Fixing Frictions: 'Sludge audits' around the world

HOW GOVERNMENTS ARE USING BEHAVIOURAL SCIENCE TO REDUCE PSYCHOLOGICAL BURDENS IN PUBLIC SERVICES

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Executive Summary

Just under 4 in 10 respondents believe their government would improve a poorly performing service, according to the OECD Trust Survey. Amidst growing skepticism about government capacity and responsiveness, public services represent one of the closest links between government and citizens. Yet, 'sludge' – unnecessary friction that hinders access, imposes psychological costs and erodes trust – remains a pervasive barrier in government services and processes. Sludge consumes significant time and resources, contributes to frustration and distrust and jeopardises equitable access to government programmes. In this context, governments worldwide are urged to reconsider the design and delivery of public services, prioritising accessibility, fairness and usability for all.

Long wait times without adequate updates and unclear eligibility requirements for government services are prime examples of sludge. Behaviourally informed "sludge audits" tackle these issues by systematically identifying and quantifying psychological, financial and temporal costs, as well as highlighting disparities in equitable and efficient access to government programmes. Sludge audits build upon, complement and augment traditional approaches to administrative burden reduction and simplification by measuring equity, psychological costs and the experience of people engaging with government services and processes. By systematically identifying and quantifying sludge, sludge audits can help advance government efforts to make processes more accessible, user-friendly and fair.

Building upon insights from the first International Sludge Academy, a joint initiative of the OECD and the Government of New South Wales (NSW) in Australia, this policy paper puts forward nine good practice principles to support governments in using sludge audits. The first-of-its-kind initiative brought together 16 government organisations from 14 countries to conduct independent sludge audits using the NSW Government's sludge audit method.

With support from OECD and NSW experts, 16 governments around the world identified hidden frictions in their unique policy and service delivery contexts and pinpointed areas for behaviourally informed solutions to increase efficiency and improve people's experience with and trust in government. The results, presented in ten case studies in this paper, highlight the wide applicability of sludge audits and the benefits of systematically quantifying and analysing sludge. International testing has facilitated the refinement of the methodology and the development of actionable guidance, paving the way for impactful reforms in public service design and delivery.

In line with these findings, the nine good practice principles outlined in this paper offer actionable guidance for governments embarking on sludge audits:

1. Consider whether a sludge audit is appropriate.

Institutional context and available resources are essential to consider when committing to a sludge audit. Decision matrices can enable teams to make informed decisions about whether to conduct a sludge audit.

2. Use a step-by-step methodology to systematically identify and quantify sludge.

Pre-defined methodologies that have been tested in various contexts offer several advantages including rigour, replicability and comparability, and access to experience.

3. Tailor the sludge audit methodology to available capacity.

Sludge audits can be conducted by diverse types of teams. While behavioural science and customer experience expertise can be advantageous, it is not necessary to conduct an audit. Teams without behavioural science or customer experience expertise will benefit from mentors with experience in sludge audits.

4. Use a tool to methodically collect, organise and analyse data from the sludge audit.

A tool enables to organise sludge audit results, guide auditors through the audit, display results and prioritse frictions. Recommended features of a tool include guidance through a method, management of data, calculation of burden metrics, summary of results, suggestions for interventions and measurement of impact.

5. Accommodate for behavioural journeys that are non-linear and diverse.

Mapping non-linear journeys ensures auditors consider diverse people and paths to engaging with a process or service. This enables teams to account for people progressing through a service or process in different ways.

6. Deploy an equity lens throughout the sludge audit process.

Using an equity lens throughout the sludge audit enables auditors to address the disproportionate impact of sludge on underserved communities. Teams can use equity checklists as they complete the audit or identify an equity framework that suits the given context.

7. Leverage feedback to challenge assumptions on sludge.

The integration of feedback before, during and after a sludge audit is essential to selecting a process or service to audit, understanding people's experiences and assessing the success of a sludge audit. Integrating feedback is important throughout the sludge audit by conducting interviews, onsite visits and surveys.

8. Act to reduce sludge and evaluate progress.

Sludge audit results should be used to develop solutions that address frictions. Teams should consider potential positive impacts, equity impacts and the institutional context when designing solutions.

9. Build system-wide enablers to develop a sludge prevention program.

The systematic adoption of sludge auditing can be enabled by establishing clear and meaningful commitments to user-centred government services, considering institutional arrangements, embedding whole of government service user voice and data and promoting public sector capability.

In conclusion, the inaugural International Sludge Academy marks a significant milestone in addressing sludge globally and has catalysed the widespread adoption of sludge audits. This initiative has proven the applicability of the NSW Sludge Audit Method beyond Australia, fostering a deeper understanding of sludge reduction as jurisdictions expand audits into new areas. By building upon and enhancing traditional approaches, sludge audits advance government efforts to make services and processes more accessible and fairer. With the outlined good practice principles, the OECD and the NSW Government will further the mission of enhancing public services and building trust in government institutions through innovative, human-centric approaches.

1 Sludge and its impact on people and government services

Accessing public services is among the most poignant and memorable interactions people have with their governments. People's experiences engaging with public services shape their perception of and trust in, their governments and the public administrations that deliver them (Herd and Moynihan, 2018[1]). Designing and implementing public services is a complex process given that they must meet the needs and interests of a diverse range of people. The 2021 OECD Trust Survey found that people are reasonably confident that they can rely on governments to deliver public services. On average, 65.1% of respondents said that they can find information about administrative processes easily and 63% indicated that they are satisfied with their administrative services (European Commission, 2017[2]; OECD, 2023[3]).

Over the past few decades, many countries have engaged in considerable efforts to improve administrative processes through administrative burden reduction and simplification. These efforts largely stemmed from ambitions to make administrative regulations more cost-efficient (OECD, 2006[4]). Examples of administrative burden reduction tools include regulatory impact assessments, procedural checks and digital service delivery models (Herd and Moynihan, 2018[1]). These tools aim to identify and reduce the time and cost of engaging in and delivering administrative processes.

While administrative reduction and simplification efforts seek to address costs, there remain significant opportunities to improve the design and delivery of services and processes to make them more effective and equitable, particularly related to the reduction of burden on the public, as called for by Ministers in the Luxembourg Declaration on Building Trust and Reinforcing Democracy (OECD, 2022[5]). For instance, when asked "if there is an innovative idea that could improve a public service, how likely or unlikely to do you think it is that it would be adopted by the responsible public agency or office?" less than four in ten OECD Trust Survey respondents believed their government would improve a poorly performing service if many people complained (OECD, 2022[6]).

Box 1.1. What is "Sludge"?

Sludge describes the 'excessive or unjustified' frictions that make it harder for people to follow through on their intentions and achieve their goals. Sludge imposes psychological costs on people as they complete a process through the imposition of unnecessary complexity, confusion and stress which slow people down, give them a poor experience or prevent them from engaging at all.

Source: *Sludge: What Stops Us from Getting Things Done and What to Do about It* and *The NSW Government Sludge Audit Method* (Sunstein, 2022[11]; New South Wales Government, 2024[12]).

Behavioural science research and practice are increasingly identifying ways in which government processes are hindering equitable and efficient access to programs and the policy benefits they deliver. One key concept that draws together several behavioural factors is 'sludge' (Box 1.1), which refers to an excessive or unjustified friction that makes it harder for people to do what they wish (Sunstein and Gosset, Forthcoming[7]). Sludge can exacerbate inequity in government service delivery, disproportionately affecting those who rely on government services the most (Bell et al., 2023[8]; Arbogast, Chorniy and Currie, 2024[9]; Halling and Baekgaard, 2024[10]). While most definitions of sludge focus on services delivered to the public, they can equally apply to internal government processes in which the primary direct beneficiary of the service is within a public administration. This innovative perspective complements existing approaches to improving service design and delivery, building on them by focusing on the experience of people accessing the service and a broader definition of the costs that are required to access a service.

Sludge can also be understood as the opposite of the more commonly known 'nudge', in which behavioural science is used to help people follow through on their intentions (Mills, 2023[13]; OECD, 2019[14]). Sludge that is commonly found in government processes includes unnecessary paperwork, excessive waiting times, a lack of information about how to complete the process and complex decision points that require people to decide on a course of action with limited information or time. The resulting psychological costs of sludge can be categorised in search, decision, cognitive and emotional costs (Figure 1.1).

Figure 1.1. The Psychological Costs of Sludge

The psychological costs of sludge can be categorised into search, decision, cognitive and emotional costs.

Search Costs
Search costs occur when people are searching for information about a process but encounter barriers due to outdated information, unclear language, or confusing requirements.

Decision Costs
Decision costs occur when people are asked to evaluate options, especially when differences between them are unclear due to ambiguous eligibility criteria and choice overload.

Cognitive Costs
Cognitive costs are the mental resources people spend on fulfilling requirements including understanding complex information or contacting support for clarity when instructions are unclear.

Emotional Costs
Emotional costs can occur throughout a process. These include encountering stigma, experiencing a loss of autonomy, or feeling stressed, disempowered, anxious, confused, or frustrated.

Source: Adapted from *Sludge and Transaction Costs* (Shahab and Lades, 2021[15]; NSW Behavioural Insights Unit, 2024[16]).

In addition to psychological costs, sludge has significant economic and productivity effects. For instance, under its Burden Reduction Initiative, the United States federal government estimates that Americans spend approximately 10 billion hours responding to federal information collections, comprising both justified and unjustified frictions (Executive Office of the President of the United States, 2018-2021[17]). The cost of sludge is harder to quantify in the case of health and safety. Public services that provide access to healthcare, nutrition and emergency supports are lifesaving, which means that sludge in these areas can even be life-threatening (Sunstein, 2022[11]; Giannella et al., 2023[18]).

An understanding of sludge can advance existing programs that aim to make government processes easier and more accessible, such as the US's Burden Reduction Initiative. By bringing an innovative perspective to the broader conversation on service design and delivery, sludge stands to support new and existing work on improving government processes and services. The concept of sludge leverages behavioural science to draw attention to the psychological experience of interactions with government processes and the consequences this has on people's behaviours. An awareness of psychological concepts (e.g. choice overload, time discounting, action-intention gap) can help governments better identify the costs that certain micro-steps or behaviours may have on people who are accessing a process.

2 The case for behavioural audits to identify and quantify sludge

The role of public services in enabling trust and fairness

The design and delivery of public services is a key driver of trust in public institutions. Weakened levels of trust in governments and scepticism regarding their capacity to deliver on commitments have prompted policymakers to examine the services they deliver. Public trust in government is integral to effective governance as people exhibit cooperative behaviour when they have trust in their governments; they pay their taxes on time, register to vote and generally accept and abide by government regulations. On the other hand, governments risk resistance from people when trust is low, even to regulations that seem to be in the individual's best interest (OECD, 2017[19]).

The OECD Survey on Drivers of Trust in Public Institutions provides a unique data set for understanding what drives trust in government in jurisdictions across the globe. The Trust Survey is a cross-national population study of trust in government and public institutions that included over 50 000 responses across 22 OECD countries in 2021 and was repeated in 2023 with 30 countries (OECD, 2022[6]). The survey is based on the OECD Framework on Drivers of Trust in Public Institutions, which identifies five public governance drivers of trust in (Table 2.1). All five drivers of trust contribute significantly to the level of trust in a given government or public institution and can be grouped into competencies that governments demonstrate and values that governments adopt.

Table 2.1. OECD Framework on Drivers of Trust in Public Institutions

Competencies	Responsiveness	Provide efficient, quality, affordable, timely and citizen-centred public services that are co-ordinated across levels of government.
	Reliability	Anticipate needs and assess evolving challenges; minimise uncertainty in the economic, social and political environment.
Values	Openness	Provide open and accessible information; consult, listen and respond to stakeholders; ensure equal opportunities to participate.
	Integrity	Align public institutions with ethical values and principles; take decisions and use public resources ethically; ensure accountability.
	Fairness	Improve living conditions for all; provide consistent treatment of businesses and people regardless of their background and identity.

Source: Adapted from *Building Trust to Reinforce Democracy* (OECD, 2022[6]).

In terms of values, the perception of fairness in the way governments treat people and businesses is a cornerstone of trust in government and public institutions. People depend on governments for fair and equal treatment in the delivery of services they need. When it comes to public services, this looks like services that are effective, easy to use and accessible to diverse groups of people. Similarly, people's perception of their government's openness and integrity also affects their trust in their government.

There is also a link between the competencies exhibited in the performance of government services, people's satisfaction with those services and the level of trust that these services engender (OECD, 2022[6]). More specifically, people's interactions with public services influence their perception of their government's responsiveness and reliability in meeting their needs, which then affects their trust in government. Service delivery often involves multiple government organisations working together. Therefore, the performance of and satisfaction with, public services affect people's trust in public administrations and other government institutions, especially local governments (OECD, 2022[6]). Given these links, understanding people's behaviours, expectations, needs and experiences, can help governments improve their public services and ultimately build trust in government.

The OECD Trust Survey found mixed results regarding the current levels of satisfaction with public services and levels of trust, specifically on the question of whether people believed that their governments would respond to service delivery issues. On one hand, the majority of respondents were satisfied with their government's delivery of public services. On the other hand, they thought it unlikely that their government would improve a poorly performing service or implement an innovative idea (OECD, 2022[6]). More precisely, as shown in Figure 2.1, just under 4 in 10 respondents perceived it to be likely that a poorly performing service would be improved if many people complained about it (OECD, 2022[6]).

