nz/assets/Research/Valuing-the-Census/valuing-the-census.pdf. Accessed September 2019.

46 https://www.stats.govt.nz/reports/value-of-the-census-for-maori. Accessed November 2019.

47 https://www.abs.gov.au/AUSSTATS/abs@.nsf/mediareleasesbyReleaseDate/1B9C46E8DBFC05FFCA25847D0080F9A2?OpenDocument. Accessed August 2019.

APPENDIX 3: INFORMATION SOUGHT IN THE 2018 CENSUS

Information sought in the 2018 Census

Priority 1 (refer note below table):	Priority 2:		Priority 3:
• Count of the population • Count of dwellings • Meshblock location of each dwelling • Age of all respondents • Sex of all respondents • Location of all respondents • Usual residence • Ethnicity of all respondents • Number of occupants • Māori descent • Unoccupied dwelling	• Families and households – Family type – Child dependency status – Household composition – Extended family type • Usual residence one year ago • Occupied dwelling type • Tenure of household – Ownership of dwelling – Mortgage payments – Weekly rent paid by household • Iwi affiliation • Work and labour force status Job indicator – Hours worked in employment per week – Job search methods – Available for work – Seeking work	• Birthplace • Status in employment • Legally registered relationship status+ • Partnership status in current relationship • Total personal income • Sources of personal income • Sector of landlord • Highest qualification – Highest secondary school qualification – Level of post-school qualification • Field of study • Overseas qualification indicator • Study participation • Main means of travel to work • Main means of travel to education • Educational institution address • Workplace address	• Occupation • Industry • Sector of ownership • Languages spoken • Number of rooms/bedrooms • Number of children born • Years since arrival in New Zealand • Years at usual residence • Main type of heating • Dwelling mould indicator • Dwelling dampness indicator • Access to basic amenities • Access to telecommunications systems • Number of motor vehicles • Unpaid activities • Individual home ownership • Religious affiliation • Cigarette smoking behaviour • Disability/activity limitations

Definition of priority 1, 2 and 3 statistics

Priority levels determine the relative importance of the variables and the focus of effort required across the census programme to ensure output data is fit for purpose. Definitions of priority levels are found here: http://archive.stats.govt.nz/Census/2018-census/2018-census-data-qual-mgmt-strat/app2-variables-priority-rating.aspx

APPENDIX 4: STAKEHOLDER ENGAGEMENT

High level approach

Stats NZ engaged widely with customers, Treaty partners and community groups to inform the Business Case. The level of engagement was significantly higher than previous censuses.

Stats NZ engaged with central and local government, Māori and Iwi, Pasifika, representatives of people with disabilities and increased accessibility needs, the rainbow community and migrants, including people whose English is their second language.

The department used a range of engagement methods: community-level engagement; workshops in major centres; and, an online consultation forum.

Stats NZ's engagement with Māori and iwi about the next census is occurring in a much wider context. An effective partnership with Māori is acknowledged as a key condition for achieving a successful 2023 Census and ongoing census transformation. The intention is to engage broadly and deeply with Māori and iwi to build trust and confidence in the data system.

Stats NZ engagement process had five parts:

- Engagement with Treaty Partners and stakeholders
- Engagement with key government agencies
- Engagement on the long-list options
- Engagement on the shortlisted approaches
- Discussions on preferred approach.

In all, 249 external stakeholders were invited to engage with Stats NZ across 8 customer segments and 19 stakeholder sectors, including sub-groups and areas with low response rates. A total of 310 feedback responses were received from 150 individuals and organisations.

Key feedback

- Preference for Approach 2.
- Request to 'pick and mix' some features from Approach 3, largely driven by a desire from Māori and communities to develop partnerships with Stats NZ in the shortest possible time.
- Use of administrative data was largely accepted but some stakeholders had concerns about quality, accuracy and feasibility.
- Release of census outputs in 2023 was overwhelmingly favoured due to desire for access to data as early as possible.
- 2018 Census content met the requirements of most; however, some stakeholders, like the disability sector, would like a review of content.
- Participants want to see themselves in the data, including the use of different languages to improve accessibility.
- Strong desire to make it easy for respondents to use either paper or online response modes.
- Barriers to online responses were a reality (including greater internet coverage limitations than what is 'officially understood').
- Need for the collections approach to be tailored to each region, using 'local people, locally managed'. Integration of Stats NZ's field and engagement and communication teams working closely with the community. 'Door knockers' required to conduct the census.
- Need to build customer and community data capability. The approach to do this should be tailored to the different needs of customers.

APPENDIX 5: STRATEGIC ALIGNMENT

Legislation

The Statistics Act 1975 (section 24(1)) requires Stats NZ to obtain the name, age, sex and ethnicity of every occupant of a dwelling on census night, along with the address, location, number of rooms, ownership, and number of occupants of that dwelling. This is regardless of whether the respondent is a New Zealand citizen.

Other Acts refer to the census including the **Electoral Act 1993**.

Alignment with Government priorities

Living standards framework

The table below uses the living standards framework to show how the census impacts the wellbeing of New Zealanders. The Strategic Case (pages 16 – 20) describe the impacts in more detail.

