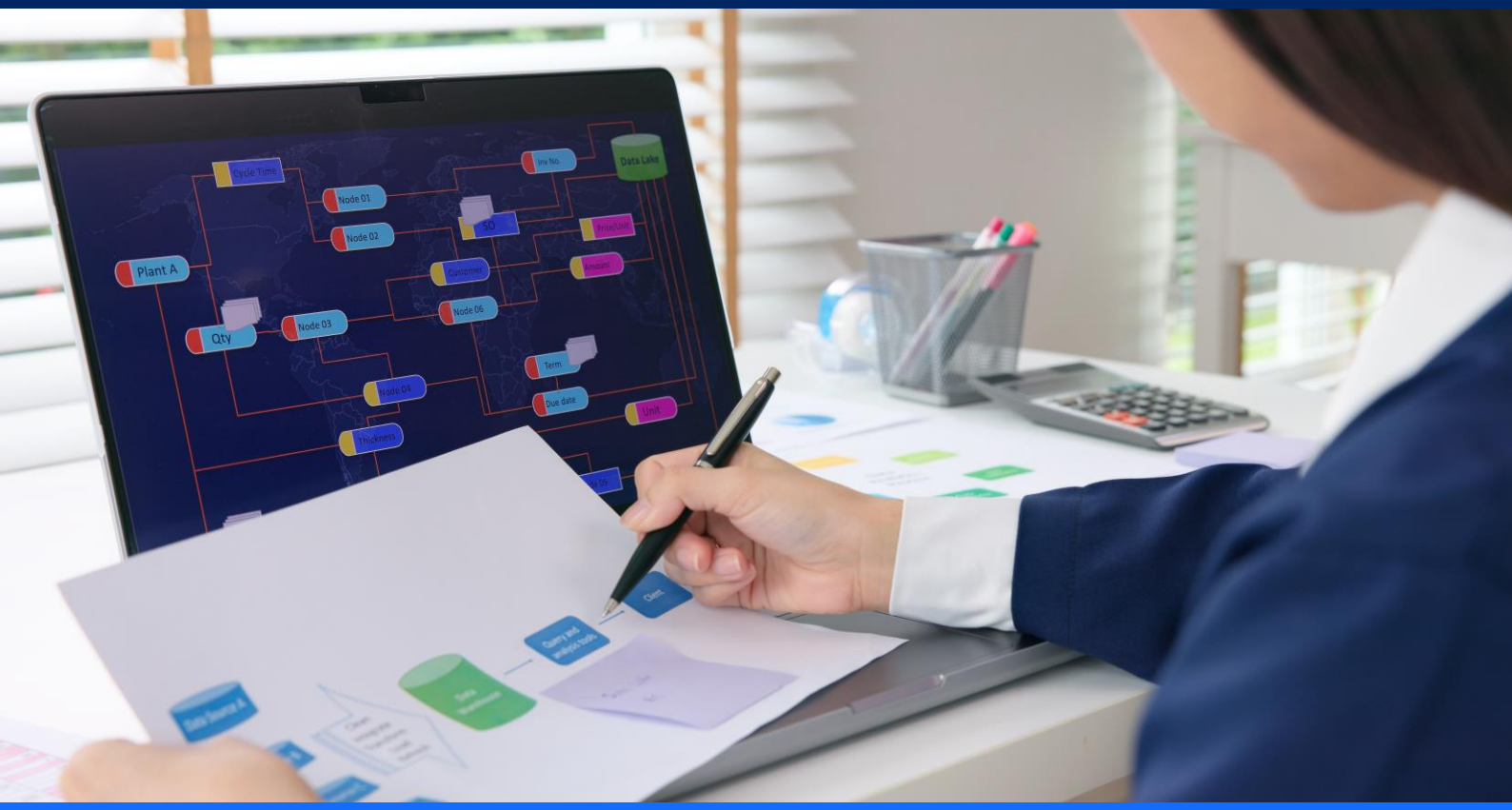
NSW Productivity and Equality Commission

Smarter regulation through experiments

How NSW should road-test regulations

May 2025



NSW GOVERNMENT

Acknowledgement of Country

We acknowledge that Aboriginal and Torres Strait Islander peoples are the First Peoples and Traditional Custodians of Australia, and the oldest continuing culture in human history.

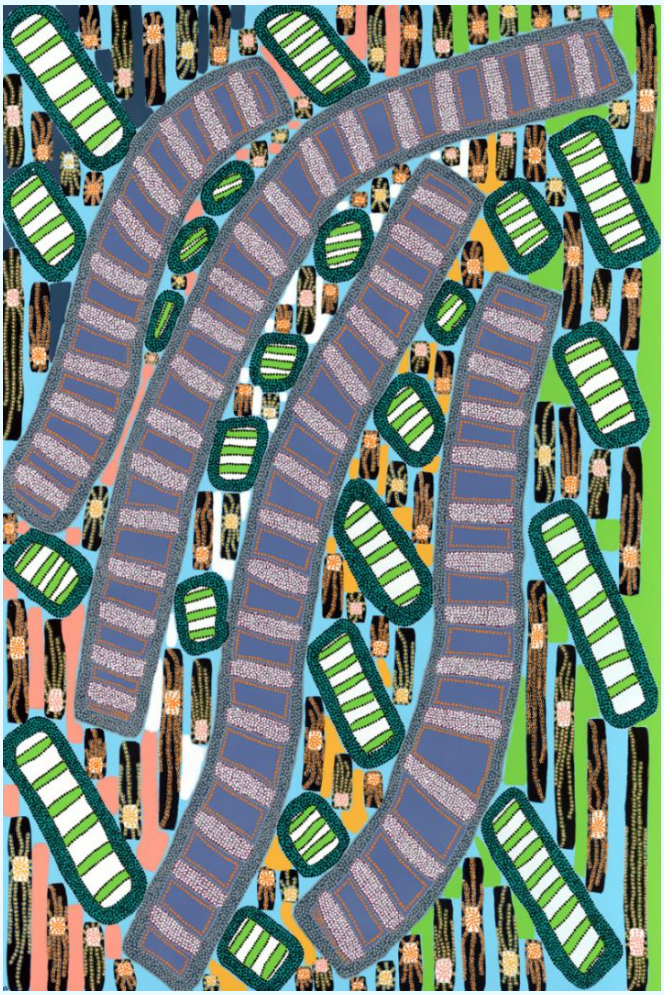
We pay respect to Elders past and present and commit to respecting the lands we walk on, and the communities we walk with.

We celebrate the deep and enduring connection of Aboriginal and Torres Strait Islander peoples to Country and acknowledge their continuing custodianship of the land, seas and sky.

We acknowledge the ongoing stewardship of Aboriginal and Torres Strait Islander peoples, and the important contribution they make to our communities and economies.

We reflect on the continuing impact of government policies and practices, and recognise our responsibility to work together with and for Aboriginal and Torres Strait Islander peoples, families and communities, towards improved economic, social and cultural outcomes.

Artwork:
Regeneration by Josie Rose



About the NSW Productivity and Equality Commission

The NSW Productivity and Equality Commission (formerly the NSW Productivity Commission) was established by the NSW Government in 2018 under the leadership of its inaugural Commissioner, Peter Achterstraat AM.

Productivity growth is essential to ensure a sustained growth in living standards for the people of NSW, by fully utilising our knowledge and capabilities, technology and research, and physical assets. The Commission is tasked with identifying opportunities to boost productivity growth in both the private and public sectors across the state. The Commission seeks to continuously improve the NSW regulatory policy framework and identify levers that can increase competition to deliver better and more affordable goods and services for NSW residents.

The Commission's priorities include:

- productivity and innovation
- fit-for-purpose regulation
- efficient and competitive NSW industries
- climate resilient and adaptive economic development.

The Commission provides objective, evidence-based advice to the Government.