Figure 2.1. Share of respondents reporting different levels of perceived likelihood that a poorly performing public service would be improved if may people complained about it (on a 0-10 scale), 2021.
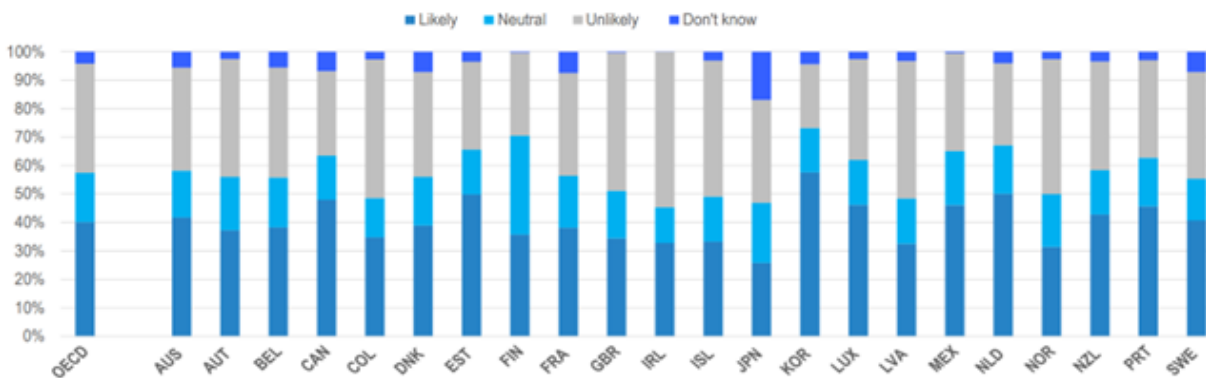
Source: *Building Trust to Reinforce Democracy* (OECD, 2022[6]).

Identifying and removing frictions from public services and processes allow for more equitable access to those services, especially for under-served communities, as the people who rely most on support from government services often experience the most barriers (Bell et al., 2023[8]). The OECD Trust Survey finds that economic vulnerability is associated with a higher perception of unfair treatment by the government. While about half of respondents who are not worried about household finances expect public employees to treat rich and poor people fairly, only about a third of people concerned about household finances agrees (OECD, 2022[6]). Reducing frictions, especially for those who most need services, contributes to a fairer distribution of those services and their benefits. In some circumstances, public services uphold and deliver people's rights to liberty, the right to work, education and more fundamental human rights. Removing sludge can increase access and engagement with services that provide and enable human rights.

The potential for behavioural science to improve trust in public services

Governments can use behavioural science improve trust in public services by removing sludge and making them more reliable and responsive (New South Wales Government, 2024[12]). Sludge audits are an innovative way to identify and quantify sludge in services and processes and measure the impact of service improvements (See Box 2.1). Sludge audits complement existing methods of improving service design and delivery, such as administrative burden reductions and user experience design, while taking a unique behavioural lens to account for psychological costs in the experience of a process.

Governments around the world are increasingly using behavioural science as a lens to better understand how behaviours and social contexts influence policy outcomes. Unlike traditional policymaking, which assumes that humans are rational and utility maximising, behavioural science takes an interdisciplinary approach that encompasses the study of human behaviour and the design of strategies to change it. It draws on research and methods from various fields including cognitive science, economics, psychology, sociology, neuroscience and decision sciences. Behavioural science has expanded the understanding of how psychological, social and cultural factors governing human behaviour affect policy outcomes.

Box 2.1. What is a 'sludge audit'?

A sludge audit is a structured behavioural assessment of a service or process, aiming to identify, prevent and reduce unnecessary frictions and psychological costs which affect effectiveness and accessibility of the service.

Source: *Sludge Audits* (Sunstein, 2022[20]).

Behavioural science stands as a proven tool to help governments understand why people behave the way they do. The field is rooted in empirical research methods, which allows governments to pre-test policy solutions and services for their effectiveness before implementing them at a large scale (OECD, 2019[14]). By integrating behavioural science into policymaking, governments have been able to design and deliver effective and efficient policies to improve the welfare of their people and improve their trust in governments.

The emergence of sludge audits can be seen as the confluence of the long-standing burden reduction impetus along with the mainstreaming of behavioural science in governments and an increasing focus on the user or client experience of public services. Sludge audits are related to, built upon, and extend existing methodologies that have been deployed to simplify and improve government services and processes. The OECD has been at the forefront of traditional administrative burden reduction efforts (OECD, 2006[4]; OECD, 2013[21]; OECD, 2019[22]; OECD, 2020[23]). Examples of long-standing burden reduction tools include the practice of regulatory impact analysis, which calculates administrative burden as a subset of the total cost of compliance, including models like the standard cost model (OECD, 2014[21]; European Commission, 2017[2]; Halling and Baekgaard, 2024[10]). The standard cost model aims to identify and measure administrative burdens involved in complying with regulations as a function of time and monetary costs that regulated entities must expend to ensure compliance (European Commission, 2004[22]).

Sludge audits extend the focus of administrative burden assessments and the standard cost model in several important ways. While the classic administrative burden approach tends to focus on the overall time and monetary costs that are required for compliance, sludge is also concerned with the psychological experience that results from the unjustified frictions in a government process. The methods reflect these differences, as sludge audits seek to identify the micro-level and hidden behaviours required to complete a process (e.g., waiting time) and analyse psychological experience and costs that include, but go beyond, time and money to encompass more qualitative experiences (e.g., stigma, confusion, lack of respect).

To provide an illustrative example, some jurisdictions require the annual confirmation of disability status to ensure eligibility for social welfare benefits. In the case of a person in a permanent state of disability (e.g., a person with an amputated limb), an annual confirmation may constitute a very small administrative burden in terms of monetary cost and time. However, the experience of confirming a permanent disability on annual basis would constitute an excessive friction in accessing social welfare benefits that may deepen feelings of stigma towards persons with disabilities. This example illustrates how a sludge audit would identify an issue where the standard cost model may not.

Governments have also used 'Six Sigma,' a process improvement methodology which seeks to minimise variation to reduce opportunities for service delivery errors that may lead to poor customer satisfaction (The Council for Six Sigma Certification, 2018[23]). The sludge audit method also builds on impact assessment practices that have continued to flourish in a range of public policy contexts like health, human rights and gender equality, among others (Winkler et al., 2020[24]).Global efforts to reduce paperwork, or "cut red tape," include taking stock of existing regulations and information disclosure requirements, the simplification of procedures, the assessment of economic productivity benefits and the introduction of digital services (Benish et al., 2023[25]; OECD, 2020[26]; Freiberg, Pfeffer and van der Heijden, 2022[27]; OECD, 2006[4]). There is also a growing practice of applying customer experience management to public services, including the regular use of surveys to inform data-driven improvements to government programs and services (McKinsey & Company, 2019[28]; Jovarauskiene and Gaule, 2022[29]).

Increasingly, human-centred design and design thinking have been leveraged to ensure that stakeholder voices are included in the design of public policies and programs (Van der Bijl-Brouwe, 2016[30]). Consumer protection and competition regulators are also deploying behavioural science, such as in response to dark patterns, deceptive user interfaces that manipulate consumers into making decisions that may not be in their best interests (Sugg and Lesic, 2022[31]; Government of Canada, 2023[32]; OECD, 2022[33]).

Benefits of sludge audits

Sludge audits complement and extend these existing concepts by leveraging behavioural science to focus on the behaviour, interaction and experience of people as they go through a particular process, rather than putting the emphasis on the steps of the process itself (Shahab and Lades, 2021[15]). For instance, while a standard process map may begin with the first step of an application process, the sludge audit method would begin with a person searching for information about which program to access. The sludge methodology's emphasis on actual experiences also reveals that the same sludge can lead to different costs for different people (Shahab and Lades, 2021[15]). For example, 'cognitive scarcity' is a behavioural science concept that illustrates that those living in poverty tend to use their cognitive capacity to think about money and their livelihoods, leaving less capacity for other tasks (Shah et al., 2018[34]; Sunstein, 2022[11]). Therefore, sludge may have a disproportionate impact on those experiencing cognitive scarcity.

Cass Sunstein, a key thought leader in behavioural science, advocates for the use of sludge audits to "protect consumers, investors, employees and others to catalog the costs of sludge and decide when and how to reduce it" (Sunstein, 2022[20]). Sludge audits can help determine which frictions in government processes are justified and may contribute to the well-being of people and government administrations (Soman, 2020[35]; Mills, 2023[13]). For instance, many public administrations introduce written reporting and conflict management procedures to employee dismissal processes to ensure that dismissals are justified and not based on the personal biases of a particular manager.

In line with these considerations, the method for conducting sludge audits and the good practice principles included in this paper can help governments and government organisations to better assess their services and processes to ensure they are they provide to the public and understand whether the way in which those services are delivered is a source of unjustified sludge.

3 A model for sludge audits: the case of NSW

The New South Wales (NSW) Government has developed a robust and sophisticated method for conducting sludge audits, as well as a range of practical supports and guides to assist teams conducting these audits. These resources have been tested locally in NSW and in other jurisdictions. The NSW Behavioural Insights Unit (See Box 3.1) originally developed their sludge audit method to give NSW Government public servants a tool to improve government service delivery. The NSW Government drew insights from existing burden measurement frameworks, user experience design principles, transaction cost economics and accessibility guidelines to develop a method based on behavioural science and the NSW Government service standards.

Box 3.1. What role does the NSW Behavioural Insights Unit play in their government?

The NSW Behavioural Insights Unit (NSW BIU) is a multidisciplinary team that works within the Government of New South Wales, Australia's most populous state. Established in 2012, the NSW Behavioural Insights Unit supports the breadth of NSW Government departments and has a mission to build and apply evidence and expertise from behavioural science to help NSW Government agencies deliver better services that support the needs and aspirations of the people of NSW.

Source: *The NSW Government Sludge Audit Method* (NSW Behavioural Insights Unit, 2024[36])

The NSW Sludge Audit Method

The NSW Sludge Audit Method provides a standardised process for identifying, quantifying and prioritising burden using the metrics of time cost, effort and inclusion. This allows policy makers and service and process owners to identify sludge in a systematic, comparable and consistent way. The NSW Sludge Audit Method extends traditional burden measurement approaches by incorporating a diverse set of metrics that go beyond simply the time that someone spends accessing a service or a process. In addition to metrics of time cost, factors such as effort and inclusion provide a more holistic picture of people's experience with a focus on psychological costs.

While the process is called an 'audit', in NSW it is typically conducted by or alongside the service owner. The aim is oriented towards generating actionable insights and improvement, rather than compliance or correction. Typically, the process starts with service owners self-identifying a need for improvement, often based on the public's feedback, such as from the results of the NSW Government Customer Experience Survey, staff feedback, policy direction or service reform imperatives (NSW Government, 2023[37]).

Before beginning, auditors identify and scope a defined service or process they would like to audit. Sludge audits can be used for a range of different interactions between people or organisations and government, as well as different service types and regulatory practices across diverse areas of government action. Audits can vary based on their 'service user' (e.g. government staff, businesses, citizens or other members of the public) and the type of the interactions they audit (e.g. manual and face-to-face processes, digital processes). The critical factor is that an audit looks at the nature and impact of sludge on a person or entity who is interacting with government.

In scoping an audit, the end goal or needs of the people accessing the service are placed at the centre of considerations. This is an important step to determine where sludge reduction efforts should be focused and ensures the sludge audit is fulfilling the intended purpose, which is identifying, preventing and reducing unnecessary frictions and psychological costs which affect the effectiveness and accessibility of the service. This consideration also orients the review of results, including an analysis of whether a given friction is excessive or unjustified, or whether it supports people's wellbeing (e.g., timely reminders or eligibility checks).

Following this scoping and assessment, auditors complete the 7 steps of the sludge audit method, described below and summarised in Figure 3.1. The results of the audit then inform the development and implementation of sludge reduction interventions. An example of a sludge audit conducted in NSW can be found in Box 3.2. Auditors are encouraged to complete *ex-post* audits to evaluate the impact of implemented interventions and ensure they are working as intended.

Figure 3.1. The New South Wales sludge audit method.

1 Behavioural journey map	2 Collect inputs	3 Estimate time and cost	4 Score effort	5 Access and equity checks	6 Analyse results	7 Design solutions
Identify and break down all steps, including 'invisible behaviours'	Gather data inputs to feed into the audit and make journey map adjustments	Estimate how long each step takes, and calculate cost as a value of time	Assess and score effort using the criteria and rubrics set out 'sludge scales'	Using guided prompts, flag points in the process that hinder inclusivity	Synthesise findings from the audit to identify and prioritise improvement opportunities	Design solutions to remove sludge and improve the customer experience

Follow-up audit to measure impact

Source: *The NSW Government Sludge Audit Method* (NSW Behavioural Insights Unit, 2024[16]).

To accompany this method, NSW has also designed and developed an audit tool to support the completion of sludge audits. The 'Sludge Finder' tool is an automated application that guides auditors through the sludge audit process, allowing them to record and store inputs, calculate burden and display outputs. Currently, the Sludge Finder tool is uniquely available to NSW Government staff.