Impact description	Affected group	Timeframe realised	Welling Domain
The census directly influences the way the government regulates and delivers services to the people of Aotearoa, by providing data for developing evidence-based policy and informing difficult decisions.	New Zealanders Population groups with highest needs Government	Short to medium term	Housing Jobs/ earnings Health Knowledge/ skills Income/ consumption
Helping to lift outcomes for Māori	Māori and iwi	Short to medium term	Same as above
Understanding our cultural identity and wellbeing	Māori and iwi New Zealanders Government	Short to medium term	Cultural identity
New Zealanders have equal representation in Parliament	New Zealanders Government	Short term	Civic engagement/ governance
Shaping public health services so resources are targeted more accurately towards population groups with the highest needs	New Zealanders Visitors to New Zealand	Short to medium term	Health
Investing in infrastructure projects to enable thriving and resilient communities	Central and local government and private sector organisations that make significant investments in infrastructure	Medium to long term	Housing Environment
Informing the delivery of education services so children have access to quality education services	Students attending schools or early childhood centres Boards of trustees and management of schools and early childhood centres Government	Short to long term	Knowledge/ skills
Monitoring progress towards emissions reductions targets and understanding environmental impacts	Central and local government	Short to long term	Environment
Informing social housing measures to address overcrowding and homelessness	Those who experience, or are likely to experience overcrowding and homelessness	Short to long term	Housing Health

Impact description	Affected group	Timeframe realised	Welling Domain
Informing private-sector investment decision-making	Private sector and their customers.	Short to medium term	Subjective wel being
Generating new knowledge and insights from census data	Economic and social researchers	Short to long term	Knowledge/ skills Cultural identity
Maintaining New Zealand's reputation on the international stage	Government Import and export companies	Medium to long term	Civic engagement/ governance
Building capability to produce and use a wide range of official statistics	Users of official statistics	Short to medium term	Knowledge/ skills

Stats NZ's leadership role as Chief Data Steward

In 2017, Stats NZ was given the Functional Leadership role for data and analytics across government. Called 'the Government Chief Data Steward', the role provides leadership and coordination across New Zealand's data system to maximise the value of data for everyone.

Alignment with Data Strategy and Roadmap

Working closely with stakeholders, the Chief Data Steward developed a Data Strategy and Roadmap for New Zealand's data system. Taking a three-to five-year view, The Roadmap identifies four focus areas for developing a future data system. The 2023 Census design incorporates the first three focus areas into its design. The focus areas for the Roadmap are:

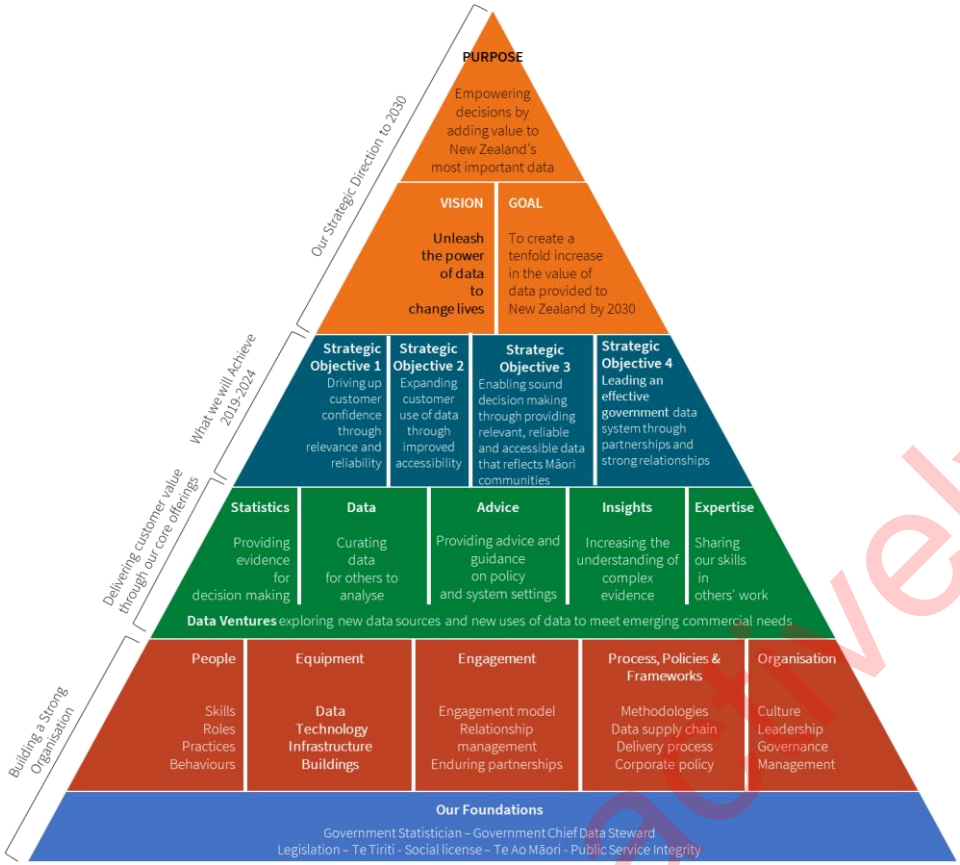
- Invest in the right data at the right time
- Grow data capability and god support practice
- Build partnerships with and outside of government
- Implement open and transparent policies.