In 2024, Mr Achterstraat was reappointed for a further two years in the expanded role of Productivity and Equality Commissioner. In performing its functions, the Commission considers equity and how costs and benefits are distributed across the community and over time. For instance, the Commission's research on housing examines the equity and environmental benefits of policies and reforms to improve housing affordability, beyond the overall productivity and economic benefits.

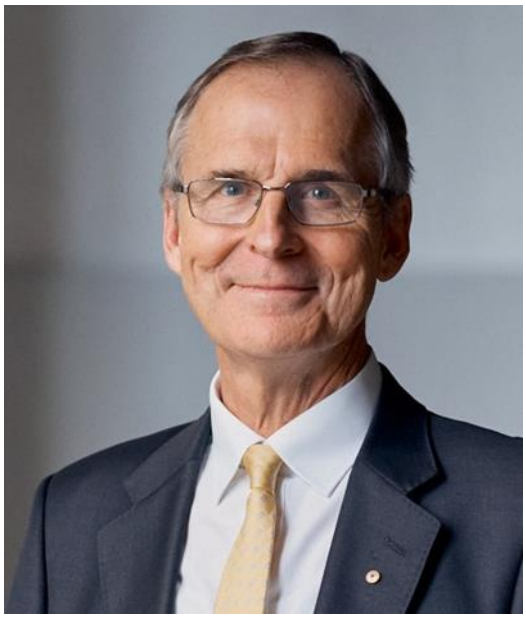
The Commission regularly engages with stakeholders to ensure its research and recommendations are well-informed and to encourage a public conversation on productivity reform.

Disclaimer

The views expressed in this paper are those of the NSW Productivity and Equality Commission alone, and do not necessarily represent the views of NSW Treasury or the NSW Government.

Regarding the recommendations in this paper, NSW Productivity and Equality Commission recommendations only become NSW Government policy if they are explicitly adopted or actioned by the NSW Government. The NSW Government may adopt or implement recommendations wholly, in part, or in a modified form.

Commissioner's foreword



Good regulation enables the economy, community and environment to flourish. It leverages the best evidence to set the guardrails that promote public safety while enabling a vibrant and competitive marketplace.

We know regulation can be better – the COVID-19 pandemic proved this to us.

The NSW Government's pandemic-era regulatory relaxations not only protected the lives and livelihoods of our community, but they also showed us the value of experimenting to create better regulation. Rule changes made during COVID-19 and since retained are expected to deliver $3.1 billion in net benefits to the NSW economy over the 10 years to 2032.

My latest paper *Smarter regulation through experiments: How NSW should road-test regulations* builds upon the success of NSW' COVID-19 regulatory experiments. It demonstrates the value of trialling and testing new regulation and processes and makes the case for why regulators should adopt this approach in their day-to-day activities.

To adapt to the challenges of the modern world, we need to be smarter in the way we regulate. Regulatory experimentation equips regulators with a structured approach to navigate uncertainty and safely introduce new technologies. It also offers a way of continuously improving and refining regulation, shifting towards a more efficient and effective set of rules that enhance economic growth and public wellbeing.

Experimenting with regulation is not about abandoning caution or weakening standards. It's about strengthening regulation through evidence-based decision making.

Regulators want to experiment. Indeed, some already are. For others who are interested, we've heard it can be difficult knowing where and how to start.

This paper aims to be a helpful starting point. I lay out the case for change for regulatory experimentation and highlight its promises and pitfalls. Along the way I share real-world examples and practical tips from regulators who have already begun their experimentation journey.

Peter Achterstraat AM

NSW Productivity and Equality Commissioner

Contents

Executive summary

Regulatory experimentation is an approach that governments can use to improve community outcomes from their regulation. This paper sets out how NSW agencies can use it and explains its rewards and challenges.

We know regulation in NSW can improve. We know this in part because the COVID-19 pandemic forced the government to make some rule changes – and when we compare the new results to the old, they appear to be paying off. Rule changes made during COVID-19 and since retained will deliver $3.1 billion in net benefits to the NSW economy over the 10 years to 2032.

These temporary changes were, in fact, regulatory experiments. With a stock of regulation that is on average two decades old, NSW has many more opportunities to run such experiments. Indeed, many regulators are already experimenting or are interested in doing so.

A practical guide to regulatory experimenting

What is a regulatory experiment? A regulatory experiment tests the performance of some new regulatory scheme or process against existing or possible alternatives.

This paper is designed to help regulators do those experiments. It sets out three types of experiments: before-and-after studies; randomised controlled trials; and quasi-experiments. It explains when each of them works best and provides examples of each in action.

It also considers when regulators might opt to facilitate regulatory experimentation by using an approach known as a 'regulatory sandbox'.

It encourages regulatory agencies to:

- build a culture where staff seek out opportunities to experiment
- develop the skills and expertise to do meaningful experiments
- build support for continued experimenting.

Experimenting on regulations presents unique challenges and opportunities

This paper considers some of the challenges that agencies have told us they experience when designing and running experiments. Meaningful experiments take real work and expertise and need regulators to be transparent about what they are doing.

We know that regulatory experimentation challenges policymakers to learn from their failures as well as their successes. We have also found a real appetite among NSW regulators to learn about, to try, and to implement results from regulatory experimentation.

The opportunities from experimentation are significant. For instance, a regulatory experiment in NSW revealed that removing barriers to the adoption of digital technologies in strata schemes would deliver net benefits of $214 million over the 10 years to 2032. Experimentation can also accelerate innovation by providing clear regulatory pathways for product testing, as demonstrated through the UK Financial Conduct Authority's regulatory sandbox.

The good news – NSW can reap lasting benefits

Experimentation is a low-risk and cost-effective way to improve outcomes for the community. However, when it comes to experimenting, it can be difficult knowing where to start.

To help regulators get started, the NSW Productivity and Equality Commission, alongside the NSW Behavioural Insights Unit, are on hand to provide experimentation advice and support.

Experimentation is a powerful tool to drive better regulation. Regulatory changes that do not work in an experiment can be easily put aside before further resources are invested. Experiments that do work will create lasting gains for NSW.

1 Regulation needs to get better

NSW, like every regional and national government, faces a large, yet mostly invisible, challenge: our regulations do not work as well as they could. They could get better results. And they could inflict a smaller cost on individuals, businesses, and even government bodies.

We know all this because, as set out below, governments sometimes run into problems which force them to improve regulation.

To boost productivity, we should always seek to make regulation more efficient and effective.

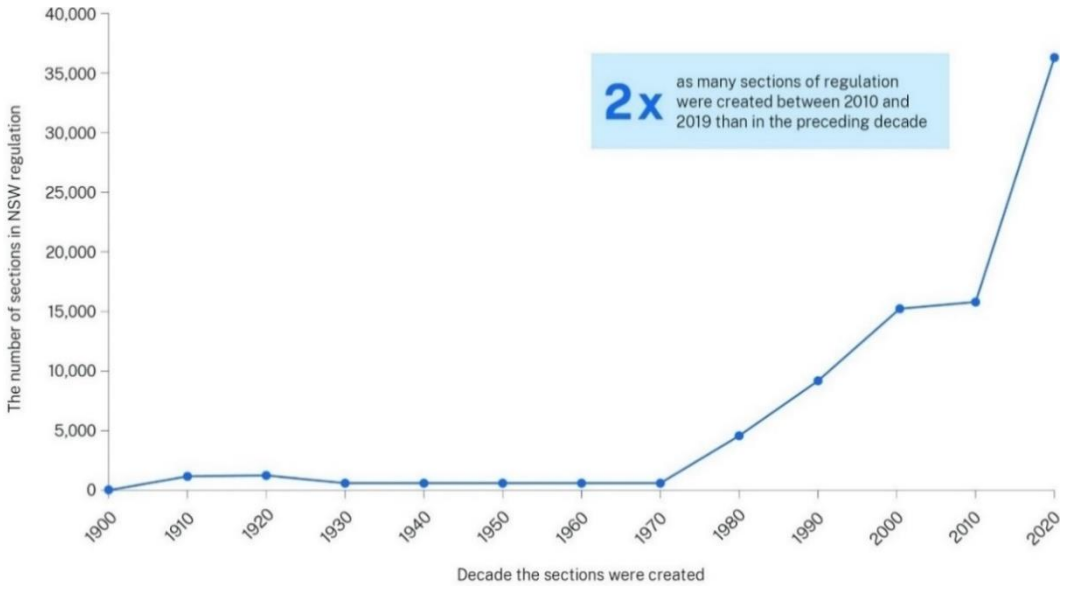
But most of the time, regulations remain static. In NSW, the average piece of legislation has not been changed in over 20 years (NSW Treasury, 2020). Generally, regulation is enacted and then the reason it exists is not examined further, despite statutory requirements to remake or repeal regulations on a regular basis. For example, there are 350 references to 'facsimile' (as in a fax machine) and 27 to 'telegram' in sections of NSW regulation, despite these technologies generally being considered obsolete (NSW Treasury, 2020).