Step 1. Behavioural journey map

The behavioural journey map is the foundation of the sludge audit and defines the audit scope. Here, auditors record each of the 'microbehaviours' people complete from the beginning to the end of their journey (see Annex A. 1. Resources for Behavioural Journey Mapping for examples). Importantly, this also includes waiting periods and behaviours in which the person is not interacting with government directly, such as when one needs to gather supporting documents for an application. This granularity allows auditors to understand people's experience beyond what they would traditionally observe as service owners or frontline staff. This leads to solutions that can address frictions that may not be apparent without the analysis of microbehaviours.

Step 2. Collect data inputs

Next, auditors gather data about how people are moving through the process. Accurate and up-to-date data that reflects the experiences of diverse groups of people when accessing the service is a key component of the audit. The NSW method recommends first reviewing existing data (e.g. process maps, transaction data, existing feedback, public information etc.) and then gathering new information (e.g. interviews with the public, surveys, observations etc.) to fill in any gaps in knowledge.

It is recommended that the data be collected for every behaviour in the behavioural journey map such that the following questions could be answered (NSW Behavioural Insights Unit, 2024[16]):

1. How many customers complete the behaviour?

2. How much time does it take customers do complete the behaviour?

3. How do customer experience the behaviour? What do customers find easy, difficult, stressful, confusing, or not inclusive and why?

4. What do customer do when they get stuck or confused?

Resources for data collection can be found in Annex A. 2. Resources for Data Collection.

Step 3. Estimate time and cost of time

The 'time cost' assessment aims to understand how people move through a process and identify parts of the process that might take longer than anticipated. In this step, auditors use data collected from people accessing the process or service to estimate how long each of the behaviours in the behavioural journey map takes. This can either be a range, if there is a large variation between people, or one single estimate, if the time taken is relatively consistent.

An estimate of the time cost to people accessing the process or service and the time cost to government is then calculated by taking an estimate of time taken for each behaviour and multiplying it by proxy for the value of each actor's time (Annex A. 3. Resources for Estimating Time and Cost). The proxy for the value of time is a choice to be made by the auditor, but common practice is to use the estimated average annual wage of the people accessing a service, as well as the wage of the government actors. Although abstract, the time cost to people accessing the service can be used to project potential savings for improvements and provide support for business cases. If using cost to government, auditors may want to project potential savings to government with reduction in staff activities that do not support the public's goals, such as avoidable complaints caused by poor information.

This step also involves estimating the proportion of people who complete each of the behaviours in the behavioural journey map. This is helpful because tracking drop-off through the process allows one to identify attrition, which could indicate sludge in a process. Additionally, observing the number of people

who tend to complete behaviours that are considered 'mistakes' (e.g. lodging an incomplete application) allows one to identify improvements that could be made.

Step 4. Measure effort and experience

Understanding how long a behaviour takes only tells part of the story of people's experience of that behaviour. Reflecting one of the key distinguishing features and benefits of the sludge approach, the NSW method incorporates an audit of the experience and the effort needed to complete a behaviour. Effort and experience are assessed for each behaviour in the journey map using an evidence-based rating criteria: the NSW Government Sludge Scales (New South Wales Government, 2024[38]). The scales provide the auditor with comparable and consistent guidance on the effort and experience for common types of behaviours or interactions in government. They also encourage auditors to apply an equity lens as they conduct the audit, prompting assessments on a range of accessibility considerations. The NSW Government uses a growing set of tailored sludge scales for specific behaviours such as reading emails, completing forms and navigating a website. For every behaviour in the journey map, auditors use the relevant scale to rate it on a 5-point scale – from 'easy' to 'very difficult'. Resources for scoring effort and experience can be found in Annex A. 3. Resources for Scoring the Experience of the Process.

The sludge scales were developed based on NSW Government service standards and behavioural insights and design principles. The NSW Government continues to develop and update these scales based on the latest research on best practice, results from past audits and when there is a need for new behaviours.

Step 5. Assess inclusion

Sludge can have a disproportionate impact on vulnerable and under-served populations (Bell et al., 2023[8]). Sludge audits can be a helpful method to shed light on the way sludge might impact different groups of people in different ways. With this information, policymakers can develop strategies to overcome these inequalities and increase people's trust in government services.

The NSW method encourages the consideration of access, equity and differences in the experience of services for different population groups at every step of the audit process. When conducting audits, the auditors are responsible for applying the equity lens and ensuring that they set up the audit with that in mind. As an example, this may take the form of ensuring that data is collected from a diverse range of people in *Step 2: Collect Data Input.*

To ensure that equity is considered, the NSW method includes a specific additional step on access and equity checks. In this step, auditors consider a series of questions designed to identify frictions or aspects of poor experience that could drive barriers to inclusion. The checks prompt auditors to consider behaviours that could be stressful or anxiety-provoking, do not align with accessibility standards and ask people to repeat information. Once again, auditors consider these for each behaviour in the journey map.

Step 6. Reviewing results

Once all inputs are complete, auditors review the results of the audit to assess opportunities to reduce sludge. The NSW Sludge Finder automatically presents output charts that display the results of all audit components on a behavioural level. Auditors find it useful to prioritise behaviours which have poor scores and to investigate potential causes.

The NSW sludge method guide also recommends looking for 'hidden sludge', which are frictions that may not be a direct requirement for accessing a service or process. This can take the form of behaviours which require the support of others or leave people feeling stressed and anxious (NSW Behavioural Insights Unit, 2024[16]). Decision points, wait times, document preparation and the time people spend searching for information, are all behaviours in which hidden sludge is often found.

Auditors are encouraged to prioritise behaviours with the needs and outcomes of the people who access the service or process in mind. Rather than prioritising behaviours that take the most time or are scored as requiring the most effort, the NSW sludge method guide recommends asking questions about the relative impact of these metrics and considering relevant trade-offs. For example, something that takes time may not be sludge if people expect and understand why the waiting time is important (e.g. reviewing eligibility) or feel comfortable during that time (e.g. are given wait time updates). Some steps that appear to be frictions (e.g. reminders, privacy checks) may not be burdensome if they help people navigate through the process or enable adherence to important regulations and ethics (e.g. steps that employers must take to protect the rights of their employees).

Step 7. Develop solutions

Once sludge is identified, the final step is to reduce or eliminate it. The NSW Government uses behavioural frameworks to develop interventions and suggest making behaviours easier to do, more inclusive, more compelling and easier to follow through to completion.

The NSW Government's experience has been that service owners, particularly senior executives in government, appreciate the value of concise, comparable data on the entire behavioural journey. Reports and presentations about sludge audit results usually combine an overview of the journey people take, data on the time cost, analysis of the experience of people and identification of areas for improvement. Reports will combine quantitative data with qualitative stories or quotes from people who access, or have difficulties accessing, government services and processes. In some cases, projections of time and experience improvements can be made based on past implementation experience. These reports are a valuable decision-making tool for senior executives, who gain a quick understanding of the impact of problems and a data driven business case for change.

Resources for developing and designing solutions can be found in Annex A. 4. Resources for Designing Solutions.

Step 8. Follow-up audit to measure impact

After any improvements have been made, service owners and auditors are encouraged to conduct a follow-up audit on the specific steps affected or across the whole process. A follow-up audit quantifies any differences in experience and helps evaluate the interventions that were implemented into the process. Measuring impact in this way informs any further interventions and builds case studies to promote sludge reduction.

Building a sludge-aware public sector

The sludge audit method has been used in a range of services to improve service delivery and experience. The audit method has also been applied prospectively, where service designers have been building new services. In this scenario, the audit tool has assessed projected or expected service journeys. An important feature of the NSW Government's experience has also been the preparation and development of a Sludge Toolkit to enable services to understand and identify sludge in typical government channels and then take steps to pro-actively prevent that sludge. The NSW Sludge Guides provide practical advice on how to do this, making it easy to both reduce sludge and develop services that are sludge free from inception. The guides cover common channels such as websites, letters and emails, text messages and face to face interactions.

Another essential feature of the NSW success has been the focus on harnessing the commitment and energy of public servants who are overwhelmingly focused on improving services for people. NSW has hosted initiatives like 'Sludge-a-thons' and a 'Sludge Academy' for NSW government teams to learn and apply the sludge audit method to improve a nominated service. The goal of these initiatives has been to increase capability in public servants and to reduce sludge in government services.

Box 3.2. Case Study: Registration of Death in NSW

The NSW Sludge Audit Method has been used to prioritise and inform service improvements for registering and ordering a certificate following a death. Every year, more than 40,000 deaths are registered in NSW. Registration happens at a stressful time. Data from the NSW Customer Insights survey showed that the process scored low on ease, so the NSW Government completed a sludge audit to identify process improvements. The audit revealed key insights on sludge including:

- There was a 3-day delay in 20% of registration cases

- It took 20 minutes to resolve each additional problem that might arise during the process

- Delays and mistakes in documentation contributed to over 7,000 calls and 14,000 emails to support annually

The sludge audit identified improvement opportunities, including simplified instructions to reduce errors, providing status updates to keep people informed and implementing automatic error alerts to proactively resolve problems. These interventions have led to an improvement in ratings of ease (from 69% to 74% of people rating the process as easy) as improvements have been made.

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4 Sludge audits around the world: 10 case studies from the International Sludge Academy

The OECD Network of Behavioural Insights Experts in Government is continuously investigating ways to improve public services and internal government processes with behavioural science. In 2021, the Network recognised the unique value and the potential benefits of the widespread adoption of sludge identification, reduction and prevention methods. This led to the launch of the International Sludge Academy, an initiative to disseminate and pilot the NSW Sludge Audit Method in other countries, with the goal of exploring ways to tailor it and test it in diverse jurisdictions.

Figure 4.1. Participant and observer countries involved in the International Sludge Academy.

22 governments participated in the International Sludge Academy (the Academy) and 16 governmental organisations from 14 countries selected a government service or process to go through a sludge audit mentored by NSW Behavioural Insights Unit and OECD experts. Teams engaged in mutual learning sessions and adapted the audit approach to suit their country contexts with the mentorship of NSW Government and OECD experts. To conduct their respective sludge audits, each of the teams selected a

specific topic in line with existing policy commitments made by their senior leadership to improve service delivery.

Starting in May 2023, government teams worked to improve service delivery and internal processes by identifying the key drivers of sludge and developing recommendations to reduce it. This led to a collective understanding of similarities and differences in the experience of sludge across diverse policy contexts, services and processes and governments. Teams reflected positively on their sludge audit experiences, noting the benefit of having mentorship from the NSW Government and a cohort of international peers to learn from.

Figure 4.2. Timeline of the International Sludge Academy.

The OECD and NSW launched the **International Sludge Academy** at the 5th Meeting of the OECD Network of Behavioural Insights Experts in Government.

22 countries requested to join the International Sludge Academy.

16 teams from 14 countries were selected to conduct sludge audits.

Countries attended a **masterclass on the NSW sludge audit method.**

Teams conducted their sludge audits with 1 on 1 mentorship and coaching.

Teams reviewed results and began to **develop and implement solutions.**

Teams shared learnings and reflected on sludge audit results before implementing and evaluating solutions.

May 2023 | June 2023 | July 2023 | August 2023 | September 2023 | October 2023 | November 2023

Through the International Sludge Academy, governments around the world audited processes across a wide range of policy areas and government departments. These audits included the Treasury Board of Canada Secretariat's audit of an internal student recruitment programme and the French *Direction Interministérielle de la Transformation Publique*'s audit of a financial aid programme for elderly individuals facing autonomy challenges.

Government officials who participated in the International Sludge Academy appreciated the systematic and objective methodology employed in the sludge audit. They highlighted that their sludge audits uncovered surprising frictions that made their processes more complicated and less equitable.

As demonstrated in the following case studies, sludge audits enabled teams across diverse levels of government, geographies, and policy areas to better understand frictions in their processes and services and design behaviourally-informed interventions to address them.

1. AUSTRALIA: Australian Government Department of Climate Change, Energy, the Environment and Water (DCEEW)

"The beauty of a sludge audit is that any public servant can pick up the tool and identify administrative friction that may be impacting internal and external government services or processes".

- *Government official from Australia*

The DCEEW audited their post-hiring process for staff. Following the last Australian federal election, five separate government departments merged to form the DCEEW, calling for the employee onboarding process to be streamlined and unified. The sludge audit uncovered long wait times leading to uncertainty and frustration for managers and staff. In response to the findings, the DCEEW is recommending an induction toolkit and a buddy system to reduce psychological and time costs.

Focus area: Public Sector Employment: Employee post-onboarding in the DCEEW.

Service users: New employees

Problem: Merging several departments into one led to inconsistent staff onboarding processes.

Lesson learned on the methodology:
Sludge audits are useful to identify pain points in a process and prioritise where behavioural science can have the most meaningful impact.

Findings and behavioural analysis:	Recommended solutions:
➜ The journey to onboard staff typically **takes over 20 steps in 3 phases**: pre-onboarding, induction and post-induction. ➜ Wait times of up to 150 hours early in the process cause **uncertainty and frustration for managers and new employees**. ➜ Onboarding information is often decentralised, difficult to find and outdated, **imposing time and psychological costs** on new employees. ➜ Teams are creating their own processes resulting in **inconsistent staff experiences**.	➜ Develop a **centralised onboarding toolkit** with information for both managers and new starters to address. ➜ Launch a **buddy system for DCCEEW staff across Australia** to alleviate the anxiety of starting a new job in an unfamiliar environment.