Alignment with digital, data and ICT investment principles

Alignment with investment principles
Principle 1: *The delivery of data and analytics for decision-making with an emphasis on meaningful measures of progress which will deliver value to address current government priorities, and seek to enhance capability in the use of data for policy and decision-making.* The census is a corner-stone of the NZ data system. It is the only data collection that aims to collect data from everyone in New Zealand providing a rich data source for policy development and decision making by government, business, iwi, community, and individuals. Census underpins our democracy, supporting a fair and equitable electoral system, is an input into population-based funding and many other critical decisions.
Principle 2: *The design of data for system re-use, where a system mindset and culture provides the environment for data to be designed with all-of-government needs in mind, with an emphasis on a shared process for the collection of common data variables, and a common approach to embedding Māori perspectives about data into the way data is managed and used.* While some information collected in the census is legislated, the census content is informed by consultation with stakeholders and customers. Approved standards and classifications ensure both quality and integration with other data across the data system. 2023 Census will use the Data Ethics Committee and the soon to be formed Māori Data Governance board to ensure data is collected, compiled, managed and used in a way that is consistent with te ao Māori perspectives.
Principle 3: *Stewardship of the system to ensure the moving parts, and key actors enable a system where activity builds on existing and parallel work to add value, with emphasis on system infrastructure to meet the needs of its users – providing access to meet demand and facilitate sharing.* The 2018 Census delivered several Stats NZ wide assets which are used for other data collections and the 2023 Census. These include a processing system, case management and a Statistical Location Register which was developed in conjunction with LINZ. If legislation allows the register will become a data system asset in the future. The 2023 Census will design and deliver a Statistical Person Frame register which will be another enterprise wide asset with the potential to be used as a system asset in future.

Alignment with Stats NZ strategies

How it all fits together



Census Transformation Strategy

Stats NZ has set out a long-term strategy to modernise and transform the census within the wider context of New Zealand's data system. The Census Transformation Strategy sets a course away from a full field enumeration census to one based mainly on administrative data. The vision and goal of the strategy are:

- Vision: Transform to an administrative data census supported by surveys.
- Goal: To be able to describe New Zealanders and their lives without needing everyone to actively contribute, while maintaining relevance and public trust in the data.

The Census Transformation programme

The Census Transformation programme began research and development work in 2012 for the purpose of working towards the Census Transformation Strategy in a managed and achievable way. The current focus of the Census Transformation programme is to:

- refresh its engagement plan to promote the understanding of, and secure support for, Census Transformation, and enable input from technical specialists and other stakeholders
- continue to research methodologies for conducting censuses using administrative data in collaboration with counterparts in the UK, Canada, Ireland, Australia and the US.

The Census Strategy

The Census Strategy sets out the parameters for the next census, progressing Stats NZ toward an administrative data future, based on a careful assessment of the amount of change that is achievable over the next census cycle. The Census Strategy has three themes:

- Help respondents to participate – making it easy and motivating people
- Grow partnerships to help deliver the census and develop data capability in communities
- Leverage administrative data in the next census.

APPENDIX 6: OVERSEAS JURISDICTIONS

Approaches adopted in previous census

Most countries undertake a census every 10 years. A group of countries, including New Zealand, hold a census every 5 years. Internationally, the timing of the census is aligned to achieve a consistent time series of data (although New Zealand is an exception because of the deferral of the 2011 census due to the Christchurch earthquakes). The table below summarises the approaches taken by the United Kingdom, Canada, Australia and USA in their most recent census. The text highlighted in yellow indicates where a similar approach was taken to New Zealand's 2018 Census, showing a level of consistency across different jurisdictions.

Table 1: International approaches to recent census

	Australian Bureau of Statistics (ABS)	United Kingdom Office for National Statistics (ONS)	Statistics Canada	USA (United States Census Bureau)
How the last census was approached	• 5 yearly full-enumeration census • In 2016, the ABS implemented a digital-first census except for certain parts of the country, which were supplied with paper forms according to a range of criteria. • On census night the online census website experienced a series of distributed denial-of-service (DDoS) attacks and the ABS made the decision to take down the online census form for 43 hours as a precautionary step to protect people's data. • Special strategies were implemented targeting various population or dwelling groups. • 43,000 field staff (1 field officer to every 750 people)	• 10 yearly full-enumeration census • In 2011, the ONS introduced a secure online facility to electronically submit census responses. • The ONS created a national address register allowing questionnaires to be posted to households around the country and returned via mail. • There was a fundamental change in the field operation. Field staff focused on following-up with households that did not initially return the questionnaire. • ONS extended the range of services provided by outsourced contractors to include the recruitment, training and pay of the field force. • 29,700 field staff (1 field officer to every 2,100 people)	• 5 yearly full-enumeration census • Statistics Canada do not collect full information on every individual, instead either a long-form (sent to 25% of households) or a short-form (sent to 75% of households) in 2016 Census. • In 2016, the census design used an improved approach to encourage online response and offered an alternative for households that did not wish to respond online. • 35,000 field staff (1 field officer to every 1,000 people)	• 10 yearly full-enumeration census • In 2010, the census was taken via mail-in citizen self-reporting, with enumerators serving to spot-check randomly selected neighbour hoods and communities. • The census used a short-form asking ten basic questions. • No online response option. • From April through July 2010, field staff visited households that did not return a form, an operation called 'non-response follow-up'. • 635,000 field staff (1 field officer to every 500 people)
Response rate achieved	57% of dwellings and 63% of people used the online solution to respond. Overall person response rate of 94.8%	The overall response rate of 93.9%.	The overall response rate of 98.4%.	

Approaches to the next census

The table below summarises the objectives and high-level design of other jurisdictions in the next census. They have several objectives in common: deliver a positive respondent experience; increase the use of administrative data; maintain the publics' trust and confidence; and, achieve high quality data outputs.

They are all planning deliver a combined census. While the online channel is the main collection method, they all offer alternative collection methods. Major tests have all been undertaken at least 2 years prior to the census date.