Regulators need to be on the front foot, especially when it comes to integrating new products and business models. In a global environment where new ideas and digital technologies can penetrate new markets with little warning, complacency comes at a cost. Fenwick et al. (2017) argue:

> 'In a global society in which regulatory competition is the "new normal", regulators can pay a heavy economic price for being overly cautious or abandoning the project of trying to establish a meaningful basis for regulation.'

Regulation needs to improve. The quantity of regulation has grown drastically in recent decades (Figure 1). Yet over the same period, on some measures, the quality of regulation has fallen. The OECD product market regulation (PMR) indicator assesses the alignment of a country's regulatory framework with internationally accepted best practices. Australia was third in the PMR rankings in 2003 but now sits 24th out of the 38 OECD countries (OECD, 2024a).

Figure 1: The volume of regulation is growing rapidly in NSW



Source: NSW Treasury (2020).

To improve regulation, regulators are increasingly adopting a technique called regulatory experimentation – safely testing changes to rules to see if they achieve better outcomes.

1.1 COVID's lesson: try out new and different regulations

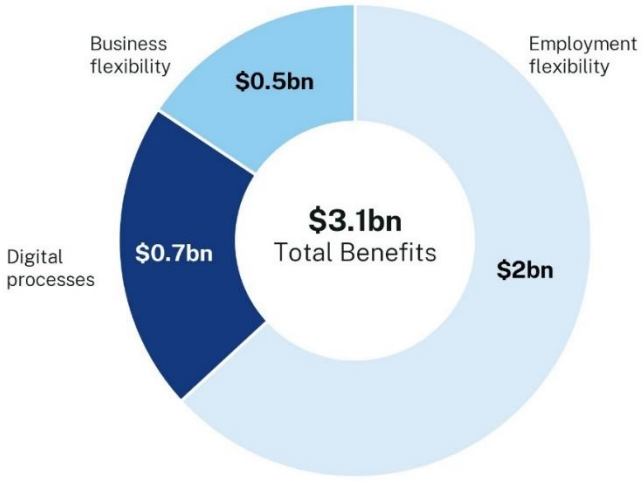
Governments are often cautious – indeed, famously so. The COVID-19 pandemic forced the NSW Government and many others to act quickly in changing regulations to protect lives and keep the economy running.

These temporary COVID-era rule changes offered natural experiments in relaxing regulations. They gave policymakers and citizens new answers to the question, 'What will happen if we change this rule?'

The pandemic era became, unexpectedly, an experiment in experimenting.

In 2021, the NSW Productivity and Equality Commission (formerly the NSW Productivity Commission) evaluated the outcomes of various experiments in NSW, in a paper called *Lessons from COVID-19 regulatory relaxations* (NSW Productivity Commission, 2022). This paper estimated that by digitising processes, supporting more flexible business models and improving access to employee benefits, these rule changes could deliver $3.1 billion in net benefits to the NSW economy over the 10 years to 2032 (Figure 2). This evaluation led the NSW Government to make many of our COVID-19 regulatory relaxations permanent.

Figure 2: Net benefits of NSW' COVID-19 regulatory experiments



Note: The sum of the individual components does not sum to the whole when rounded to one decimal place.
Source: NSW Productivity Commission (2022).

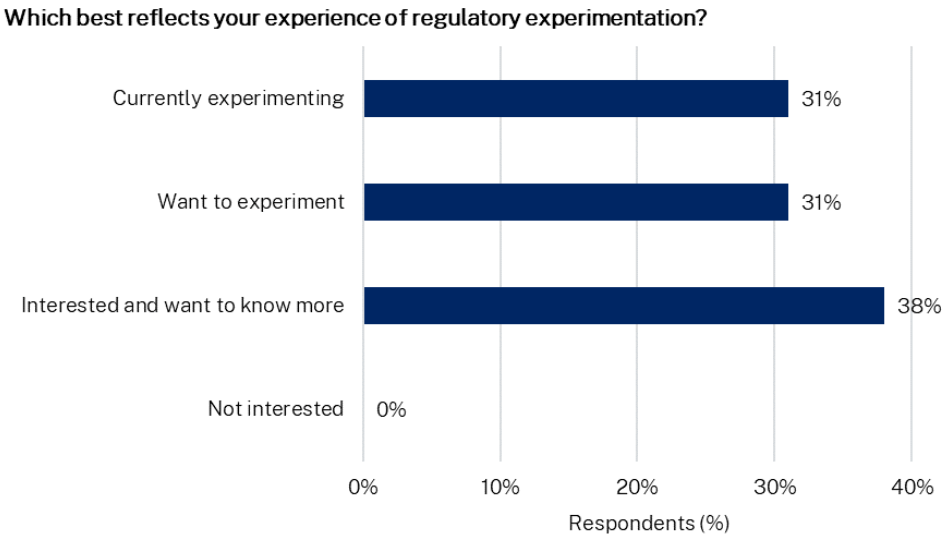
The NSW COVID-19 experience has shown how much opportunity exists for the state to keep doing regulatory experiments even after the pandemic has passed. The NSW Productivity and Equality Commission ('the Commission') now seeks to encourage a lasting culture of regulatory experimentation among regulators.

1.2 Regulators are embracing experimentation

As explained below, regulatory experiments can be difficult for regulators, particularly in the early stages of designing an experiment. Yet regulators have an appetite to experiment, and many already do so.

In October 2023, the Commission held a workshop with 50 regulators and experts from across nine NSW Government departments and external organisations. Around one-third of these regulators were already conducting their own regulatory experiments (Figure 3). The remaining two-thirds told the Commission that they either wanted to do regulatory experimentation or were interested and wanted to find out more.

Figure 3: Regulators want to experiment



Source: NSW Productivity and Equality Commission.

1.3 Supporting regulators to experiment

In a recent report for the NSW Productivity and Equality Commission, the Behavioural Insights Team (BIT) interviewed 25 representatives of organisations with experience in regulatory experiments (BIT, 2023). These regulators came from both inside and outside NSW, including Singapore, Denmark, the United Kingdom and Canada. This research identified lessons and insights to help the NSW Government experiment more productively with regulation, and it identified issues that might slow or curtail experimentation.

This paper draws on this recent work, along with real-world case studies and the broader literature, to provide guidance for regulators on implementing regulatory experiments and building the case for change.

2 What is a regulatory experiment?

Regulatory experimentation is often defined as a test or trial of a new product, service, approach or process designed to generate evidence or information that can inform the design or administration of a regulatory regime.

We note this definition is missing a crucial element: to generate that evidence, experiments must compare the performance of two (or sometimes more) regulatory approaches or processes and evaluate their results. For that reason, we here provide a narrower definition:

> 'A regulatory experiment tests the performance of a new regulatory scheme or process against existing or possible alternatives.'

In many cases, the alternative will be the existing situation, which may or may not already involve regulation.

Regulatory agencies interviewed for this research were asked to provide examples of regulatory experiments, and they identified many approaches and applications. These ranged from sending reminders to regulated parties to boost compliance, through to the continual improvement of large-scale policy reforms.