2. BRAZIL: Ministry of Management and Innovation in Public Services

"Besides being important to identify opportunities to reduce time losses and costs, sludge audits can be a powerful tool to spot inequalities in the access to public services".

- *Government official from Brazil*

CINCO, Brazil's behavioural science unit, partnered with the Secretariat of Digital Government (SGD) to the account recovery process for GOV.BR, a digital platform that allows more than 150 million citizens to access over 4,000 digital public services. GOV.BR supports over 2.6 billion digital transactions each year. Consequently, the service receives 9 million account recovery requests, 3% of which must be recovered manually instead of through facial recognition verification. The sludge audit uncovered equity concerns for citizens with limited technology and digital literacy. CINCO is recommending dynamic accurate information about wait times, allowing rear camera capture and audio instructions to increase accessibility of GOV.BR.

Focus area: Service digitisation. Recovering the GOV.BR account, through which more than 150 million citizens access more than 4,000 Brazilian public services.

Service users: Citizens

Problem: Every month GOV.BR receives 9 million account recovery requests, 3% of which must be completed manually. People often abandon the manual account recovery process, restricting their access to more than 4,000 digital public services.

Lesson learned on the methodology:

Sludge audits are a powerful tool to identify inequities in access to public services and a consistent methodology is important to scale the implementation of sludge verification in a huge service portfolio.

Findings and behavioural analysis:	Recommended solutions:
➔ Citizens receive greatly overestimated wait times from the manual recovery process, stating that they would have to wait up to 48 hours, when wait times could be as short as 30 minutes. This led **to uncertainty, frustration and dropout** from the process. ➔ Citizens involved in the manual account recovery process are often among the **most vulnerable populations** (e.g those living in rural areas with limited access to technology, elderly people with limited digital literacy)	➔ Provide **dynamic, accurate information** about wait times to prevent people from disengaging with the process. ➔ Allow rear camera capture instead of restricting to frontal camera, so those in need may be assisted in having their picture taken in the automatic facial recognition process. ➔ Add audio instructions to **increase the accessibility** of the recovery process.

3. CANADA: Impact and Innovation Unit (IIU), Privy Council Office

When requesting funding from certain granting agencies in Canada, researchers must complete a form detailing their employment history, publications and academic expertise. The current version of the form is called the Canadian Common CV and is completed about 145,000 times per year. If each submission takes even one hour to complete, this would total over 70 full-time work years per calendar year. As part of the implementation of the Tri-agency Grants Management Solution, three granting agencies (the Canadian Institutes of Health Research, Social Sciences and Humanities Research Council and Natural Sciences and Engineering Research Council) have created a more streamlined version of the form. The Impact and Innovation Unit (IIU) then conducted a sludge audit of this new form to identify common errors and sources of confusion before its rollout. The audit found potential issues for non-academic collaborators and researchers who have less administrative support. The IIU recommended simplifying the instructions, providing completed sample forms and exempting non-academic collaborators.

Focus area: Service digitilisation; Completing forms when applying for government research funding.

Service users: Researchers (including academics, students and their collaborators)

Problem: The Canadian Common CV is submitted 145,000 times per year and is burdensome to complete. The replacement for this form had not been formally tested.

Lesson learned on the methodology:

Watching even a few end users complete the form can reveal a range of potential problems, which can help identify high-impact areas for improvement with relatively little effort.

Findings and behavioural analysis:	Recommended solutions:
➔ Even basic form fields such as "Employment" were **interpreted in different** ways by people, for example, as employer name, job title, work schedule (e.g., "Full-time"), or presence of a job (e.g., "Yes"). ➔ **Unclear instructions** can cause issues around quality. For example, researchers from smaller academic departments may have limited access to administrative support or sample forms, causing more confusion and errors. ➔ Participants regularly **missed instructions that gave more detail after**, rather than before, the associated form fields.	➔ Provide a completed sample form to **clarify the intended responses** without needing lengthy instructions, which may also improve quality of data across applicant forms. ➔ Shorten instructions and highlight key words to make the form **more readable and easier to skim**. ➔ Require the form only from academics, rather than from their non-academic collaborators, to **reduce the burden** on those who benefit less from the research funding.

4. CANADA: Office of the Chief Human Resources Officer (OCHRO), Treasury Board of Canada Secretariat (TBS)

OCHRO's Research and Experimentation Team partnered with the Public Service Commission to audit the Federal Student Work Experience Program (FSWEP) hiring process from the manager perspective. The audit uncovered significant time, effort and psychological costs; the process requires managers to take 49 different steps and spend over 100 hours of active time and an average of 83 days of waiting time. Following the audit, the Public Service Commission partners are looking forward to using behaviourally-informed solutions. TBS is also selecting more projects on which to conduct audits.

Focus area: Public sector employment; Student recruitment across the federal public service.

Service users: Managers

Problem: Managers are choosing alternative pathways for student hiring due to the real and perceived burdens associated with hiring students through FSWEP.

Lesson learned on the methodology:

Journey mapping from multiple perspectives and with non-linear journeys can help service designers fully understand processes.

Findings and behavioural analysis:

➔ **Managers may lack full information** regarding the different programmes available for hiring students and their different use cases, timelines and benefits.

➔ The language in the employment equity section of the form that managers use to request student referrals can **be unclear and lead to referral results that falsely indicate** that no candidates from employment equity groups (women, Indigenous peoples, persons with disabilities, members of visible minorities) exist. This significantly disadvantages applicants from these groups.

➔ The filtering function that allows managers to search for specific skills **does not necessarily align with their needs and goals**, making it more difficult to find qualified candidates

➔ The **current policy definition** of an eligible student for FSWEP **does not align with the reality** of most students. This can lead to students applying to be a part of the recruitment inventory when they are ineligible under existing policy.

➔ Even though the existing form is a simple drop-down menu to report the status of students' candidacy, there is **significant "invisible work"** required to complete this step that could be quite effortful on the part of managers who are already facing time constraints.

Recommended solutions:

➔ **Develop a decision aid** to alleviate confusion and effort and support managers in selecting the appropriate hiring mechanism.

➔ **Introduce timely planning prompts and reminders** with proactive messaging to support managers in preparing for student hiring seasons.

➔ **Update language** in the Employment Equity section of the Referral Request form so managers understand the functionality and can **make an active choice** between selecting candidates who self-identify as members of EE groups managers selected in their form

➔ Introduce a dedicated 'Job Description' section in the referral request form as a mandatory field, where managers are prompted with examples to include an overview of their team and the skills they are looking for from candidates.

➔ Introduce a brief multiple-choice checklist that **confirms program eligibility** based on the current policy criteria at the beginning of the student of application process.

5. FINLAND: Prime Minister's Office

"Taking a closer look at behavioural paths of audited processes provides unique, human-centred and sometimes even unexpected information".

- *Government official from Finland*

The Prime Minister's Office of Finland audited Suomi.fi, a service channel development process used by the City of Turku, the City of Vantaa and the Finnish National Agency for Education.and managed by the Digital and Population Data Services

Agency and a third-party solutions provider. The team took an innovative approach to the audit, simultaneously conducting separate audits for the three organisations. The audit uncovered opportunities to provide better support for organisations by setting clear expectations and centralising information. The Prime Minister's Office is recommending centralised documents, a single contact point and a streamlined manual process.

Focus area: Service digitization; Use of digital "Suomi.fi" services provided by the national digital and population data services agency.

Service users: Organisations

Problem: Organisations encountered challenges finding information and understanding processes regarding the Suomi.fi service channel.

Lesson learned on the methodology:

Sludge audits can be used concurrently with various actors in the same process to identify synergies and streamline processes.

Findings and behavioural analysis:

➔ The process requires organisations to interact with different departments within the Digital and Population Services Agency. This makes it difficult for organisations to understand where they are in the process, **causing confusion**.

➔ Guidance on how to start the process is **not centralised and tailored to different needs**, making it difficult for organisations to understand how to onboard and access the required information. This results in psychological costs to organisations.

➔ Organisations are not made aware of the **expected time to complete a process**.

Recommended solutions:

➔ Provide a single point of contact **to reduce confusion** about where organisations are in the process and who they are interacting with.

➔ Invest in the early stages of the onboarding process, provide frequently asked questions and **centralise documents** with clear links on the website.

➔ **Streamline manual processes** such as emails and forms.

➔ **Share next steps** after an application has been submitted or a process phase has been completed to **increase operational transparency**.

6. FRANCE: Direction Interministérielle de la Transformation Publique (DITP)

"The sludge audit led to an entire re-evaluation of how to harmonise the way we measure complexity and the diagnosis we do on the processes".

- *Government official from France*

The DITP audited a financial aid application process for elderly people with autonomy challenges. The sludge audit uncovered administrative complexity at several sages of the process, including unclear instructions, redundant requests for documents and administrative jargon, resulting in a high dropout rate from the process. Surprisingly, the team found the highest dropout to be in the final steps of the process rather than the beginning as expected. The DITP is recommending an eligibility testing simulator and various improvements to the form to increase operational transparency and reduce psychological costs. The DITP will further sludge reduction activities and is reflecting on hiring full time members to support sludge audits.

Focus area: Social and welfare programs; Financial aid for older people who require assistance to live autonomously in their own homes.

Service users: Elder people experiencing a loss of autonomy

Problem: The application process is complicated and costly for users, resulting in a significant number of financial assistance offers left without responses.

Lesson learned on the methodology:

Sludge audits are a valuable tool to leverage feedback to challenge assumptions on sludge in a process.

Findings and behavioural analysis:	Recommended solutions:
➜ The application process can take over 6 months. Lack of visibility regarding wait times (which occasionally exceed legal deadlines) creates **uncertainty and frustration**. ➜ There is significant **uncertainty regarding eligibility**, resulting in reduced access to the program. ➜ The form **fails to capture the diversity of individual situations**, which often results in files going back and forth between administrations. ➜ 8 of 10 people completing the application are actually **caregivers for the person** who needs the support. ➜ The final stage of the application process is the **most complex**. ➜ The financial aid plan signed with the administration is based on different rates than those practiced by service companies, leading to **disappointment** when the service is implemented.	➜ **Increase operational transparency and reduce psychological stress** by explaining why a given piece of information or identification is required of applicants. ➜ Simplify the letters sent to applicants and **reducing administrative jargon** and highlighting actions to be carried out by the applicant. ➜ Develop an online version of the form and offer telephone support to **increase accessibility**. ➜ Develop a simulator for people to **verify their eligibility** for financial aid before embarking on the application process to **reduce frustration, disappointment and confusion**.

7. NETHERLANDS: Ministry of the Interior and Kingdom Relations (BZK) & Netherlands Enterprise Agency (RVO)

The BZK and RVO partnered to audit homeowners' access to a sustainable energy and insulation investment subsidy scheme. The scheme supports homeowners to retrofit their existing homes with insulation, heat pumps and other sustainable measures. Homeowners are eager to take advantage of the subsidy; it received over 250,000 applications in 2023. That said, the sludge audit uncovered frictions in the information gathering and application process that proved to be a barrier for some applicants.

Focus area: Energy and Environment; Sustainable retrofitting subsidy.

Service users: Homeowners

Problem: Some homeowners find the application process to be complicated and confusing.

Lesson learned on the methodology:

Taking the time to get key people and departments on board early on is important to a successful audit.

Sludge audits are a valuable tool to leverage feedback to challenge assumptions on sludge in a process.

Findings and behavioural analysis:	Recommended solutions:
➜ **The application process varies in difficulty** based on the type of sustainable measure being retrofitted, with some requiring more manual, time-intensive steps. ➜ Many applications are incomplete and require people to gather additional information and resubmit their application. ➜ Some applicants experience lengthy wait times before receiving the results of their application. **The average wait time is approximately 54 days**.	➜ Improve clarity of information about the subsidy provided on the informational website ➜ RVO and BZK plan to implement more sludge-audit-like analyses in the future

8. NEW ZEALAND: Department of Corrections

"No process is the same. Some are more difficult than others. However, that is not a reason to shy away from sludge audits. It is often these difficult processes that require sludge auditing the most".

- *Government official from New Zealand*

Behavioural Science Aotearoa in the Department of Corrections audited the Case Management Memorandums (CMMs) process in New Zealand courts. The CMM is a form that outlines the issues in a case to help it progress and must be completed by the defence lawyer and the prosecutor jointly when a defendant pleads not guilty. The sludge audit uncovered that while the CMM document is frustrating to complete, sludge lay in the behaviours that led up to the completion of this document. The findings will contribute to a broader recommendation from Behavioural Science Aotearoa and the Department of Corrections on the CMM.

Focus area: Justice; Filing a Case Management Memorandum where a defendant pleads not guilty.

Service users: Public defence lawyers.

Problem: The CMM process lacks efficiency.

Lesson learned on the methodology:
Sludge audit findings challenge assumptions about where sludge is in a given process or service.