Table 2: Overseas approaches to the next census

	Australian Bureau of Statistics (ABS)	United Kingdom Office for National Statistics (ONS)	Statistics Canada	USA (United States Census Bureau)
Next census	2021	2021.	2021	2020
Objectives	• The census experience is easy, simple and secure • Governments, business and the community have confidence in the census and there is a high level of community participation • High-quality census data that is widely used to inform on areas of importance to Australia	• Maintaining or improving the quality of outputs • Earlier release of results • Flexibility for users to produce customised census outputs • Allowing greater user access to the data • Using administrative data to enhance key census outputs. • Ensuring protection of personal and confidential data to gain public confidence in the census	• Improving efficiency • Greater cost effectiveness • Limiting respondent burden • Improving relevance to Canadians • High levels of data quality	• Re-engineering field operations and address canvassing • Allowing respondents to choose their preferred response option of paper, phone, or internet • Utilising administrative data
High-level design	A combined census model.	A combined census model. For the first time, will be a primarily online census with alternative options for those unable to fill in the census online. A full range of support services will be offered, including face-to-face assistance, a contact centre, telephone support and digital services such as web chat and social media. Census questionnaires in Braille and British sign language, and targeted supporting material	A combined census model that utilises both the traditional full-enumeration census and administrative data is being explored.	A combined census model. Significant technology investment to increase online self-response. Administrative data will be used to answer census questions and reduce follow-up workload.
Testing approach	The ABS are planning a large-scale field and public-facing test in October 2019 with a set of readiness tests in 2020.	Large-scale test of census already carried out in 2017. Working towards a full census rehearsal in October 2019.	A large-scale field test took place in May 2019.	A significant testing and research programme started in 2012 and national field tests were carried out until 2018.

APPENDIX 7: LONG-LIST DETAIL

The table below is the full longlist of options. The longlist is grouped into 10 dimensions listed on the left-hand side column. The options are listed across the row. The table should be read left to right.

Assessment of longlist

Each option was assessed using the 'RAG' approach. Red coloured cells failed at least one of the critical success factors and were not considered for the shortlisted options. Amber cells achieved a low rating against the critical success factors. Green cells achieved a high rating against the critical success factors. Both amber and green coloured cells were considered for shortlisted approaches.

Options								
Timing		2021	2023	2026	2028			
Statistical methodology	UN approach	Full Field Enumeration (Census 2013)	Full coverage census survey and admin data is used as a direct source for census attribute information	Rolling census covering the whole of New Zealand over a period	Combined methodology using one or more of: surveys, full field enumeration, admin data or statistical registers	Register plus Survey (no census)	Register or Administrative register used with no survey activity (no census)	
	Stats NZ approach	Full field enumeration with integrated admin data used for non-response	Start with person list from integrated admin data and overwrite each person as data is collected through a full field enumeration	Previous option except only census for hard to count groups and geographic areas	Start with a person list from integrated admin data with option for all people to participate in census but can opt out	Statistical base person register populated with admin data and full enumeration to targeted groups/geographic areas	Statistical based register populated with admin data and supplemented with a survey	
Census scope	Statistical units	Legislative requirements only	Current suite of units, no review	Current suite of units, review of supplementary units	Current suite of units, review of supplementary units and unit definitions	Current suite of units, review of supplementary units and unit definitions, introduce new Māori unit concepts		
	Population concept measures	Current measures	Current measures, with usual resident count adjusted for coverage error	Current measures with overseas visitors excluded from census night count	Current measures with residents temporarily overseas (RTOs) included in the usual resident count	Current measures with changes to both census night and usual residen counts	One number approach (full representation of usual resident population) to current measures	One number approach (full representation of usual resident population) to current usual resident measure no census night measure
	Population reach	Reach dwellings first then individuals usually living within those dwellings. Limited options for individuals not reached via dwellings	Previous approach plus visitors in dwellings	Previous approach plus usual residents, and sometime residents	Reach individuals first, then determine from the individual their primary dwelling and household	Previous approach plus determine all the dwellings and households in which individuals live (usually and or sometimes)	Reach dwellings first then usual residents and visitors, plus options for individuals not reached via dwellings	
	Information needed	Legislative requirements only	Core Demographics	Attributes and pop structure	Attributes and measures of current state/situation e.g. income	Previous option plus measures around wellbeing, Māori outcomes	Census as a vehicle for targeted supplemental surveys	
	Coverage assessment	Measure coverage of people via sample survey (2018 situation) Units: UR person Measures: National under and over, Sub-pop and geo under and over Mechanism: sample survey	Measure coverage of people via admin data. Units: UR person. Measures: National under and over coverage, Sub-pop under and over coverage, Local geo under and over coverage, Person location misclassification Mechanism: admin data	Measure coverage of people and dwellings via sample survey (2018 planned/fixed) Units: UR person and private dwelling. Measures: National under and over coverage, Sub-pop and geo under and over coverage, Dwelling misclassification Mechanism: sample survey	Measure coverage of people via admin data, and dwelling via sample survey Units: UR Person, private dwelling Measures: National under and over coverage, Sub-pop and geo under and over coverage, Person location misclassification, Dwelling misclassification	Measure coverage of people, dwellings, households and families via survey and admin data Units: UR Person, dwelling (private and non-private), household, family. Measures: National under and over coverage, Sub-pop and geo under and over coverage, Person location misclassification, Dwelling misclassification Mechanism: sample survey (large scale) and admin data		