Collectively, regulatory experiments fall into three main categories: before-and-after studies, randomised trials and quasi-experiments. Each can be applied to evaluate the effectiveness of a new regulatory scheme or process.

In addition, some agencies have established regulatory sandboxes to help them experiment more freely. These are dedicated facilities run by regulators that enable innovators to conduct real-world experiments with appropriate safeguards in place. Regulatory sandboxes may allow for before-and-after studies, randomised trials or quasi-experiments.

These approaches for regulatory experimentation are explored further in Section 3.

2.1 What regulatory experiments are *not*

Regulatory experiments generate evidence to help design and improve regulation and processes. A range of other activities aiding the design and implementation of regulation falls outside the category. These are not regulatory experimentation:

- **'Set and forget' regulation:** New regulation that is implemented and then left to run is not regulatory experimentation if no process has been designed to evaluate it against alternatives (such as the situation prior to regulation). Purposeful and comprehensive monitoring and evaluation of costs and benefits are needed if we are to assess whether the regulatory change was successful and to decide what, if any, adjustments should be made.
- **Consulting the community:** The thoughts and perspectives of diverse community members and other stakeholders should inform regulatory design and evaluation. It can often point to promising regulatory or non-regulatory options that you might want to test in an experiment. But consultation is not in itself experimentation. It cannot tell you how outcomes have changed, whether the benefits exceed the costs, or whether a different course of action would have been more effective.
- **Gathering administrative data:** Similarly, administrative data should inform regulatory design, including the design of experiments. However, a comparative assessment is required to determine whether a regulatory change was effective. A regulatory experiment yields new data which we can then evaluate to see whether the change produced better outcomes.

3 How do regulators experiment?

There are many ways to design and run experiments. Selecting the most appropriate method will depend on a range of factors, such as the time and resources available, the quality of evidence needed to inform the policy decision, and expertise with different experimental methods.

In this section, we provide a broad summary of the different experimental approaches available, along with examples of how regulators have applied them to inform policy.

3.1 Before-and-after studies

The most common form of regulatory experiment is a before-and-after study (also called a pre-post experiment). NSW' COVID-19 regulatory experiments were before-and-after studies.

This type of study measures outcomes in the same group of participants twice: first before introducing a product or intervention, and then again afterwards.

It is important to understand that before-and-after studies can be disrupted by external events (something happens to change the outcome being measured). Different techniques can be used to manage the downsides. For instance, experimenters can support and validate findings with qualitative research and post-implementation evaluations.

As with all other experimental designs, before-and-after studies come with trade-offs. In this case, the researcher trades off a degree of scientific rigour in favour of ease and efficiency. These studies do not have a 'controlled environment' and so it is more difficult to attribute changes in outcomes to the change in regulatory policy. However, this approach is relatively simple to run, requires less resources and allows for testing in cases where it is not feasible or desirable to allocate people to receive different policy changes (Challenge Works, 2021).

Consider this approach when:

- The experiment can be accompanied by qualitative research and post-implementation evaluation.
- You need to show the change in outcome over time.
- You can commit to keeping conditions as close as possible to unchanged during the 'before' and 'after' periods.
- Randomly allocating participants to receive different interventions is not practical or ethical.

Example 1: Enabling greater flexibility in strata schemes

The case for action: Strata scheme regulations in NSW imposed frictions on the take-up of digital technologies, such as teleconferencing, as strata schemes had to formally vote and pass a resolution to allow their use. This additional barrier imposed unnecessary time and travel costs associated with attending meetings and engaging with strata schemes in person.

The experiment: In response to COVID-19, the NSW Government temporarily allowed strata schemes, regardless of whether they had passed a resolution, to use electronic means for voting, receiving meeting notifications, and witnessing and signing documents remotely.

The result: Due to the large number of people who live in or own strata property, removing these regulatory barriers are estimated to generate substantial benefits. These measures have been permanently retained, with the changes expected to deliver net benefits of $214 million over the 10 years to 2032 (NSW Productivity Commission, 2022).

3.2 Randomised controlled trials

Randomised controlled trials (RCTs) are widely considered the most reliable way to establish causal evidence as to whether an intervention led to improved outcomes (Angrist and Pischke, 2014; Edovald and Firpo, 2016).

The critical element that distinguishes randomised controlled trials from other experiments is the random assignment of meaningfully different treatments to the units of study (such as people or businesses). The intervention group receive the intervention that is being tested, while the control group receives 'business-as-usual'. The outcomes are then evaluated after each group has received their assigned treatment to determine whether those who received the intervention had improved outcomes relative to the control group. If the randomised groups are large enough, regulators can be confident that differences observed between the groups are due to the intervention and not some other factor (Edovald and Firpo, 2016).

Marketing firms have for many decades used mail, both paper-based and email, to run trials. In interviews for this study, many regulators reported that they first started experimenting by trialling new versions of simple mail.

Consider this approach when:

- precision of results is highly valued
- regulators can collect data on a large number of observations.

Example 2: Testing advice to GPs on 'superbugs'

The case for action: Antimicrobial resistance ranks among the biggest threats to human health. It occurs when micro-organisms such as bacteria become resistant to an antimicrobial medicine, such as antibiotics. These resistant infections, dubbed 'superbugs', are more difficult to treat, and in some cases are not treatable at all. Society has a collective interest in not over-prescribing antimicrobial medicines.

The experiment: The Australian Government's Chief Medical Officer sent letters to high-prescribing GPs warning them against over-prescribing.[1] The Behavioural Economics & Research Team (BERT) and Behavioural Economics Team of the Australian Government (BETA) created a standard ('education-only') letter along with three other ('enhanced') versions of the letter.[2]

The three enhanced versions all used peer comparison. This technique aims to change people's behaviour by informing them about how their behaviour compares to that of other comparable people. In the three letters, the peer comparison was supplemented by three different enhancements:

- figures comparing the GP's own prescribing rates with those of other GPs in their region
- a graph comparing the GP's prescribing rates with those of others
- advice to delay prescribing where possible.

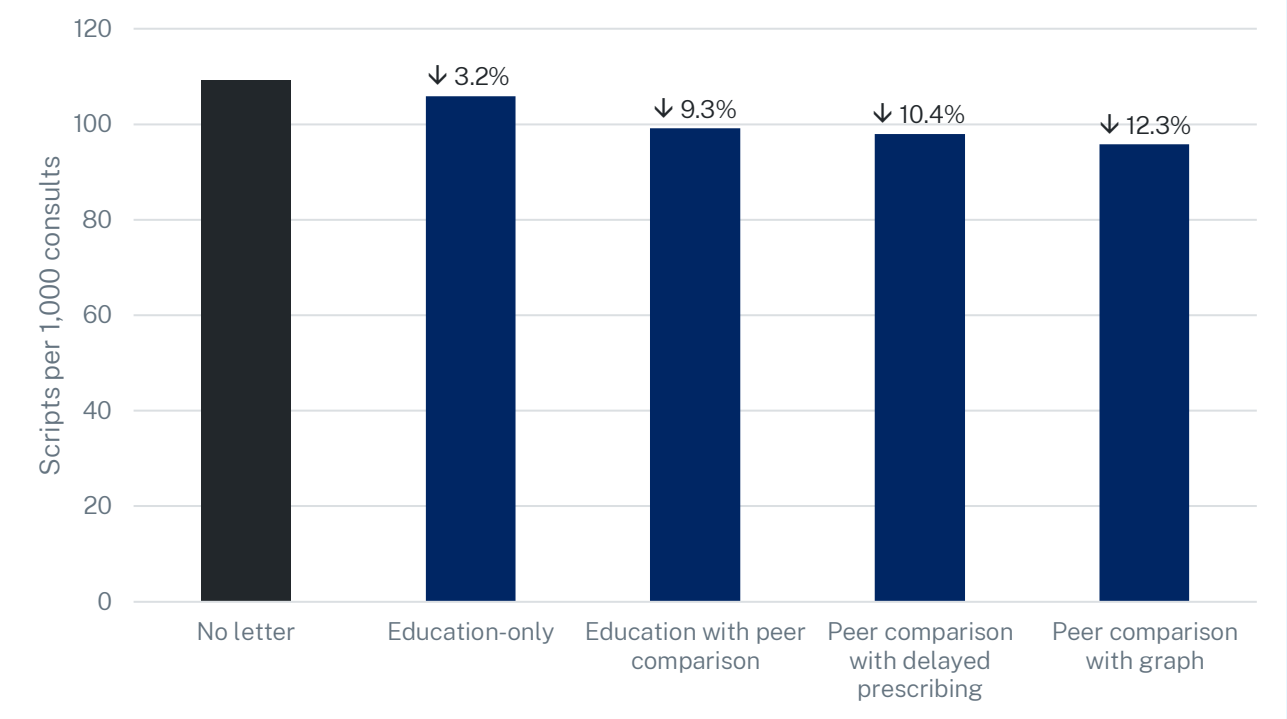
The four letters went to comparable groups of GPs just before the rapid increase in prescribing which occurs during the cold and flu season. A fifth (control) group received no letter.