Findings and behavioural analysis:
➔ The team set out to audit the CMM document, however, discovered that **there is sludge throughout** the whole Case Management process.
➔ **Many hours are spent idle** and waiting for third party actions. Case management progression is often contingent on third parties.
➔ Public defence lawyers report **poor experiences** at many points of contact with government including long wait times and a **lack of wait time estimates** due to contingence on other agencies' actions and a slow computer system.

Recommended solutions:
Findings from the sludge audit are informing a broader set of recommendations from Behavioural Science Aotearoa and the Department of Corrections on the Case Management Process.

9. TÜRKİYE: Türkiye Ministry of Trade

The Ministry of Trade of Türkiye completed a sludge audit on the Easy Export Platform to help corporations, particularly small- and medium-sized enterprises, open up to international markets. Legislative procedures and small frictions make the corporate login difficult and time consuming, discouraging corporations from using the platform. The Ministry of Trade is recommending improvements to navigating the login to address sludge in the process.

Focus area: Economy. Access to the Easy Export Platform, which supports exporters' market entry strategies.

Service users: Small and medium-sized enterprises that export.

Problem: Navigating the Easy Export Platform is confusing due to legislative procedures and a lack of clarity on how to use the data and tools available.

Lesson learned on the methodology:
It is helpful to use a tool to collect, organise and analyse data.

Findings and behavioural analysis:
➔ It is **difficult to find relevant information** about how to use and login to the platform. While there is a user guide, it is a challenge to locate within the 116 pages of the platform.
➔ Users are required to review an **overwhelming amount of information** to make the appropriate decisions during the login process. This causes frustration and makes it difficult for users to decide whether to use an individual or corporate login.

Recommended solutions:
➔ Make the difference between individual and corporate login more salient to users **to reduce confusion, frustration and errors** when deciding which option to use.

➔ **It can take 2.25 hours to login** because of complex and lengthy instructions. This deters users from continuing with the process, especially as there is no communication about the benefits of continuing.

➔ The platform asks questions about user preferences to make the process easier but the options are **difficult to understand** resulting in confusion.

➔ The platform tends to direct firms through a single path, which means **they miss other parts of the platform**, which could be helpful for them.

➔ Make it easier to navigate through the process by **making certain progress buttons** more salient.

➔ **Simplify information** about how to use the corporate login and questions relating to user preferences for the AI functionality.

➔ Provide a **demonstration of the benefits** of the corporate login to motivate users to login.

10. UNITED KINGDOM: His Majesty Revenue and Customs (HMRC)

The Behavioural Insights & Trials team in the UK HMRC authority audited the online registration process self-employed taxpayers must use to file a self-assessment tax return for the first time. Registering allows taxpayers to receive the Unique Taxpayer Reference (UTR) required to file their taxes. The sludge audit uncovered that the self-assessment registration was straightforward as indicated by high customer experience metrics throughout the behavioural journey. Given their commitment to building customer-centric digital services, expressed in the HMRC's Customer Charter, HMRC is recommending to continue using simple and consistent language and communicating next steps to taxpayers. The team is working to disseminate their findings with relevant stakeholders and to apply sludge audits across the organization.

Focus area: Tax. Online self-assessments registration process for self-employed first-time taxpayers.

Service users: First-time taxpayers.

Problem: The HMRC sought to understand the experience of first-time filers registering for self-assessment.

Lesson learned on the methodology:

Sludge audits are useful to conduct in tax authorities. They can help quantify costs, time and effort required for key customer behaviours as well as mapping behavioural solutions and interventions more holistically across journeys.

Findings and behavioural analysis:

➔ Completing the SA registration form is estimated to **only take about 8 minutes**, excluding cases in a taxpayer may require further assistance*.

➔ Registering online via HMRC's Business Tax Account **significantly reduces waiting times** to receive a UTR. This is a big improvement since receiving UTR via post can take up to 15 days.

➔ **Customer experience metrics were positive** across the sludge scales.

* There are various channels through which taxpayers can register for self-assessment. This ensures that we account for the different circumstances that taxpayers may have. This audit focused on the online registration journey.

Recommended solutions:

➔ Add a reference to UTR timelines on the acknowledgement page that taxpayers receive to **emphasise next steps**.

➔ **Continue to use consistent language** in the acknowledgement form to reassure first-time filers when they can expect to receive their UTR.

5 Good practice principles to assess and prevent sludge

Sludge audits stand to considerably improve the way people around the world engage with public services and government processes through requiring less effort, generating greater satisfaction, making services more inclusive and ultimately engendering greater levels of trust. The International Sludge Academy marked the first time the NSW Government's Sludge Audit Method was piloted outside of NSW across multiple jurisdictions. The sludge audit method proved successful in supporting service improvement in variety of contexts around the world.

Throughout the Academy, teams learned to use sludge audit methods for their given geographies and policy contexts. Some teams adapted the NSW method for their needs, while others learned lessons on how to best use the method as is. The feedback and experiences of these teams has been consolidated into nine good practice principles to assess and prevent Sludge. These principles promote the delivery of government services and processes that are trusted by the people and organizations they serve to be responsive to their needs and efficient in their delivery.

1. Consider whether a sludge audit is appropriate

Country teams audited a wide variety of government processes and public services. In the process of selecting which process or service to audit, some teams developed decision criteria to help them consider whether and when to conduct a sludge audit. In particular, a consideration of project goals and the constraints that may pose a risk to those goals was important to the ultimate decision of which service or process to audit. Teams retrospectively shared criteria they considered before embarking on a sludge audit, as well as decision tools they designed for their individual contexts. For instance, the Treasury Board of Canada Secretariat created a table with information including the goal of people accessing the service, available data, scope and a description of the opportunity. The team then colour-coded each criterion to indicate the extent to which each of those factors might present a challenge. Similarly, the Australian Department of Climate Change, Energy, the Environment and Water found it helpful to distinguish between aspects of the process or service controllable by the team as opposed to aspects that might require more systemic changes.

Another important consideration in deciding to do a sludge audit is the extent to which the recommendations of the audit could be put into practice. In some cases, requirements for program access are enshrined in legislation, which makes change a political process that may need a long time-horizon. In other cases, changes to back-end data and information technology systems may require the significant investment of time and funds. The sludge audit conducted by the Canadian Privy Council Office team was unique among the case studies in its use of an *ex-ante* sludge audit while a process was being developed as a way of pre-empting service delivery issues.

Below is a set of guiding questions that consider a team's resource constraints, alongside their goals and institutional contexts to help teams identify when and whether to conduct a sludge audit:

Table 5.1. Questions to consider when assessing potential sludge audits

Are the goals of the project amenable to a sludge audit?
Is there a clear outcome that people are trying to accomplish when interacting with the government service?
Is there sufficient evidence to suggest that excessive frictions are causing negative outcomes for the people that the service is supposed to help?
Are there clearly defined ways in which reducing sludge would result in an improved experience for people?
Is the scope of the audit clearly defined such that a behavioural map would be able to capture the experience in comprehensive way?
Are the available resources amenable to the conduct of a sludge audit?
Would the team conducting a sludge audit have access to the people served by the service in order to conduct the necessary research activities (e.g., interviews, surveys)?
Does the team conducting a sludge audit have the required skills and expertise to conduct the research and analysis required for a sludge audit?
Is there sufficient time to conduct a rigorous sludge audit given the complexity of the process?
Does the data necessary to conduct a sludge audit exist and if so, is the project team in a position to gain access to that data?
Does the institutional context support the successful conduct of a sludge audit?
Is there sufficient buy-in from implementation partners to enable the sharing of information required to conduct a sludge audit?
Is the focus of the sludge audit aligned with policy commitments made by senior leaders in the relevant government organisation?
Is there a capacity and willingness to implement the changes in service delivery that are likely to be recommended as a result of the sludge audit?
Is the service delivery context likely to change during the sludge audit, potentially as a result of ongoing improvement efforts, such that the findings of the audit would be out-of-date by the time they are ready?

2. Use a step-by-step methodology to systematically identify and quantify sludge

Country teams expressed that having a pre-defined methodology that had been tested in different contexts was beneficial, especially as they were conducting their first sludge audits. The use of an established methodology, like the NSW Sludge Audit Method presented in this document, offers several advantages over creating a new methodology for each audit:

- **Rigour:** An established methodology has been refined over time through multiple rounds of testing and validation. By following the steps of an established methodology, research teams ensure that they are approaching the audit from a variety of perspectives that may not be clear when studying one process in isolation.

- **Replicability and Comparability:** Using a methodology that is applied in multiple situations allows for comparisons across time and contexts. As an example, two teams using a single methodology in different parts of the world could compare results in a way that they would be unable to if their methodologies were different.

- **Access to Experience:** Most Academy teams shared that mentorship from NSW Government staff members with experience with their sludge methodology was a key driver of the success of their sludge audits. Without a common methodology, this experience would be much less valuable and teams would be unable to build on the knowledge of others. Maximising knowledge translation opportunities can also take the form of pre-registering the methodological approach and publicly reporting on the results of, sludge audits. More reports like this policy paper can contribute to cross-jurisdictional sharing of lessons learned. This is particularly helpful for a relatively novel practice like sludge and can help replicate the successful scaling of other behavioural science methods, such as 'nudge' experiments.

The NSW Sludge Audit Method does not create a single 'sludge score' that reflects or aggregates all the factors that contribute to sludge because the intention is to encourage service owners to assess possible trade-offs and priorities that the time cost, experience and inclusion metrics identify. Similarly, auditors in the Academy focused on different aspects of sludge in their findings and reflections. As an example, the UK's HM Revenue and Customs and Brazil's CINCO identified the lack of operational transparency and clear timelines as a key source of sludge, as quantified using the user experience and effort scales, while others placed a greater emphasis on other aspects of sludge, such as equitable access and time-consuming microbehaviours.

Teams also found it helpful to go through all the steps of the sludge audit method, even if, at first glance, some of the steps did not seem totally relevant. As an example, the French *Direction Interministérielle de la Transformation Publique* had initially assumed that most of the sludge in their process would be at the beginning of the process, but through the application of the methodology as a whole, were able to identify that the most pressing issues were actually at the end of the service delivery process.

3. Tailor the sludge audit methodology to available capacity

The teams that participated in the Academy were able to leverage a diverse range of skills and experiences to conduct their sludge audits. The Academy was comprised of teams from different types of government organisations who operate with different mandates; some were specialised in behavioural science, such as British Columbia's Behavioural Insights Group, while others were housed in line departments and had broader scopes of work, such as the team from Luxembourg's Ministry of Digitalisation. The Academy illustrated the importance of strong research skills in conducting sludge audits, especially in support of journey mapping, estimating time costs, scoring experience and conducting access and equity checks. Many teams chose to conduct surveys, interviews, cognitive walkthroughs, administrative data analysis and other activities that necessitate both qualitative and quantitative research skills.

Behavioural science and customer experience expertise was found to be helpful, but not necessary in conducting sludge audits. Behavioural science expertise is helpful in quantifying the experience of sludge, a main differentiator between sludge audits and other process improvement methodologies. Additionally, many teams deployed their behavioural science expertise in the design of their solutions, often proposing interventions like decision aids which help decrease the cognitive load of accessing government services. Nevertheless, the clarity of the methodology and the substantial support of mentors throughout the Academy allow for sludge audits to be conducted without behavioural science expertise.

As mentioned above, teams in the Academy reported that having access to mentors with deep experience with sludge audits was highly beneficial. The mentors helped teams tailor the methodology to the specific circumstances of their project and policy contexts. Therefore, it is important that those looking to apply a sludge methodology feel comfortable adapting the tools in Annex A to their needs based on the resources and skillsets available to them.

In addition to expertise, teams in the Academy were also able to tailor the methodology to the research resources available to them. As an example, teams that were unable to access web analytics data to see how long people spend on a particular section of an online form were able to substitute that information by asking people to complete the task and time how long it took them. While larger sample sizes are likely to provide more accurate estimates regarding key inputs into the sludge audit like time costs and drop-off rates, teams found the methodology flexible enough to accommodate for limited sample sizes or proxy measures.

4. Use a tool to methodically collect, organise and analyse data from the sludge audit

Regardless of the methodology or available expertise, a tool can be helpful to organise a sludge audit, guide auditors through the audit and display results to help prioritise frictions and compare results. Participants in the Academy found a shared online tool helped stage their audit, facilitating both internal collaboration and external communication with partners. In addition to an online tool, teams used various artefacts such as virtual whiteboards, decision matrices and spreadsheets to assist in data collection and tracking audit progress (See Annex for examples).

The NSW Sludge Finder has been used in NSW and by teams in the Academy to complete audits and guide solutions. Behavioural Science Aotearoa in the Department of Corrections, New Zealand, found that the use of the methodology and NSW Sludge Finder tool helped systematically show that de-sludging efforts should be put on the entire case management process as opposed to one step in particular. Based on this model, a set of potential features within a tool are presented below that could support a sludge audit.