Maori / iwi	Partnership	Te Arawhiti – Inform: Māori informed about what is happening	Te Arawhiti – Consult: Māori feedback sought on drafts and proposals feedback considered, and Māori provided with information about how their input influenced decisions (Stats NZ remains sole decision maker)	Te Arawhiti – Collaborate: Work together to determine the issues and develop solutions together. Māori involved in the decision-making process (Stats NZ remains sole decision maker)	Te Arawhiti - Begin development of agreed partnership model with Māori: Agree a partnership model to be implemented along an agreed timeline. Collaboration with Māor until the agreed partnership model is established	Te Arawhiti - Partner design: Partner with Māori to determine the issues, to design the process, and develop solutions (Stats NZ and Māori are joint decision makers)	Te Arawhiti – Empower Māori are the decision makers - Stats NZ implements the decisions made.	Agreed partnership model: Work with Māori to determine an agreed partnership model to be implemented along an agreed timeline - timeline may be over multiple Census cycles
	Capability building	No change to current capability model: * Working with custome stakeholders * Engagement-based capability building * Little to no targeted capability building with Māori	Limited capability building: * Work with Māori to develop a capability building approach that primarily uses activities within Stats NZ, such as internships	Co-designed capability building: * Work with Māori to develop a capability building approach that uses a variety of community and Stats NZ based ways to build knowledge and skills	Co-designed capability building in communities Work with Māori to develop approach that uses a variety of ways to build knowledge and skills that are primarily community based			
Communications engagement		Transactional, compliance approach – one size fits all	Mainstream and targeted communications and engagement during census period	More: mainstream and targeted communications and engagement throughou full census cycle.	Significantly more: partnership-based approach throughout ful census cycle, enriched activities.			
Full field enumeration	How participation is enabled	2013 Census (traditional full contact)	Mixed modernised approach (part mail, part visit) to enabling dwellings (status quo planned for 2018)	Enriched modernised approach (increased suite of channels) with partnership with Māori	Enriched modernised approach (increased suite of channels) with partnership with Māori and community groups	Enriched modernised approach (increased suite of channels) with option for respondents to pre-register and select their participation preference	One size fits all – digital only	
	Languages to communicate	English and Te Reo Māori (status quo)	Official languages – English, Te Reo Māori + NZ sign languages	Multiple languages with English and Te Reo Māori by default				
	How respondent info is captured	Provision paper and online upfront	Provision online and/ or paper as driven by Stats NZ, paper also available on request (status quo 2018 as planned)	Provision online by default, paper on respondent request	Increased suite of digita data collection channels available alongside paper	Digital (online) only		
	Languages of capture channels	English and Māori for paper and online channels	English and Māori for al channels	All official NZ languages for all channels	Multi-language for paper and online channels	Multi language for a number of channels	Multi language for all channels	
	Languages respond in	Official languages - Te Reo Māori respondent initiated only	Official languages - Bilingual for all capture channels	Multiple languages for some capture channels	Multiple languages for all capture channels			
	Non-response strategies	Multiple field visits to all non-responders (2013 traditional)	Reminder followed by field visit (progressive prioritisation)	Reminder followed by field visit (planned prioritisation)	Adaptive NRFU (planned actions using a suite of NRFU activities)	Responsive NRFU (actions driven by response at the time)	Interview based NRFU	Admin only (no non-response activities required)
Admin data	Extent of admin data for info need	No admin data, Survey only: All attributes and units	Survey first, admin supplementary for all attributes but not units (2018 planned)	Survey first, admin supplementary for all attributes and units (2018 implemented by design)	Survey first (admin supplementary)	Admin first (survey supplementary) for majority attributes and majority units and admin only (for some attributes and units)	Admin first, survey supplementary for all attributes and units	Admin only
	Assessment of admin data quality	Qualitative assessment of admin data for Census purposes only	Qualitative assessment of admin data for a range of uses across Stats NZ	Qualitative and quantitative assessmen of admin data for Census purposes only	Qualitative and quantitative assessmen of admin data for a range of uses across Stats NZ	Qualitative and purpose-built quantitative assessmen for Census purposes only	Qualitative and purpose-built quantitative assessmen for a range of uses across Stats NZ	