[1] The letter targeted GPs across Australia whose antibiotic prescribing rates were in the top 30% of their geographic region.

[2] The letters are reproduced in the team's paper (BERT and BETA, 2018).

The result: All letters did better than the no-letter approach, and all three enhanced letters did better than the education-only approach (see Figure 4). Compared to GPs who did not receive a letter, the enhanced letters resulted in a 9.3 to 12.3% reduction in prescription rates over six months. The most successful version was the shortest and used the least words but included a graph – but the difference between this letter and the two other enhanced letters was not statistically significant.

Figure 4: Peer comparison letters cut prescribing



Note: Estimates are adjusted means. Bars represent the number of scripts per 1,000 consults and bar labels represent the percentage decreases compared to the no-letter group.
Source: BERT and BETA (2018).

Overall, the team estimated that 126,352 fewer scripts were filled over the six-month period as a result of the letters (BERT and BETA, 2018).

Online A/B testing

An online A/B test is a popular variant of a randomised controlled trial in a digital format, such as website, email or online survey. An online A/B test compares two or more versions of an online service or communication against each another. Recipients are randomly selected to receive one of the versions, allowing the tester to understand which version works best.

Online environments allow cheap A/B testing, and the technique has quickly grown in use since the early 2000s. Many website, email and survey platforms now include randomisation and analysis tools or allow their users to integrate third-party tools (NSW Behavioural Insights Unit, 2020).

Testing communications can be an ideal first step into experimentation: A/B testing is relatively easy to implement in many circumstances, tools to do it already exist in many systems, and several agencies have experience with it.

In interviews for this study, one regulator reported that their agency's initial field experiments had delivered results too slowly; one took almost two years. The agency gained much more insight when it focused on faster online experiments. Another noted:

> ‘Online trials are more agile and faster, but they do have limitations.’

Some regulators have had success working with commercial websites which generate large traffic volumes. See Example 3 below, as well as the similar EnerGuide labelling case study by Canada’s Office of Energy Efficiency (Experimentation Works, 2019). In interviews for this study, one regulator reported working with a payments firm to understand how update methods affected consumer subscriptions.

Consider this approach when:

- reviewing a digital service or communication
- facing time or cost constraints.

Example 3: Testing online energy labels

The case for action: Physical appliance stores in Australia must display energy rating labels on appliances. These labels give customers a standardised measure of appliances’ energy consumption, helping them to make better-informed choices. The regulator wanted to know whether this system would also work online.

The experiment: BETA and the Department of the Environment and Energy ran a randomised controlled trial on the retail appliance sales website of the Appliances Online business to assess the impacts of the existing label and a redesigned label against a no-label alternative.

The result: The experiment found energy labels had no significant impact on consumer behaviour compared to no labels. Also, the redesigned label performed no better than the existing label (BETA, 2018).

Canadian, Norwegian, UK and Swiss studies on energy labels have reported similarly weak effects on consumer behaviour.

Example 4: Reducing apprentice dropout rates

The case for action: Apprenticeship dropout rates are a costly problem for NSW, with lost productivity and budgetary impacts estimated at $348 million per year (NSW Government, 2021).

The experiment: In 2019 the NSW Behavioural Insights Unit, Training Services NSW, and the Centre for Education Statistics and Evaluation experimented with SMS messages to support apprentices and encourage them to continue their training. The experiment randomly assigned 13,065 first-year learners into three groups:

1. The first group received SMS messages on ways to build self-efficacy and get a ‘fair go’ at work (for instance, by seeking mentorship). This group also received a link to resources to help them persevere with their training.
2. The second group got SMS messages about incentives (such as pay progression and early completion). This group also received the same perseverance message that the first group received.
3. A control group received no SMS messages, although they had access to the same resources as the other groups.

The result: The experiment showed that this service reduced dropout rates by almost one in six. Dropout rates were 15.1% for the first (‘fair go’) group, and 16.7% for the second (’incentives’) group, but 17.9% for the control group. The experiment team estimated that if the most successful message went to all first-year NSW learners, an extra 370 learners each year would continue their training.

The experiment also avoided costs of $2 million for the NSW Government and a further $1.1 million for businesses. This meant that for every $1 the NSW Government spent on supporting learners with the successful SMS messages, it got $7 back.

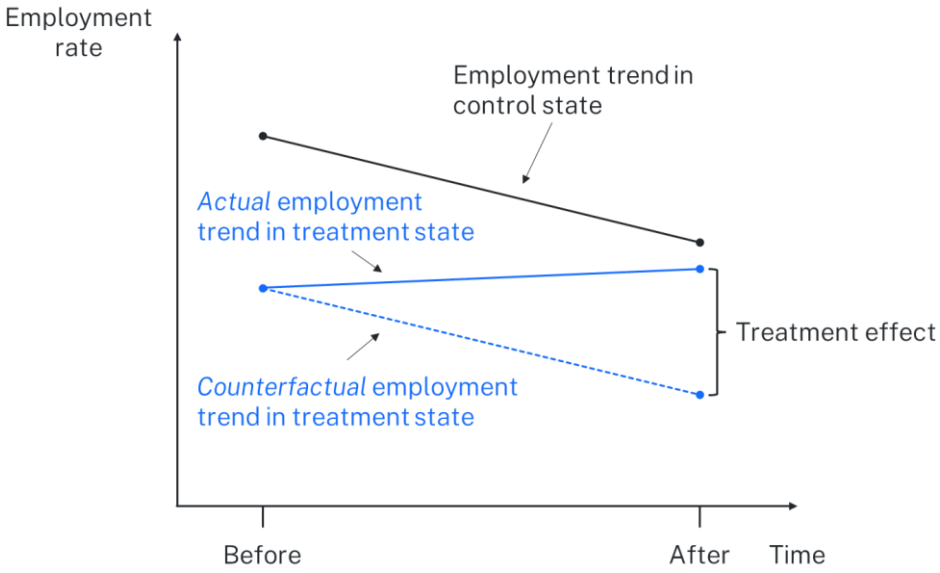
After this experiment, the service was rolled out across the state.

3.3 Quasi-experiments

Quasi-experiments are not randomised controlled trials. They are often used because practical or ethical considerations make a randomised controlled trial infeasible. Instead, experimenters specify a comparison group which seems likely to be an appropriate control.

A common quasi-experimental approach is a 'difference-in-difference' study, which estimates the differences between *groups* and over *time*. For example, one region may be subject to a regulation, but another similar region is not. In the absence of a counterfactual, researchers must assume that both regions would have followed the same trend had the regulation not been in effect. In the United States, Card and Krueger (1994) used this approach to understand the impacts of a state-based minimum wage increase on employment outcomes.

Figure 5: Difference-in-difference estimates of employment outcomes from a minimum wage increase



Source: Angrist and Pischke (2008).

Analysing differences in regulations across jurisdictions, or staggered rollouts of policies within jurisdictions, provide opportunities for regulators to better understand the causal impacts of those regulations on affected stakeholders.