Table 5.2. Recommended features of a sludge audit tool

Features	Description
Guidance through a method	Instructions to guide people through each step of the audit process. This supports the audit's rigour and replicability, ensuring fidelity with the methodology and allowing comparison with other audits. Guidance could take many forms, including timely prompts at each stage, instructional videos or informational help panes.
Management of data	Ability to structure and manage inputs, including a journey map, administrative data, qualitative feedback or other metrics of interest. Data could be granular (stored at each step of the journey) or broad (summarising the process as a whole). People should be able to easily add, update and refer to data throughout the audit.
Calculation of burden metrics	Capability to calculate burden on people is core to any tool. Depending on the method, metrics to assess burden could include time cost, effort, experience and equity. A tool could provide tailored criteria, checklists or text fields for input to help quantify burden.
Summary of results	An overview of findings would help summarise the results of an audit. This overview could involve a dashboard, a visual representation of steps or key metrics. A summary would assist people to analyse, identify and prioritise steps to focus on.
Suggestions for interventions	Leveraging behavioural insights and people-centric design principles, a tool could suggest potential improvements for identified frictions. Suggestions could be tailored to the data inputs, providing channel-specific (e.g. online website or paper letter) or metric-specific (e.g. time or effort) ideas to improve the process.
Measurement of impact	Capturing the baseline data for a sludge audit could help evaluate impact. Whether comparing specific steps or entire audits at different timepoints, a tool could track progress and measure impact of any interventions.

5. Accommodate for behavioural journeys that are non-linear and diverse

Many government services are non-linear in nature, meaning that people may progress in multiple ways or undertake multiple stages of the process simultaneously. Services, particularly social services, can also be relational, rather than transactional and be built upon multiple significant interaction points. For example, a person applying for a licence could opt to complete a form online, fill in a printed version or attend a service centre. While completing the process, they could call for support, unintentionally submit an incomplete form, begin a different application, or experience any number of divergences. Moreover,

just as people may experience different journeys through a process, the same journey might elicit different experiences. Reading a simple email that is effortless for one person may prove an inaccessible or effortful message for another. As such, sludge audits should be flexible and vary in complexity depending on the process – some journey maps may need to capture multiple branches or loops.

Country teams faced this challenge and were able to find different and creative solutions to non-linear journeys. Some teams mapped behaviours outside of the NSW sludge audit tool, using applications like Miro, to fluidly arrange steps to develop their journey maps. Others mapped out non-linear journeys by including repeated steps and using the journey map to reflect the general flow of a process, rather than a strictly linear string of steps.

Similarly, teams found ways to integrate multiple perspectives in the journey map. For example, the Finnish Prime Minister's Office conducted multiple sludge audits, completing separate audits for each organisation that administered the digital service platform. Some others conducted multiple audits to reflect different groups of people (e.g., individuals vs. organisations). Others again represented variations in journeys by indicating the proportion of people who complete each step (e.g., the proportion of people who access support where others don't).

6. Deploy an equity lens throughout the sludge audit process

The disproportionate impact of sludge on underserved communities enables sludge audits to be a valuable tool for discovering and acting on frictions, thereby creating more equitable services. Ideally, an equity lens is used throughout the sludge audit, from identifying the process to audit, gathering of data, design of interventions as well as in the development of a sludge program. Some teams may use policy or service standards to guide the measurement and review of equal access.

The scope of the equity lens may be determined by the specific service and the people who use or might benefit from using the service (e.g., where a service is not being accessed by a particular underserved community in the numbers that would be expected, auditors may want to apply the lens of this community as they complete the audit). For instance, the Turkish Ministry of Trade's audit highlights the need to make information more accessible outside of long online documents that are difficult for assistive screen readers to use. Similarly, the France Direction Intérministerielle de la Transformation Publique identified that increasing operational transparency by explaining the need for a given piece of information can reduce psychological stress especially for vulnerable populations.

Teams can use 'equity checklists' as they complete the audit. For instance, the NSW Sludge Audit Method uses 'Access and Equity Checks' to detect barriers to access across some considerations. Such checklists could be completed at each step or applied broadly across a process to identify potential barriers (NSW Behavioural Insights Unit, 2024[16]).

A holistic equity lens could involve mapping a journey which considers people in underserved communities, gathering data about the experience and outcomes of these communities and assessing the accessibility using service and accessibility standards.

7. Leverage feedback to challenge assumptions on sludge

Listening to feedback from people engaging with services and processes is essential to an effective and well-informed sludge audit. Auditors need to gain an understanding of the holistic experience of a service, in terms of the major interactions, tasks and pain-points that people experience. This includes capturing the voice of a diversity of people.

Teams can use feedback in various ways throughout the sludge audit process. For instance, some Academy teams used feedback at the beginning of the project to inform the process or service they chose to audit. Feedback can also be integrated during the sludge audit itself, to challenge assumptions on where sludge might be within a process. For example, France's *Direction Interministérielle de la Transformation Publique* expected sludge to be present in the beginning steps of a financial aid application, but feedback from applicants through the sludge audit revealed sludge concentrated in the final steps of the application process. Feedback can also be leveraged to help develop and test recommendations, including by engaging with people who use a service or process and seeking their thoughts on whether a proposed solution would have a positive effect on their experience.

Teams can proactively integrate feedback in their sludge audits by engaging with the public throughout the process in the form of interviews, onsite visits and surveys. Some teams used traditional research approaches such as informational interviews and site visits to better understand the people the services target. Other teams used novel approaches to seek feedback, including cognitive walkthroughs, telephone reporting data and back-end web analytics, to understand the involvement of people in their chosen processes.

Overall, feedback is a helpful input for audits and can help show the steps people take as they move through a service, how long they take, where they experience difficulty and how each individual's experience differs. Frontline staff can also provide insights, as they have a deep understanding of their experiences and pain points from their experience supporting a wide range of people. If there are gaps in data for the sludge audit, teams could collect new data through methods such as interviews, focus groups and surveys. Beyond data collection, actively collaborating with the public and frontline staff during a sludge audit may inspire novel interventions to address frictions. This co-design approach also contributes to more inclusive and trustworthy services.

8. Act to reduce sludge and evaluate progress

Although the recognition and quantification of frictions in a process is useful, the value of a sludge audit lies in its ability to drive tangible benefits for people. The results of an audit should help inform the opportunities for improvement by prioritising steps which are both most impactful and amenable to change. Solutions to address frictions should factor the conditions for success, including the potential positive impacts, equity impacts and the institutional context. Some solutions will be easier to implement than others, so a balance should be struck between ease of implementation and potential impact. Tools such as prioritisation matrices may be a useful exercise at this stage (See Annex for examples).

Solutions could involve removing steps, improving steps, or interventions that can be added to make service access easier. Auditors could apply frameworks such as OECD's ABCD or the Behavioural Insights Team's EAST to ideate ways to remove or minimise identified frictions. The NSW Government has developed a sludge guide, which auditors can use to reduce sludge in common government channels, or to design sludge free services using behavioural insights principles (New South Wales Government, 2024[12]; OECD, 2019[14]; Service et al., 2015[39]). As with the sludge audit approach generally, changes to a process should be ethical, legally compliant and improve the experience for all those who interact with it. The OECD's BASIC toolkit and *Good practice principles for ethical behavioural science in public* policy provide guidelines for the ethical application of behavioural insights and can be used to guide the design and implementation of sludge reduction solutions (OECD, 2022[40]; OECD, 2019[14]).

Implementation of any interventions would benefit from evaluation of impact and monitoring to check for any undesirable outcomes. Just as data is collected to identify frictions, data should be collected to ensure changes adequately address these frictions. Evaluation should align with the type and resource availability, with teams conducting randomised controlled trials, A/B tests or before-and-after comparisons. When rigorous evaluation is not feasible, interventions should be tested with the public or follow-up audits

conducted to validate improvements and minimise risk of any unintended negative impacts. As seen in the NSW context, consistent evaluation contributes to data-driven case studies which can encourage collaboration for future audits. The Canadian Privy Council Office team, for instance, used the sludge audit to evaluate the effectiveness of an upcoming user experience improvement made to a grant application process for Canadian researchers.

9. Build system-wide enablers to develop a sludge prevention program

While the ad-hoc use of individual or opportunistic sludge audits will provide specific services with data and insights to improve service delivery, the systematic adoption of sludge auditing would help address the pervasive nature of sludge in most governments. Experience with sludge audits to date point to four system-wide enablers that can create an environment more conducive to implementing effective sludge reduction programs within governments. These four key enablers are:

Establishing clear and meaningful commitments to user-centred government services: Whole of government strategies and policy commitments that publicly authorise and promote user centric public service delivery can set the environmental conditions for an effective sludge reduction program. While sludge audits share common goals and some methodological features with administrative burden reduction and customer experience improvement efforts, adding sludge audits as a complementary tool allows for a new analytical tool to contribute to wider government commitments to make services more user-centred.

When a policy commitment is aligned with people's needs (e.g., user-centric service design), the activities government undertakes to achieve it can adapt as the needs of the people changes. Such alignment allows for continuous improvement, with people's needs driving ongoing improvements to service delivery. Sludge audits can help assess what these needs are and analyse the extent to which services are meeting them. Then, they can guide changes for improved service delivery and demonstrate how changes can lead to ethical outcomes. Where there is no explicit existing commitment to user centric service delivery, governments can introduce new political and policy commitments. New commitments can facilitate change management by setting new priorities and defining sludge reduction goals, where a jurisdiction wants to develop a sludge reduction culture (OECD, 2023[28]).

Considering institutional arrangements: Of the 10 case studies included above, about half were from teams situated in centre of government (CoG) organisations, such as Finland's Prime Minister's Office, while the others were from teams housed within the same department or agency as the service owner, like New Zealand's Department of Corrections. The experience of both sets of teams shows that sludge audits are implementable in each institutional arrangement, but that each situation has benefits that can be made use of and drawbacks that can be mitigated (OECD, 2024[41]).

Many of the CoG teams benefited from existing connections with service owners, which helped them generate the buy-in needed to conduct a sludge audit. The CoG teams tended to be larger and have in-house access to a broader range of research skills that could be used for sludge audits. However, many CoG teams reported that the separation with service owners meant that timely access to data, internal procedures and other key information was more difficult than may have been the case if the team was housed in the same organisation as the service owner.

Conversely, the teams housed in the same organisations as service owners had a relatively easier time accessing the data needed for their sludge audits. They were more likely to have been able to interview and conduct cognitive walkthroughs with the people accessing a process and were able to work more closely with service owners to implement recommended solutions. Teams in service delivery organisations were likely to require more intensive support from their mentors from the NSW Government on the implementation of the sludge audit methodology and supporting research and analysis efforts.

Embedding whole of government service user voice and data: Systems formed by gathering information on service delivery and monitoring outcomes for people using services can help jurisdictions identify areas where a sludge audit might be required, as well as feed into sludge audit inputs. Investments in continuous data gathering through tools such as surveys of the public and real-time administrative data, make it easier for governments to have a clear and holistic view of their services. Routine reviews of this landscape and the identification of poorly performing services can drive a pipeline of sludge audits, which can be completed to drive service improvements. Data reflecting outcomes for a diversity of groups can also help governments identify the needs of underserved communities and thus design better services. This system naturally provides a feedback loop to show the impact of these service changes, either highlighting opportunities for ongoing improvement, or showing possible backfire effects and changes in the needs of people who access services.

Promoting public sector capability: Public servants with skills in fields such as behavioural science, user experience and people-centric design are well suited to developing and implementing a sludge reduction and prevention program. Ideally, governments can leverage existing the expertise of public servants and assemble teams to deploy such a program. Governments can also develop teams by identifying key skills and creating competency frameworks to inform both recruitment of new public servants and design of capability building programs. Ultimately, an ongoing investment in required capabilities has the potential to not only establish a sludge reduction program, but also grow, tailor and improve upon it. Governments could also consider mobility programs, where public servants with sludge relevant capabilities are placed across government agencies to develop targeted sludge reduction programs.

6 Future directions

Sludge has a long history in government services and processes. The OECD's collaboration with NSW facilitated the global adoption of sludge audits, prompting many jurisdictions to integrate them into their operations. International Sludge Academy participants are further developing the sludge audit method and approach to drive transformative changes in government services. As participating jurisdictions strive to implement solutions and improve their public services and government processes, many are introducing audits to other government departments and initiating audits on new projects. As interest in sludge audits increases, exploring future directions and emerging trends is essential for continued progress.

Enhancing the understanding of sludge through cross-jurisdictional benchmarking

As more data is gathered through sludge audits, jurisdictions around the world can catalogue information on the way sludge manifests and impacts public outcomes. Comparing findings in similar processes across jurisdictions will enable the identification of opportunities to prevent and address sludge. Auditing common processes and services across jurisdictions also facilitates shared learning and the dissemination of best practices. This encourages policymakers and service delivery teams to apply the techniques of governments successfully minimising sludge in their own services and processes. This knowledge transfer would be facilitated by the public reporting of sludge audit results (see Good Practice Principle 2).

Accelerating benchmarking through coordinated initiatives

Benchmarking can be accelerated through initiatives where multiple jurisdictions simultaneously undertake audits of similar processes (e.g., licence applications, passport renewals, grant applications etc.). This would lead to a 'bank' of audit results that inform a benchmarking database. The methodologies of benchmarking exercises would need to be reasonably similar to one another to facilitate comparisons. They may even benefit from the same team conducting each of the audits, where possible. The OECD has significant experience in country benchmarking in a wide range of policy areas including satisfaction with public services, higher education and entrepreneurship (OECD, 2013[42]; OECD, 2019[43]; OECD, 2023[3]).