	Extent of admin data for operations	Address lists only (status quo): Address data for the SLR and NPD frames only	Address lists only (improved quality): Address data for the SLR and NPD frames with quality improvements	Address lists plus dwelling occupancy: Address data for the SLR and NPD frames with quality improvement + Use admin data to assist in confirming in scope frame	Address lists, dwelling occupancy, and prioritising households: Address data for the SLR and NPD frames with quality improvement + Use admin data to assist in confirming in scope frame	Address lists, dwelling occupancy, and prioritising individuals: Use admin data to identify and prioritise effort for high value / high support individuals (plus status quo fix)			
	Facilitation of data supply	Use existing data supply only, as is state: No additional data supply or quality improvements facilitate	Use existing data supply only, facilitate quality improvements: Improve link rates, key variables – includes at source improvements	Existing data suppliers, facilitate quality improvements and additional data for Census: Leverage full value of data already in the system - to be made available only to Census	Existing data suppliers facilitate quality improvements and extend supplier data collection: Work with data suppliers to collect new admin data specifically for use in Census. Suppliers to enrich their own data with support from Stats NZ	Existing data suppliers, facilitate quality improvements and additional data for Stats NZ: Leverage full value of data already in the system – to be made available to wider organisation	Fully expand data supplier relationships including Non-Government Organisations: Add new suppliers, Govt and NGO – investigate where most high-value data lies		
	Facilitation of Māori data supply	Use existing data supply only, as is state	Use existing data supply only, facilitate quality improvements: Improve link rates, key variables etc - includes at source improvements - use Tikanga Framework and Māori Liaison team help to discuss this option with Iwi leaders Use of admin data for Māori needs to be a partnership discussion	Existing data suppliers, quality improvements and additional data for Census: Leverage value of data in the system. Use Tikanga Framework and Māori Liaison team help to discuss this option with Iwi leaders. Use of admin data for Māori needs to be a partnership discussion	Existing data suppliers facilitate quality improvements and extend supplier data collection for Census: Work with data suppliers to collect new admin data specifically for use in Census. Suppliers to enrich their own data with support from Stats NZ. Use of admin data for Māori needs to be a partnership discussion	Existing data suppliers, facilitate quality improvements and data for Stats NZ: Leverage value of data already in the system. Work with current suppliers to see what Māori data they hold and negotiate access. Use of admin data for Māori needs to be a partnership discussion	Fully expand data supplier relationships including Non-Govt organisations: Add new suppliers, Govt, NGO, and Iwi data where possible. Investigate where most high-value data lies. Use of admin data for Māori needs to be a partnership discussion		
Registers, processing and eval.	Extent of register-based statistical systems and	Use Business and location registers 'as is'	Use Business and location registers with fixes to known issues: Fix environment and access issues to use integrated admin data for person admin enumeration	Extend the value of the business and location registers, start development of person register: Creation of person frame and building	Build integrated register system: Business, location and person. Value extended with new data, processes and techniques. Register system environment created	Mature fully integrated register environment: 2023 Census and wide enterprise (in line with data units model). Functioning QA programme	Integrated govt register Making integrated register system an across government asset		
	Process and infra structure options	Reuse existing system, processes, data management and methods as is where is	Reuse existing system, processes, data management and methods with fixes to known issues	Reuse existing system, processes, data management and methods with fixes to known issues and general enhancement	Redevelop existing system, processes, data management and methods	Clean slate new build			
Information outputs	Products to be produced	Minimal outputs: Electoral counts only	Minimal outputs: Census minimum	Minimal outputs: Option 2 and publish basic counts	Enable: Similar to 2013	Enable: Similar to 2018 and fix	Form partnerships: Work with users, such as Māori to create integrated datasets	Form partnerships: Microdata provided outside Stats secure environment to trusted organisations	Rolling outputs approach
	Mode of delivery of products	External: Data re-packaged by external providers	Basic: Tables and reports created by user through Stats website based on pre-programmed tables (no unit record data)	Maps and Pre-prepared: Tables, maps and reports created by user through Stats website based on pre-programmed tables (not unit record data). Some speciality analytical products published	Option 3 and queries: Tables, maps and reports created by user via Stats website based on pre-programmed tables. Some speciality analytical products published. Data queries based on unit record data	Dynamic Digital Service (Query on Demand): Through website service - integrate Census data with other data (BYO data) on request and deliver Develop Census app	Data for the people Machine Learning: Natural language query service with machine learning so can improve customers service and suggest information based on previous queries	Global census platform: Partner with other statistics agencies to build shared platform fo sharing and publishing census data	Partner with third party such as Wikipedia Outreach consultancy: Census minimum but data science service for customers
	Confidentialising data	Inhouse: Confidentiality rules are applied in-house and in response to requests	Primarily on the fly (status quo): Confidentiality is primarily done on the fly, supported by in house team for customised requests	3rd Party: Responsibility delegated to trusted third parties	Consent based arrangements: Enable sharing of individual data such as tribal registers				
Quality assurance		Limited scope data quality assurance	Limited scope + some independent review	Quality assurance process for key decisions and separate quality assurance team within census	Previous option plus independent data quality assurance from within Stats NZ	Previous option plus external independent assessment			

APPENDIX 8: DESIGN OF SHORTLISTED APPROACHES

The table below describes the design of the shortlisted approaches.

	Approach 1	Approach 2	Approach 3
When	• 2023	• 2023	• 2026
Statistical Methodology	• Combined census model. Full field enumeration as primary source, administrative data to fill the gaps for both units and attributes	• Combined census model. Full field enumeration as primary source, administrative data to fill the gaps for both units and attributes	• Combined census model. Full field enumeration as primary source, administrative data to fill the gaps for both units and attributes
Census Scope	• Statistical units: people, dwelling, household, family, extended family, absentees • Population concepts and measures: Census night population count, and Census usual resident population count • Population reach: dwellings and everyone within them • Content: limited change • Coverage measurement: people and dwellings via a Post Enumeration Survey (PES), including coverage measurement of administrative data	• Statistical units: people, dwelling, household, family • Unit review: extended family, absentees • Population concepts and measures: Census night population count, and Census usual resident population count • Population reach: dwellings and everyone within them • Content: limited change • Coverage measurement: people and dwellings via a Post Enumeration Survey (PES), including coverage measurement of administrative data	• Statistical units: people, dwelling, household, family • Unit review: extended family, absentees • Population concepts and measures: Census night population count, and Census usual resident population count adjusted for coverage error • Population reach: dwellings and everyone within them with an increased suite of options for people not in dwellings • Content: potential for content change to maintain relevance • Coverage measurement: people via administrative data and dwellings via a sample survey
Māori, Iwi and capability	• Stats NZ and Maori will work together to determine the issues and develop solutions together • Little to no targeted capability building with Maori or other communities	• Stats NZ and Maori will work together to develop an agreed partnership model along an agreed timeline (likely to be over multiple census cycles) • Work with Maori to develop a capability building approach that uses a combination of in-reach (eg internships) and out-reach (eg mentoring, skills courses, etc) activities	• Stats NZ and Maori will work together to develop and embed an agreed partnership model • Work with Maori and community groups to develop capability building approach that uses combination of in-reach (eg internships) and out-reach (eg mentoring, skills courses) activities
Comms and engagement	• Continuous community engagement throughout the full census cycle • Mix of mainstream and targeted marketing campaigns designed to raise awareness, educate about value, and elicit action/participation • Activities focused on groups who are known to be hard to motivate or have barriers to participation • Mechanisms for communication include marketing tools, field staff with face to face contact, and dedicated comms and engagement staff embedded in communities to build trust and increase relevance of the census	• Continuous community engagement throughout census cycle • Communications and engagement will be supported by partnerships with Maori and other community groups • Mix of mainstream and targeted marketing campaigns designed to raise awareness, educate about value, and elicit action/participation • Activities focused on groups who are known to be hard to motivate or have barriers to participation • Mechanisms for communication include marketing tools, field staff with face to face contact, and dedicated comms	• Continuous community engagement throughout census cycle • Communications and engagement will be supported by partnerships with Maori and other community groups • Mix of mainstream and targeted marketing campaigns designed to raise awareness, educate about value, and elicit action/participation • Activities focused on groups who are known to be hard to motivate or have barriers to participation • Mechanisms for communication include marketing tools, field staff with face to face contact, and dedicated comms