Identifying a good comparison group can be difficult however, and poor choices risk producing incorrect results. For this reason, government agencies need statistical expertise to design and run quasi-experiments.

- **Recommended resource:** NSW Treasury provides succinct guidance on the strengths and limitations of a range of experimental designs (NSW Treasury, 2023).
- **Recommended resource:** The World Bank (2023) provides a detailed typology of quasi-experiments.

Consider this approach when:

- you have (or can access) statistical expertise
- randomly allocating participants to receive different interventions is not practical or ethical.

3.4 Regulatory sandboxes

A regulatory sandbox is sometimes called a 'testbed'. It is generally used where some new product, service or method would not be permitted under the existing regulatory regime. Regulators set up a real-world environment where businesses can test innovations with a limited set of customers, often under relaxed or adapted regulations, with supervision and close scrutiny.

Within the sandbox, the regulated entity is allowed to offer its product, service or method. The regulator:

- defines the boundaries of the sandbox
- provides the new regulations as an experiment
- closely watches the process and the results to learn how regulation may need to adapt or develop
- helps the business to understand the potential regulatory implications of its new product or business model
- mitigates risks as necessary.

After sandbox testing, the regulator may allow the innovation into the marketplace by varying internal rules or may even recommend legislative change if they believe it is justified and necessary.

A sandbox is not an 'anything-goes' environment; only the specific rules that are being tested are relaxed. The regulator can typically waive or alter the operation of specified regulations, but not of legislation, which would require amendment by Parliament.

Sandboxes are most useful when a new product or technology is emerging but its potential impacts on regulation, society and the economy are unclear (Challenge Works, 2021). They are most commonly used in financial, health, energy and transport regulation. The Australian Energy Regulator, for instance, has developed a process for regulatory sandboxing (see Example 5).

In practice, sandboxes can be complex to set up and operate. In particular, the language of the law needs to allow them to occur. For this reason, they occur mostly in fields where regulators have broad regulatory discretion, such as finance.

- **Recommended resource:** Challenge Works' (2021) Experimentation Toolkit provides useful detail on setting up a sandbox.
- **Recommended resource:** The OECD (2024b) provides helpful examples and discussion, including around the legal basis for regulatory experimentation.

To pursue the sandbox approach, regulators must have a clear need and objective.

In interviews for this study, one regulator said their agency had gained great value out of seeking advice from another regulator in a different jurisdiction which already had sandbox experience.

Consider this approach when:

- seeking to encourage businesses to propose and trial new methods, products and business models

- there is sufficient regulatory flexibility, or permissions can be obtained through exemptions, waivers or legislative change.

Example 5: Australian Energy Regulator's regulatory sandbox

The evolving energy mix and consumer demands pose regulatory challenges for Australia's energy market. The Australian Energy Regulator (AER) has established a regulatory sandbox to help bring new technologies to market and allow frameworks to adapt to rapid change.

How it works: The sandbox supports energy innovators and startups by temporarily removing or amending an energy regulatory barrier. These relaxed regulatory settings allow for innovative business models and technologies to be tested in a real-world environment.

Once businesses submit a trial application, the AER, Australian Energy Market Commission, Australian Energy Market Operator and Victorian Essential Services Commission assess the application and determine which waivers or rule amendments are required.

The trials provide supporting evidence that can inform, and in some cases accelerate, rule change decisions.

Progress to date: In 2023, the AER granted its first trial waiver to upgrade smart meters in parts of Greater Western Sydney and regional NSW. The smart meter technology is expected to reduce electricity consumption at peak periods and lower electricity network costs for consumers (AER, 2025).

Lessons learnt from the trial will inform necessary longer-term transitions and will help other jurisdictions accelerate the rollout of smart meters.

4 How experiments drive better regulation

Governments are responsible for implementing regulations that deliver the community's economic, social, and environmental goals. To fulfil their mission, governments must adapt their regulatory practices in response to changing risks and the needs of their citizens.

Done properly, regulatory experiments provide the best evidence of cause and effect and equip agencies with the information they need to drive regulatory improvement. Experiments also allow regulators to learn from both their failures and their successes, concentrating resources to where they are most valuable and preventing the implementation of ineffective ideas.

For regulators, experimentation can be a powerful tool to address challenging policy problems and support best-practice regulation.

4.1 Responding to changing risks

Regulators sometimes encounter cases where the environment changes so far and so fast that existing evidence stops being a reliable guide. This was certainly the case during the COVID-19 pandemic. Public health officials suddenly needed better ways to promote compliance with unprecedented rules such as self-isolation (see Example 6).

In such situations, excessive risk aversion can paralyse policy decisions which could provide a net benefit to society. Regulatory experimentation does not eliminate risk. But it can equip policymakers with better evidence to help government minimise risks, see unanticipated consequences, and make decisions in the best interests of all citizens.

Example 6: Better communication with self-isolating COVID testers

The case for action: During the COVID-19 pandemic, some people in NSW were confused by the requirement to self-isolate until a test could clarify their COVID status.

The experiment: To improve self-isolation compliance, the NSW Government's Behavioural Insights Unit and NSW Health randomly assigned people to either the existing self-isolation briefing process or a new process that included a new handout and an enhanced briefing.

The result: Recipients of the new process reported staying in isolation at a higher rate (92.5%) than those who received the existing process (89.5%) (NSW Behavioural Insights Unit, 2022). The results met the formal 'statistical significance' hurdle.

4.2 Dealing with technological change

At the other end of the spectrum, technological change brings new business models and practices that can create tremendous rewards as well as risks. Here, too, the risks to the public may be hard to assess and respond to within existing frameworks (OECD and Korea Development Institute, 2021).

But we also need to set these against the benefits of new technologies. Experimentation can help us to optimise regulation and provide a pathway to achieve the greatest possible benefits without substantial harm. Providing clear pathways for experimentation can also stimulate innovation by sending a signal to the market that new products and approaches are welcomed. For example, the UK's Financial Conduct Authority has had significant success using its Innovation Hub to support innovation in the financial services sector (see Example 7).

The pace of technological disruption is increasing rapidly, and growing global connectedness means that digital innovations developed elsewhere in the world can quickly transcend geographical borders. As such, regulators need to be agile and adaptive because inaction comes at a cost, creating private sector uncertainty, less global competitiveness and potentially harm to consumers (Fenwick et al., 2017). A stagnant regulatory framework creates an uneven playing field, allowing new businesses to exploit regulations to disrupt the market. This can have undesirable consequences, for example in the taxi industry (with businesses like Uber) and the financial services industry (with unregulated buy-now-pay-later products).

Example 7: UK Financial Conduct Authority sandbox

One of the oldest and most well-studied regulatory sandboxes in the world belongs to the UK Financial Conduct Authority (FCA). It has been up and running since 2016; banking firms that have used it include Barclays, HSBC and Lloyds.

How it works: The FCA sandbox is designed to provide a safe space for fintech startups and other innovative financial services businesses to test their offerings without immediately facing the full burden of regulation. Firms apply to join the sandbox and submit a testing plan. The FCA assesses each business' application; if it is accepted, it can test its products, services, and business models for up to six months.

Each accepted business is assigned a dedicated case officer. Together the business and the case officer prepare test activities, and the business is assigned a testing tool and any necessary authorisation.

At the end of the testing period, the business reports the results of its test. If the test is successful, the business can apply to be authorised to take part in a regulated activity.

Its benefits: The FCA Regulatory Sandbox and its associated Innovation Pathways services have collectively received 2,421 applications and supported 854 businesses since its launch in 2014. Research from the Bank for International Settlements shows that regulatory sandbox businesses are 50% more likely to receiving any funding, and on average receive 15% more funding (Cornelli et al., 2020). The sandbox has supported experimentation and innovation in areas such as artificial intelligence (AI), machine learning and predictive analytics, distributed ledger technology (such as blockchains), open banking, application programming interfaces (APIs) and digital ID.