Estimating the economic cost of sludge

While some jurisdictions have estimated the time individuals spend on paperwork and administrative burdens, a comprehensive analysis of the impact that sludge has on a societal level does not currently exist (European Commission, 2019[44]). A thorough estimate of the economic cost of sludge would include the psychological costs of excessive and unjustified frictions but exclude defensible frictions in government processes. This requires understanding the policy context in which these processes are delivered. Current sludge audit methodologies often use the average wage of service users as a proxy for opportunity cost. However, a more developed methodology might account for heterogeneity in the population for a more nuanced and considerate estimate of the psychological costs of engaging with government processes.

Fostering public engagement

Collecting data and addressing people's needs is essential to designing and delivering people-centric services. Engaging more closely with the public can take many forms. For instance, publishing complete and transparent information on the performance of services at regular intervals might foster increased trust between the public and the government. Similarly, clear communication on the way people's data is used to improve service performance and involving the public in the design and improvement of services can improve the connection with the public (OECD, 2023[45]).

Generating further evidence for people-centric services

Sludge reduction efforts have primarily focused on identifying and implementing service improvements to deliver tangible benefits to the public. However, this practical focus could be complemented by academic collaboration to further develop sludge audit methodologies and inform sludge reduction strategies. More research is required to understand the nuanced impacts of sludge across demographics, contexts and timeframes. The context in which government services are delivered influences user experiences, with past interactions shaping expectations. Considering these factors can improve service design and behavioural interventions. Academia holds a unique position to aid government organisations, as well as non-government service providers such as charities, in considering these factors and determining the scalability of solutions across various contexts (Soman, 2024[46]). Additionally, academics, civil society and governments alike can contribute to the further study of the psychological costs caused by sludge. While behavioural scientists have identified numerous examples of psychological costs caused by sludge (including search costs, cognitive costs, decision costs and emotional costs), there remains an opportunity to more comprehensively map the causes and effects of these psychological costs on people engaging with public services and government processes (Halling and Baekgaard, 2024[10]; Jessica Lasky-Fink, 2023[47]). A deeper understanding psychological costs and the methods to measure them will improve the quality of sludge audits and the resulting recommendations for improved processes and services.

Testing behavioural interventions and solutions

Understanding what works is key to developing more effective interventions (Soman, 2024[46]). Testing specific behavioural interventions represents another avenue for academic collaboration. Currently, some government teams are prototyping and rapidly testing solution before implementation – an approach that is effective to maximise the public impact of specific processes. However, more rigorous and tailored evaluation may yield even better outcomes. Conducting randomised controlled trials with academic partners could identify the most effective interventions and behavioural strategies and the contexts in which they are most likely to have an impact. Governments can also partner with academics to use difference-in-difference, A/B testing, longitudinal studies and other experimental and evaluation designs to test interventions in situations where causal analysis is not necessary (Varazzani et al., 2023[48]).

Leveraging emerging technologies

Emerging technologies offer significant potential to enhance sludge reduction efforts in government services, from identifying which services need a sludge audit to testing whether implemented interventions are having the desired effect. Artificial Intelligence (AI) in particular can be used to identify services requiring sludge audits and evaluate the effectiveness of implemented interventions. Through natural language processing and sentiment analysis tools, auditors can understand the public's experience by reviewing feedback across diverse customer service channels, including online fora and social media. Moreover, AI-driven analysis can quantify user interactions and inform the design of tailored interventions for specific demographics or contexts. The synergy between sludge audits and AI could become increasingly relevant as governments mature towards being digital by design, data-driven and open by default (OECD, 2020[49]; OECD, 2022[50]).

Next steps

The collaboration between the OECD and the NSW Government enabled governments from diverse jurisdictions to pilot novel approaches to service improvements. Their success underscores the need for a systematic method to address public service challenges and the value of multilateral partnerships for knowledge sharing. The good practice principles are a first step towards sludge reduction programs that support the delivery of people-centric and trust-building services. Next, the OECD and the NSW Government are exploring how to implement the outlined future directions and continue advancing the mission of improving services and increasing trust in government institutions.

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Annex A. Practical resources for conducting sludge audits

These resources are intended to provide more detail on the operational aspects of conducting a sludge audit and provide examples from resources used by teams in the Academy. They do not act as a comprehensive guide to conducting audits, but instead provide a view into how teams in the International Sludge Academy addressed technical aspects of conducting a sludge audit. The resources fall into three main categories: resources created by the NSW Government, resources developed by teams as part of the sludge academy and OECD resources for the applying behavioural science to policy making. The resources are organised according to the step in the NSW sludge audit method that they are relevant to.

Annex A. 1. Resources for Behavioural Journey Mapping

Figure.1. Example of Miro board template used for Behavioural Journey Mapping

Miro is a visual workspace and digital collaboration platform. The TBS team used Miro to for behavioural journey mapping in Step 1 of the sludge audit. This is an example of a journey map for the first two phases of a process.
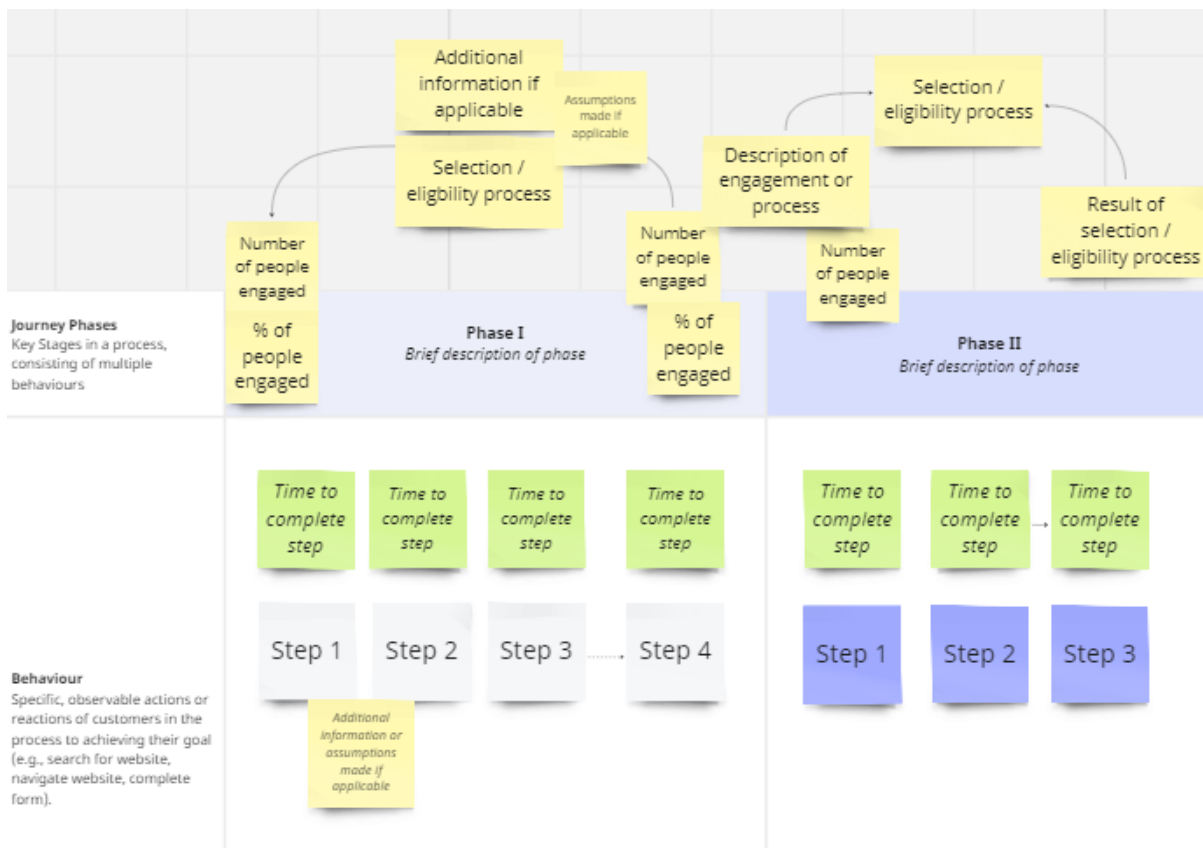
Source: Office of the Chief Human Resources Officer (OCHRO), Canada Treasury Board Secretariat (TBS).

Table A A.1. Sample Journey Map

The NSW Government journey map below outlines the example of a licence application process

Phases	Behaviours
Phase 1: Search for Information	1. Access and navigate website: Person search online for information about the licence 2. Read website: Person reads information about the licence and application process 3. Check eligibility: Person checks they are eligible for a licence 4. Contact support: Person contacts support to clarify information about the licence and application process 5. Government step: Staff answers call and provides support 6. Decision: Customer decides to apply for the licence
Phase 2: Complete application	1. Access and navigate website: Person navigates website to access application form 2. Complete form: Person completes online application form 3. Gather documents: Person gathers documents required for the application form 4. Read website FAQs: Person reads FAQs for guidance on the application and document requirements 5. Upload documents: Person uploads documents 6. Submit form: Person submits completed form 7. Read confirmation email: Person reads email that confirms that their application form has been received
Phase 3: Wait for response	1. Wait (idle): Person waits for response on the outcome of their application 2. Contact support: Person contacts support to request an update on the status of their application 3. Wait (active): Person waits on hold when they call for support 4. Government step: Staff answers call and provides update
Phase 4: Provide additional information	1. Government step: Staff review and process application 2. Government step: Staff call customer to request further information 3. Receive phone call: Person receives phone call requesting further information 4. Government step: Staff write email requesting further information 5. Read email: Person reads email requesting further information 6. Gather documents: Person gathers requested documents 7. Send documents: Person sends requested documents via email
Phase 5: Outcome and opportunity to review	1. Government step: Staff approve/reject application 2. Government step: Staff send email to inform person of application outcome 3. Read email: Person reads email about application outcome 4. Make Payment: Person pays for the licence 5. Read confirmation email: Person reads payment confirmation email 6. Wait (idle): Person waits to receive licence in the mail 7. Government step: Staff print licence and send letter with licence to person 8. Read letter: Person receives licence and reads letter

Source: (NSW Behavioural Insights Unit, 2024[16])

Table A A.2. Key Questions for Understanding the People Accessing a Process

	Key Questions
Who are the people accessing the process?	• What are the key behavioural characteristics of the people accessing the process? • How much time do these people have?

	• How much experience do these people have with this process? • Do they have the literacy with digital tools or written language required to access the process? • If your customer is a business, who in the business will be completing the process and what is their role?
How might these people be feeling?	• How are the people accessing the process feeling when they enter the process? • What else may they be going through when they enter the process? • Are they tired, stressed, or anxious? • What has their experience been with government processes? • What has the experience of their community been with government processes?
What else might they be doing?	• Do the people accessing the process have other commitments? • What other tasks will they be doing while going through the process?

The key questions below can help provide a deeper understanding of the people accessing a process

Source: (NSW Behavioural Insights Unit, 2024[36])

Table A A.3. Key Questions for Defining Journey Scope

The NSW Government recommends starting by defining the last behaviour, then the first and then filling in the middle

	Key Questions
Last Behaviour	• What is the person's goal? • What does achieving this look like in practice? • What behaviour would you see the person doing if they had achieved their goal? • When do you know if the customer has achieved their goal and don't need your support with the process anymore?
First Behaviour	• What do people do when they make the decision to access the process/service? • What observable action do people take when first accessing the process? • What may have they seen or heard to prompt the decision to access the service? • Where and when should the process begin?
The Middle	• What does the person do between the last behaviour and the first? • What happens if it is difficult to complete a step? How would a person respond during at that moment? • What would stop someone from moving on to the next step in their journey? • Where does government play a part in the journey? What is their role? • Are there any parties involved? What is there role?

Source: (NSW Behavioural Insights Unit, 2024[16])

Table A A.4. Categories of Example Behaviour Types

Example behaviour types can be sorted into 8 categories in the NSW Government method.