	Approach 1	Approach 2	Approach 3
	• Working with customers, engagement-based capability building	and engagement staff embedded in communities to build trust and increase relevance of the census • Working with customers, engagement-based capability building	and engagement staff embedded in communities to build trust and increase relevance of the census • Working with customers, engagement-based capability building
Full Field Enumeration	• Census participation is a mixed modernised approach as planned for 2018 • Optimal mix of dwellings enabled via mail or field visits • Within the group receiving field visits there will be varying levels of face-to-face doorstep interaction that is dependent on respondent need • Respondent data will be captured through digital data collection (online) and using paper forms • Paper is both Stats NZ and respondent driven. English and Te Reo Māori languages for communication and participation • Non-response strategies include reminder letters, non-prioritised visits, followed by prioritised visits	• Census participation is an enriched mixed modernised approach with an increased suite of channels • Increased focus on determining enablement modes that sit alongside communications and engagement strategies to meet the needs of all, but particularly the less willing • Alternative enablement modes to mail delivery considered • Increased role compared with 2018 of strategies for contact and face-to-face doorstep interaction • Selection into the enablement modes will be based on respondent need and therefore there is less focus on the ability to use a postal service for delivery • Where applicable enablement could be conducted by other groups to ensure the success of the mode • Increased suite of languages for communication and participation • Material will also be available in a select group of languages that meet respondent need • Provision of paper is both Stats NZ and respondent driven • Increased suite of digital data collection (online) available alongside paper including computer-aided telephone interview and computer-aided personal interview • English and Maori available for all capture channels used • Non-response strategies include reminders, field visits, and assisted completion • Targeted/selection of non-response activities is via partnership with Maori and community groups, administrative data and other available intelligence	• Census participation is an enriched mixed modernised approach with an increased suite of channels with partnership with Maori and community groups • Increased focus on enablement modes alongside communications and engagement strategies to meet the needs of all, but particularly the less willing • Alternative enablement modes to mail delivery considered in partnership with Maori and engagement and collaboration with other community groups • Strategies that consider the role of contact and face-to-face doorstep interaction have increased role compared with 2018 • Selection into the enablement modes based on respondent need, building confidence in the model and in partnership with Māori • Stats NZ will partner with Maori and community groups to facilitate enablement strategies • Increased suite of languages for communication and participation. Material available in a select group of languages that meet respondent need • Paper is both Stats NZ and respondent driven • Increased suite of digital data collection (online) available alongside paper including computer-aided telephone interview and computer-aided personal interview. • English, Te Reo Maori and NZ sign language for all capture channels used. A select group of languages will also be used to capture respondent data • Non-response strategies include reminders, field visits, and assisted completion • Targeted/selection of non-response activities via partnership with Maori and community groups, administrative data and other available intelligence

	Approach 1	Approach 2	Approach 3
Administrative data	• Administrative data for information need includes filling gaps for both units and attr butes • Existing data supply with some improvements at source • Quality of administrative data assessed using existing qualitative approach alongside purpose-built data collection for quantitative analysis • Field operations will be supported by administrative address lists	• Administrative data for information need includes filling gaps for both units and attributes • Existing data supply with some improvements at source • Quality of administrative data assessed using existing qualitative approach along with purpose-built data collection for quantitative analysis • Field operations will be supported by administrative address lists and administrative data for determining dwelling occupancy	• Administrative data for information need includes filling gaps for both units and attributes • Administrative data will also be used to replace variable content entirely for some attr butes • Existing data supply with some improvements at source along expansion of data suppliers including non-government organisations • Quality of administrative data assessed using existing qualitative approach with data collection for quantitative analysis • Field operations supported by administrative address lists and administrative data for dwelling occupancy
Registers, processing and evaluation	• Existing registers used with fixes to known issues • Development of a minimum viable Statistical Person Frame register • Existing process system, processes, data management and methods used with fixes to issues	• Existing registers used with fixes to issues • Development of a Statistical Person Frame register • Existing process system, processes, data management and methods with fixes to known issues, improvements across the system with potential to extend new approaches	• Existing registers used with fixes to issues • Development of a Statistical Person Frame register • Existing process system, processes, data management and methods with fixes to issues, improvements across the system, with potential to extend new approaches
Information outputs	• Suite of products similar to 2018 Census includes configurable products and an open data query system for expert users • Produce Maori products that meet Māori needs • Produce census unit record file for internal use and research users, a range of published output products • Limited configurable products with addition of website query service • Confidentiality on the fly	• Suite of products similar to 2018 Census but also allows users to request joining their datasets with census (e.g. iwi) to create customised datasets • Produce Maori products that meet Māori needs • Produce census unit record file for internal use and research users, a range of published output products • Extending into open data access for expert users • Confidentiality on the fly	• Suite of products similar to 2018 Census and allows users to request joining their datasets with census (eg iwi) to create customised datasets • Produce Maori products that meet Māori needs • Produce census unit record file for internal use and research users, a range of published output products • Extending into open data access for expert users • Confidentiality on the fly
Quality assurance	• Improved suite of tools for quality assurance • Quality assurance process for decision making • Independent quality assurance team within Census with monitoring and action	• Quality assurance for design, implementation and data: • Improved suite of tools for quality assurance • Quality by design • Quality assurance process for decision making • Separate quality assurance team within census with monitoring and action • Independent review of design, implementation, and data quality	• Quality assurance for design, implementation and data: • Improved suite of tools for quality assurance • Quality by design • Quality assurance process for decision making • Separate quality assurance team within census with monitoring and action • Independent review of design, implementation, and data quality