Following the success of two pilots, the FCA launched the Digital Sandbox in 2023. Pilot participants reported that the Digital Sandbox accelerated product development by up to two years, with substantial progress in bringing a product to market (FCA, 2021).

4.3 Finding more cost-efficient ways of regulating

Experimentation can ease the burden on resource-constrained regulators by methodically finding new, more efficient ways of achieving regulatory outcomes. One way this can be achieved is through embracing a mindset of continuous improvement; experimenting with routine processes, adopting what works best, then continuing to iterate and improve.

For instance, the Treasury Department in Medellín, Colombia trialled using a bot to identify potential tax evaders, rather than manually searching for non-compliant businesses. This automated approach was much more effective and freed up government resources to focus on integrating unregistered businesses into the formal tax system (see Example 8).

Improving the efficiency and effectiveness of regulation not only has productivity benefits for regulators, but also for businesses and the economy more broadly. Achieving the same or better regulatory outcomes with fewer inputs means that more public resources are freed up to go

towards other productive uses. Further, while regulators require resources to oversee, enforce and educate regulated parties, the rules also impose an administrative and financial burden on businesses and consumers. By systematically testing and evaluating new regulatory approaches, regulators can move towards the optimum level of regulation that maximises economic productivity while still achieving social and environmental objectives.

Experimentation can also support the case to remove ineffective policies, which impose significant costs while doing little to improve outcomes.

Experimental results can provide a useful business case to prevent the costly implementation of regulation that is ineffective or carries unintended consequences (see Example 3). Where possible, regulatory experimentation should be used to demonstrate that a policy generates net benefits to the economy prior to its full-scale implementation.

Example 8: Automating the tracking of potential tax evaders

The case for action: The digital economy has experienced significant growth in Medellín, Colombia. So too has digital tax evasion, as many small e-commerce businesses do not pay the tax required. The local Treasury Department searched manually for unregistered online stores. This slow approach was unsustainable given the rapid growth in digital tax evasion.

The experiment: Many small businesses' online presences are simple social media pages. In a three-month pilot, the Treasury Department trialled a bot (called KBoot) that automatically scrapes data from Instagram profiles and matches the data with local telephone operators to identify unregistered businesses.

The result: Searching manually, officials at the Treasury Department can detect six stores per hour. At the end of the pilot, KBoot had identified 20,828 profiles associated with commercial activities, at a rate of 45 per hour (Medellín Government, 2019). This reflects significant efficiencies: the bot not only works faster at detecting potential tax evaders but also works outside office hours.

4.4 Overcoming opposition to change

Stakeholders may resist regulatory reform for various reasons, such as vested interests in the current arrangements, perceived levels of risk, or the potential for negative side effects.

Regulators have used experimentation to overcome opposition to beneficial policies and prevent the rollout of ineffective policies (BIT, 2023). Burtless (1995) argues that experimental results can be an effective tool for driving policy reform:

> '[P]olicymakers and many social scientists find experimental results easier to understand – and ultimately more convincing – than results from most other kinds of policy evaluation.'

Testing proposed policy changes in a way that is temporary or confined to a specific region can help to overcome resistance to change by limiting exposure to possible downsides. This approach provides reassurance by outlining the scope of what will be involved, how success will be measured and how risks will be mitigated. By gathering evidence, regulators can demonstrate the benefits of reform, showing that risks can be managed and that negative consequences do not eventuate or can be avoided.

The NSW e-scooter trial is an example where the temporary nature of the trial has provided local councils with the reassurance they needed to participate (see Example 9).

Example 9: E-scooter trial

The case for action: Under existing regulations, e-scooters are illegal on public roads and footpaths in NSW, and there are currently no safety standards that apply to their use on the road (Transport for NSW, 2020). Cities such as Paris and Singapore initially allowed shared e-scooters to roll out relatively freely. But both cities later responded by tightening restrictions, suggesting that safety concerns were insufficiently addressed by technological advances in e-scooters.

Scoping a trial: To inform the scope of the trial, the advisory group consulted with key stakeholder groups, including local councils, community groups and road safety experts. They explored a range of complex issues, such as safety, compliance, insurance and data collection.

Securing trial partners: In 2022, Transport for NSW launched the E-scooter Shared Scheme, with seven local councils opting to participate (Transport for NSW, 2025). The temporary nature of the trial and the well-defined parameters around usage reduce the risk to councils and aid participation. This approach allows government to steer regulation in a way that maximises the benefits of the new technology.

5 Challenges for experimenters

While experimentation can be a powerful tool for regulators seeking to improve policy, it is not without its challenges. Below are some of the practical issues that may arise in experimentation, and possible fixes that regulators can apply to create useful experiments.

5.1 Acknowledge implementation issues

Difficulties of experimenting in the real world

Experimenting in the real world is very different to experimenting in a laboratory. The real world is complicated, unpredictable and involves factors that can often be outside of the researcher's control. These factors can impact on the quality of the results. For example:

- People may be assigned to one type of intervention yet be exposed to another – for instance, by communicating with people who received a different intervention.
- People may drop out of the experiment.
- External factors may undermine the experimental setting, such as natural disasters or unplanned media coverage.

Accounting for these risks is a challenge for any social policy researcher and highlights the skill involved in designing, implementing and analysing experiments. It is important to have risk management plans in place to identify and mitigate possible risks. Monitoring the experiment and conducting interim analyses also helps to flag potential problems early and can allow researchers the opportunity to remedy implementation issues.

Financial and time constraints

In interviews for this study, most regulators worried about the resources and budget that regulatory experiments would require. For regulators who often feel under-resourced, experiments were one more thing that consumes staff time and money and might create new issues. One regulator volunteered that the volume of the regulatory organisation's existing work could 'overwhelm people's ability to try new things or think of different approaches.'

In these cases, regulators may consider opting for an online A/B test, which can offer faster and cheaper experimental evidence.

Complexity of regulation processes

A feature of both regulation and experiments is that they typically need many complex processes and approvals. Regulators looking to experiment, however, are often looking to do so in a relatively short timeframe. This often makes driving experimentation a challenge – particularly when regulators want to institute a complex process like regulatory sandboxing, where innovations are supposed to evolve in real time with regulatory oversight.

In addition, regulators may be uncertain about their formal power or informal freedom to conduct experiments. As one regulator put it in an interview for this study:

> 'There is uncertainty around what the role of the regulator is and where the boundaries of a regulatory body's remit are.'

Starting with smaller, simpler trials helps to build confidence and familiarity with what is and is not feasible and allows regulators to develop the skillsets needed to navigate more complex settings.

Securing trial partners

Depending on the nature of the regulatory experiment, collaboration with partners (such as industry) may be necessary. Several regulators interviewed for this study faced issues finding, engaging and maintaining partners for experimentation. This dependency on external partners creates additional challenges for running experiments and managing risks and expectations if partners withdraw support. Effective communication and scoping of an experiment can alleviate trial partners' concerns and help build buy-in (see Example 9).

5.2 Knowing when to experiment

Done properly, experimentation can produce powerful evidence for policy decisions. Given the potential to improve regulatory policy and practice, it would be ideal for agencies to approach regulatory experimentation with an 'if not, why not?' mindset. Recognising that regulatory experimentation will not always be practical or desirable, agencies are encouraged to consider running regulatory experiments as suitable opportunities arise.

Figure 6 highlights some scenarios where regulatory experimentation may be more suitable and those where it may be less suitable (see Appendix for further details).

Figure 6: Suitability of experimentation under different scenarios

Source: NSW Productivity and Equality Commission.

6 Regulatory experiments: where to begin

While we know there is strong interest among regulators in regulatory experimentation, they can also find it difficult to know where to start.

Regulators told us they may face challenges when trying to get regulatory experiments off the ground. The challenges include resource and logistical constraints, concerns of risks, or negative attitudes towards regulatory experimentation (BIT, 2023).

Nevertheless, some regulators have overcome these challenges; they have implemented novel regulatory experiments, improved regulatory outcomes and driven change in their organisations. Their experiences suggest how regulators can change the status quo and foster a culture of regulatory experimentation.