	Example Behaviour Types	
Reading and Understanding	• Read website • Read email • Read letter • Read text message • Read confirmation (text/email)	• Read notification • Read signage • Read factsheet/brochure • Check eligibility • Use website frequently asked questions (FAQs)
Seeking and Navigating	• Search for a website • Navigate website	• Use phone app
Preparing and Providing Information	• Complete form • Gather documents • Provide documents	• Apply for rebate • Provide consent • Login or enter password
Interacting	• Face-to-face interaction • Receive phone call from	• Physical access • Provide payment

	government	•	Submit complaint
	• Negotiate		
Help-Seeking	• Access support (via email)	•	Access support (via phone)
Waiting	• Wait (active)	•	Wait (idle)
Deciding	• Make a decision		
Non-customer actions	• Send confirmation of application	•	Notary stamps document

Source: (NSW Behavioural Insights Unit, 2024[16])

Annex A. 2. Resources for Data Collection

Figure A A.1. Example of Mural board template used for cognitive walkthroughs

Mural is a visual workspace and digital collaboration platform. The BC BIG team used this to assist in cognitive walkthroughs for behavioural journey mapping in Step 1 of the sludge audit. This is an example of a journey map for the first two phases of a process.
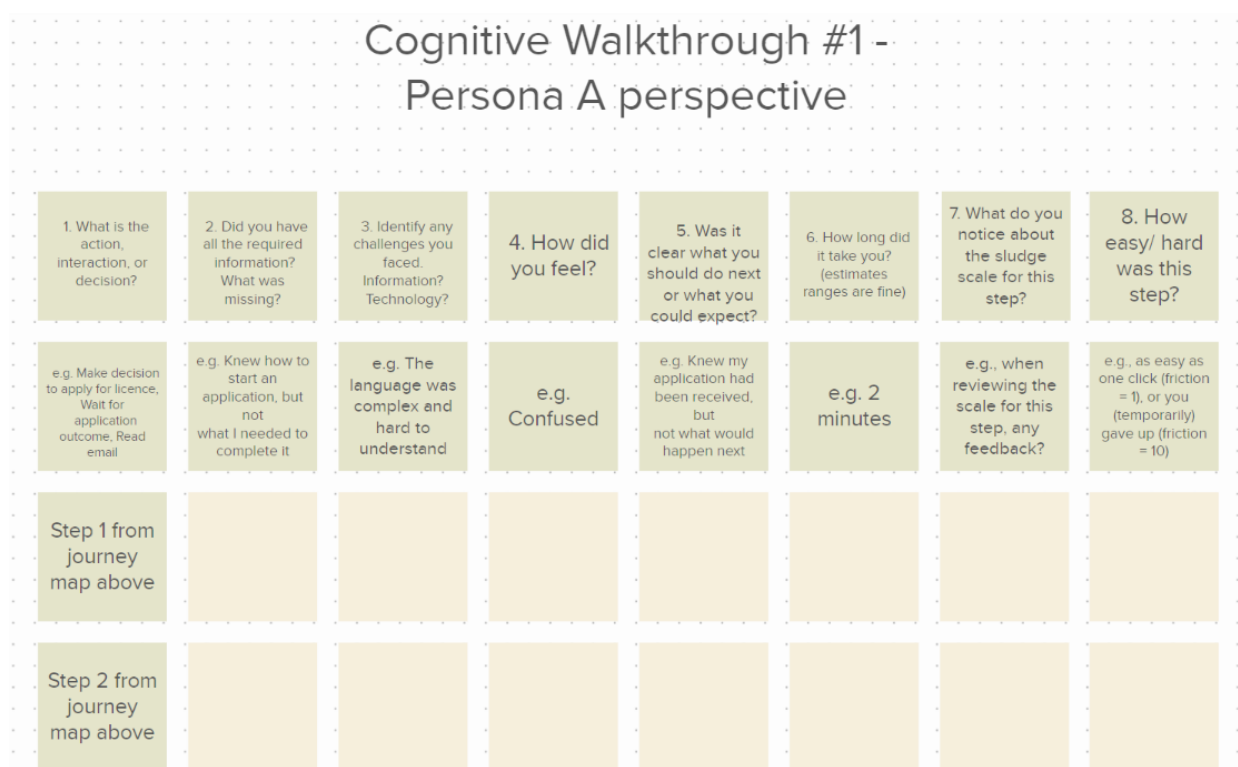
Source: British Columbia Behavioural Insights Group

Annex A. 3. Resources for Estimating Time and Cost

Table A A.1. Example of time cost estimation

The example below illustrates how the NSW Government estimates the cost of customer's time

Data	Time Estimate	Customer Wage	Total Annual Customers	Customer Percentage	Annual Behaviour Cost
Behaviour Example	Time required to read email	Industry average is $0.59 per minute	10,000 people apply for the licence per year	50% of customers receive and read email	
Input	60 minutes	$0.59	10,000	50%	$177, 000

Source: (NSW Behavioural Insights Unit, 2024[16])

Figure 2. Example of Miro board template used to prioritise recommended solutions.

Miro is a visual workspace and digital collaboration platform. The TBS team used Miro build a matrix to prioritise recommended solutions based on potential for improvement and ease of implementation.
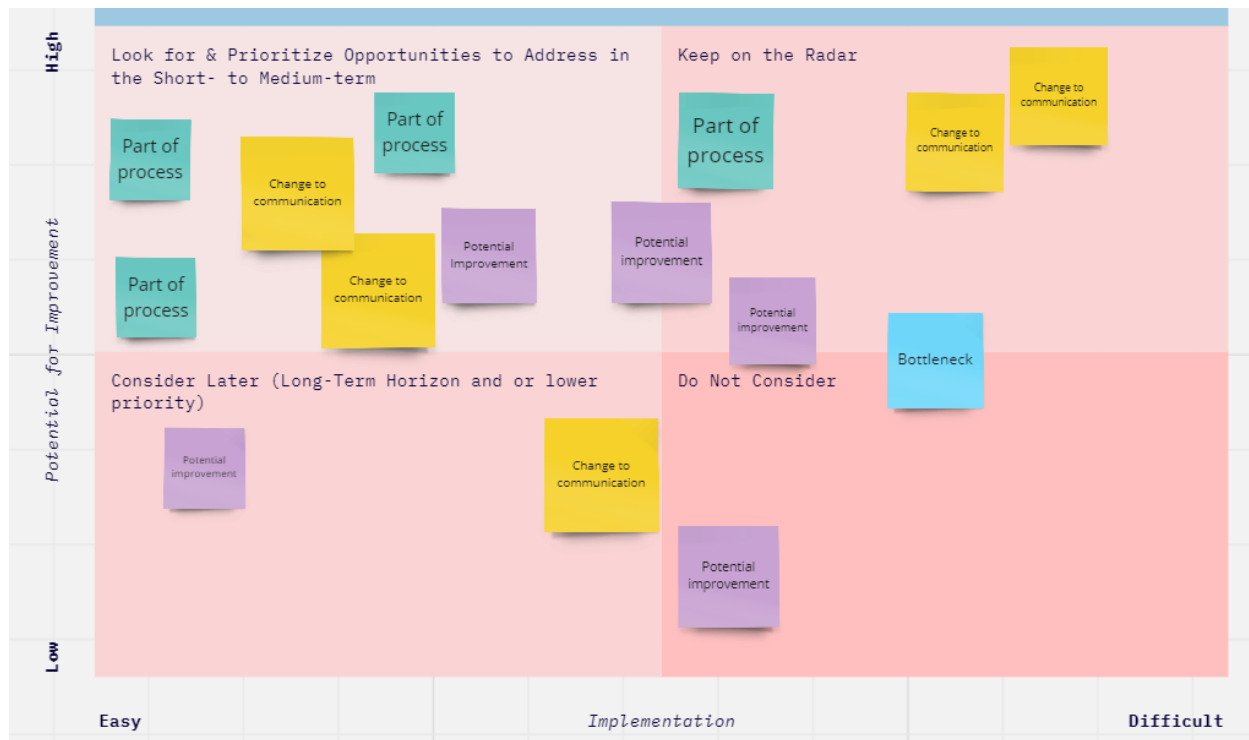
Source: Office of the Chief Human Resources Officer (OCHRO), Canada Treasury Board Secretariat (TBS).

Annex A. 3. Resources for Scoring the Experience of the Process

Table A A.1. Example NSW Government Sludge Scales

The example sludge scale, from the NSW Government Sludge Scales below illustrate how a particular behaviour (In this case, 'read text message') in a process can be rated.

Considerations	Very Difficult	Difficult	Somewhat Difficult	Somewhat Easy	Easy
Relevant Does the text message contain clear and relevant content?	It does not • Most content is irrelevant and not structured clearly. • The text message is very hard to understand (e.g. long sentences/ words, jargon, passive voice, no personalisation). • Flesch reading ease score: < 50	It is not very clear nor relevant • Most content is irrelevant or not structured clearly. • The text message uses some plain English, with active voice, personalisation and/or short sentences. However, it is hard to understand. • Flesch reading ease score: 50-60.	It is mostly clear and relevant • Most content is relevant and structured clearly. • The text message is mostly written in plain English, with active voice, personalisation and short sentences. However, some parts are hard to understand. • Flesch reading ease score: 60-70.	It is clear and relevant • All content is relevant and structured clearly. • The text message is written in plain English, with active voice, personalisation and short sentences. However, some customers may find it hard to understand. • Flesch reading ease score: 70-80	It is very clear and relevant • All content is relevant and structured clearly. • The text message is written in plain English, with active voice, personalisation, short sentences and no technical jargon. • Flesch reading ease score: 80+ (70+ if topic is technical).
Next steps Does the text message clearly outline the next steps?	It does not • The text message does not include a list nor explanation of the next steps. • The text message does not include any links to the next step or further information.	It does, but it is unclear • The text message includes a brief explanation of the next steps, but it is unclear. • The text message does not include any links to the next step or further information.	It does • The text message includes a brief explanation of the next steps, but it may be unclear. • The text message includes a link to a website where the customer can find the next step and/or further information, but it takes 2+ clicks	It does clearly • The text message includes a list of the next steps. • The text message includes a link to a website where the customer can easily find the next step and/or further information in 1-2 clicks.	It does very clearly • The text message includes a clear list of the next steps • The text message includes a link that takes the customer directly to the next step and/or further information (where applicable).

Source: (NSW Behavioural Insights Unit, 2024[16])

## Annex A. 4. Resources for Designing Solutions

Figure A A.1. Prompting questions for an ethical use of behavioural science in public policy.

Source: (OECD, 2022[40])

Figure A A.2. 7 Routes to Applied Behavioural Science: Experimentation and Observation
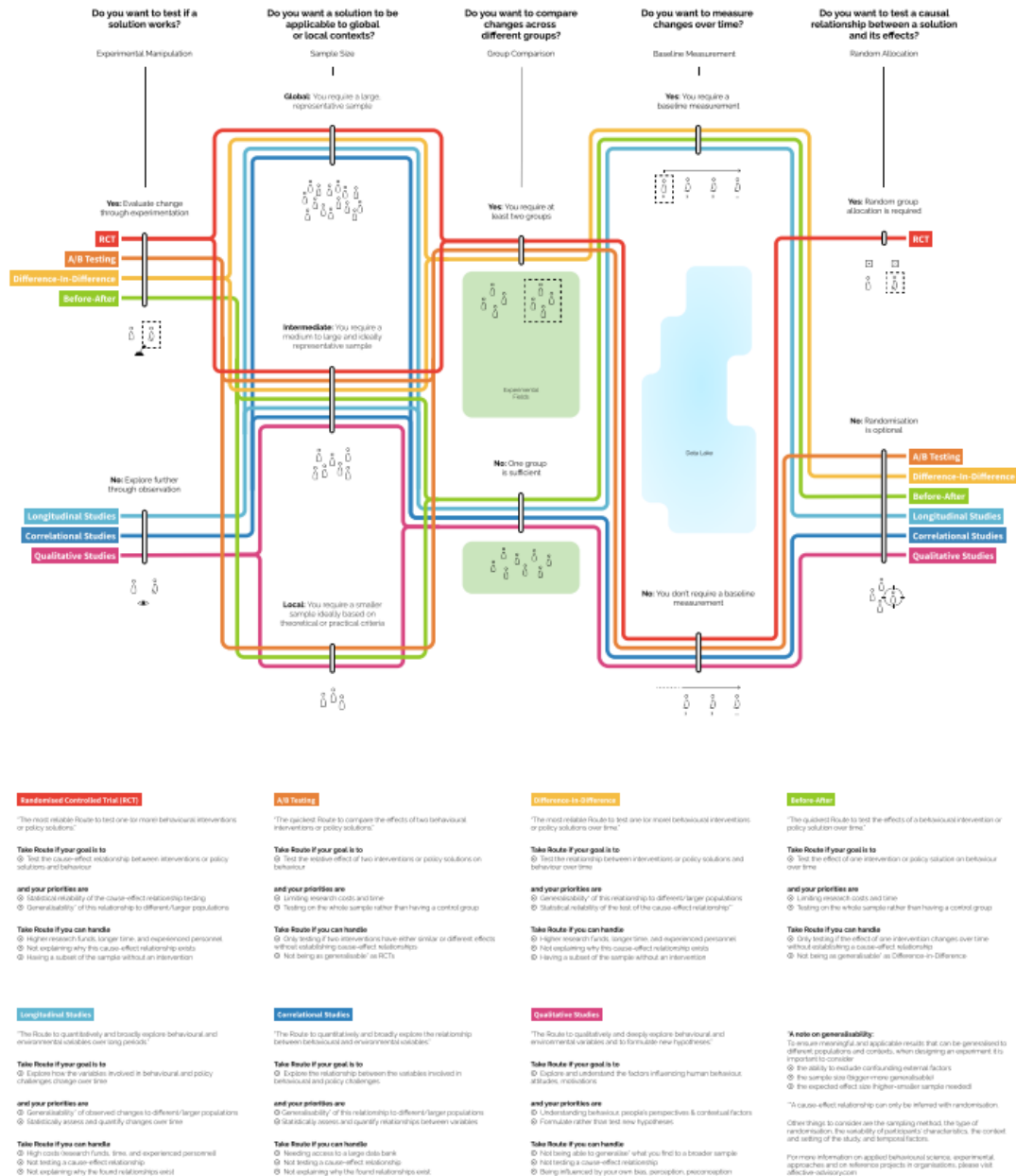
Source: (Varazzani et al., 2023[48])