APPENDIX 9: COST ASSUMPTIONS

Cost items for Approach 2

The tables below list the main operating and capital cost items.

Operating cost

$ millions	2020/21	2021/22	2022/23	2023/24	Total
Full field enumeration	4.4	10.1	94.4	0.1	**109.0**
Communication and engagement	4.2	8.8	17.1	4.5	**34.6**
Testing and coverage assessment	4.1	4.7	14.2	2.9	**25.9**
Processing and outputs	0.8	1.0	7.6	5.3	**14.7**
Technology services	1.8	2.2	2.2	0.7	**6.9**
Programme personnel	3.4	4.1	4.0	2.9	**14.4**
2028 workstream	0.7	1.7	1.8	1.8	**6.0**
Other costs (incl depreciation and capital charge)	1.6	2.0	6.7	4.3	**14.6**
Contingency (85th percentile)	4.0	6.5	28.1	4.3	**42.9**
Total operating cost	**25.0**	**41.1**	**176.1**	**26.8**	**269.0**

Capital cost

$ millions	2020/21	2021/22	2022/23	2023/24	Total
Registers	1.3	1.6	1.7	0.5	**5.1**
Process and evaluation development	1.1	1.4	1.0	0.0	**3.5**
Other capital (mainly ICT)	0.6	1.2	2.1	0.2	**4.1**
Total operating cost	**3.0**	**4.2**	**4.8**	**0.7**	**12.7**

Total costs to be funded

$ millions	2020/21	2021/22	2022/23	2023/24	Total
Operating cost	25.0	41.1	176.1	26.8	**269.0**
Capital cost	3.0	4.2	4.8	0.7	**12.7**
Total cost	**28.0**	**45.3**	**180.9**	**27.5**	**281.7**

Cost assumptions for Approach 2

The following tables set out the key assumptions that drive the financial model.

Field staff

These people are the short-term field staff. Field staff numbers and duration of employment are built up from detailed assumptions relating to number of dwellings visited, number of visits (and repeat visits), and duration of visit.

Field staff	Head count in census year
National Manager	1
Managers	43
Priority Team Leaders	141
Team Leaders	239
NPD Field Officers	350
Enable Field Officers	1,762
First Responder Field Officers	314
Non-Response Follow-Up Officers	3,644
Reserves Field Officers and Team Leaders	645
Total - headcount	**5,377**

Average duration field staff are employed	5 weeks

Set-up costs for interviewers and leaders	$
Onboarding cost	900
Interviewer gear costs	1,000
Training costs	650
Total per person	**2,550**

Staff on-costs and agency mark-up applied to field staff rate	
Leaders	28%
Field Officers	31%

Engagement centres

Engagement centres are short term offices for use by field staff and the community during the collection phase

Number of centres in the field	80
Staff per office	1
Average duration of the centre	2 months

Letters and postage

Numbers of packs (for main printing cost)	2,700,000
Weighted average cost per pack	$1.92
Numbers of letters sent (for postage cost)	2,500,000
Cost per letter (including envelope, letter & postage)	$0.53

Communications and engagement

Short term community engagement staff are included in the table below.

Community engagement cost	$
Campaign development & media costs	8.3
Community engagement staff	7.7
Community engagement travel	3.6
Accessibility; partnership/sponsorship; data hubs *	2.0
Stats NZ staff – engagement	10.4
Stats NZ staff – communications	2.8
** includes $0.2m capex*	
Total cost	**34.8**

Community data hubs

Long term initiatives aimed at building data capability in the community

Community data hubs	2 hubs

Tests and surveys

Tests and surveys	$ million per test	Number
Experimental design	1.0	1
Dress rehearsal (operational readiness)	1.1	1
Content or targeted field methodology	0.1	2
End-to-end (integration/ performance)	2.2	1
Long-lens (2028) related	0.1	11
Enumeration survey	3.5	1
Post enumeration survey – main	2.3	1
Coverage quality (ACCS)	2.3	1
Total census tests and surveys		**19**

Census programme personnel

These staff are the Stats NZ personnel who cover all the census activities.

Stats NZ personnel	
- in 2020/21	173 FTE
- in 2021/22	213 FTE
- in 2022/23	241 FTE
- in 2023/24	139 FTE
Average base salary cost per FTE (2022/23)	$93,507
Contractors % of total cost	9%
Overhead % of employee cost	15%
Phasing of 1st year FTE (% of 2020/21 employed)	85%

Other operating costs

Wage inflation per annum	3.1%
General inflation per annum	2.0%
Depreciation rate	5 years
Capital charge	6.0%