In this section we offer practical steps to build confidence and support for regulatory experimentation.

The NSW Productivity and Equality Commission, in partnership with the NSW Behavioural Insights Unit, wants to support regulatory experimentation in NSW. Contact us for further advice and support getting started.

6.1 Foster an experimentation culture

Use small wins

Beginning with smaller, simpler experiments can help to build confidence and expertise when regulators start experimentation. Shorter, lower-risk trials are easier to manage when training staff and growing internal capacity. Shorter trials also mitigate concerns about resources and possible negative outcomes. For example:

- Trial new communication strategies with regulated parties to increase compliance.
- Modify internal processes to increase efficiency.
- Use online surveys to estimate how people will respond to different regulatory designs.

In interviews for this study, three different regulators said they had won over parts of their organisation by showing on a small scale that experiments could generate useful results. One noted that results had boosted their team's support:

> 'Having a past track record builds confidence that the team are capable, and good outcomes from past projects gives senior leaders confidence to do [more].'

- **Recommended resource:** The NSW Behavioural Insights Unit (2025) has an easy-to-use 'sludge audit' tool that assists with identifying, quantifying and improving internal processes.

Build regulatory experimentation into project plans

Regulators should seek to incorporate regulatory experimentation into their toolkit for tackling regulatory issues. One way to do this is by building regulatory experimentation into evaluation plans at the time a new or changed regulation occurs. This evaluation plan would include a detailed outline for data collection, experimental method and analysis.

This creates space for experimentation in projects and sets the expectation that various policy solutions will be tested to try to determine the most effective outcome.

Where time or finances are limited, agencies should consider how to run cheaper online trials or conduct experiments in parallel to other project tasks to ensure they still meet deadlines.

Keep improving

An experimental approach enhances the evolutionary process of continuous improvement: it tests the merits of competing ideas, proceeds with the most effective and then repeats the process. Regulators collect a range of data sources that could point to a potential problem, such as customer complaints, falling compliance rates or slower processing times. Agencies should consider what options are available and how they might test these options to continually improve regulation.

Publicise experiments and share experiences and findings

Publicising experiments within government and sharing experiences and lessons learnt can help to normalise regulatory experimentation and erode negative perceptions. Presenting findings to other teams and publishing results both build a profile for regulatory experimentation and smooth the path for future projects.

One regulator interviewed for this study noted that building awareness of experimentation helps to socialise it within government:

> 'Teams see each other doing regulatory experimentation and say, "Oh I didn't know you could do that!"'

Celebrate experiments, regardless of success or failure

Experiments are intended to generate evidence and demystify the results of a particular course of action. If the results were known, the experiment would be unnecessary.

While positive results are certainly desirable, for well-designed experiments, inconclusive (or 'null') results should not be seen as a failure, but as building an evidence base to inform policy decisions. Several examples cited in this paper – such as the energy labelling scheme experiment in Example 3 – suggest regulations are less important than many people assume, and that alternative approaches may work better in particular circumstances. Such results are important if we are to get more bang for our buck when it comes to regulation.

Inconclusive results can also be symptomatic of difficult policy problems, and it should not be expected that solutions come easily (Leigh, 2023). An experiment that prevents the implementation of an ineffective policy is just as valuable as one that supports the rollout of an effective policy. As such, regulators should seek to publicise and celebrate experiments – including 'failed' ones. This creates a broader perception that experimentation is commonplace, and that not all experiments need to show a successful result to be useful for decision-making.

6.2 Develop skills and expertise

Use online tools to build internal capacity

Online tools have made regulatory experiments increasingly accessible for regulators. Many website, app, email and survey platforms have in-built features to automate and simplify much of the experimental process.

- **Recommended resource:** Ideas42's (2017) free A/B Testing Tool guides you through the research planning, design, implementation and analysis for simple randomised trials.

Grow skills by partnering with experts

Another way regulators have grown their experimentation skills is through collaboration with other regulators or external partners who have expertise in running experiments. Under this model, the experienced project partner leads the experiment and, as part of the process, trains the team to develop their maturity in regulatory experimentation. As internal capability grows, the team is better able to run experiments on their own.

The Australian Energy Regulator, for instance, has formed a research partnership with the Australian Government's Behavioural Economics Team.

Leverage existing networks and resources

Alternatively, agencies can consider leveraging the existing networks and resources within the public sector. Communities of practice are helpful forums to share knowledge and learnings.

- **Recommended resource:** The NSW Behavioural Insights Unit (2023) provides a range of guides on experimentation and testing interventions.
- **Recommended resource:** The National Regulators Community of Practice run by the Australian and New Zealand School of Government (2022) provides an excellent network to share and learn from other public sector regulators.

6.3 Build institutional support

Secure leadership backing

Regulatory experimentation works best with support from senior leaders who champion a culture of experimentation and can advocate for the time and resources it needs. Policymaking provides no risk-free options; there are risks even in doing nothing and in doing things the way they have always been done. But often the risks of doing nothing are not obvious. Senior leaders should recognise this and also acknowledge the potential rewards and risks of encouraging a culture of experimentation. They should celebrate successes and allow regulators to learn and improve from failures.

Top-down support insulates experimenters from negative attitudes and risk aversion in the early stages, helping them to get off the ground and develop the evidence needed to guide best-practice policy. In interviews for this study, one regulator emphasised its team had used small wins to generate senior-staff confidence. Another reported:

> 'The way that our Chair has engaged with, and championed this project has been instrumental in helping us receive funding for the project.'

Regulators also valued explicit commitments to experimentation from political leaders and heads of organisations, including statements in strategic plans. One regulator reported:

> ‘The minister’s endorsement ensures we have engagement and commitment… In general, it’s given us greater confidence to implement this.’

Communicate the value of regulatory experimentation

Agencies should highlight the advantages of regulatory experimentation to prove they can produce better outcomes. Examples such as the COVID-19 regulatory relaxations show how much regulatory experimentation can deliver to the NSW economy.

First-hand experience of doing regulatory experimentation and scoring small wins that you can point to as markers of success will further highlight the advantages of this approach.

While detractors may focus on the risks, regulatory experimentation provides an opportunity to test assumptions and measure and monitor risks. Communicating the temporary nature of the changes and the ability to roll them back if unsuccessful can alleviate concerns and provide buy-in to allow experimentation to expand.

Have a clear scope and objective

Having a thorough and detailed plan will help to articulate how the experiment will be conducted and how the evidence generated will be used, giving greater transparency over the process. When developing a plan for an experiment, regulators should be as explicit as possible. They should detail the rationale for the proposed approach, the roles and responsibilities, timeframes, the risks identified and the plan to mitigate those risks.

Appendix

Regulatory experiments are a powerful tool in a regulator's toolkit for generating evidence and advocating for positive reforms. However, while experimental evidence will be advantageous in many cases, there are also cases where regulatory experiments may be an ineffective or undesirable approach for driving regulatory change.

Table 1: Suitability of regulatory experimentation under different scenarios

Suitability for experimentation	Scenario	Description
Most suitable	Uncertainty around outcomes or policy design	Regulatory experimentation will have greater value add when there is contention regarding a particular problem and how it should be solved. By testing the competing claims and finding what works best, for whom and under what conditions, the experimental evidence can support the case for a particular course of action.
	Running larger, more expensive regulatory reforms	Larger reforms and those with significant economic impacts are more suited to experiments. In these cases, an experiment would reflect a small fraction of the total project costs yet could yield outsized returns in program efficiency and optimisation.
	Greater flexibility in regulatory processes	Regulatory experimentation is likely to be more suitable in regulatory areas that require fewer parties to approve them, and where regulation is more outcomes-focused, allowing for sufficient flexibility in how the outcome is achieved. For instance, the UK Financial Conduct Authority – like most prudential regulators – has substantial discretion in regulating financial institutions.
Moderately suitable	Incompatible time scales	Where a policy decision is needed urgently, it can be difficult to produce the necessary evidence in the time required. In these situations, it may be possible to use more rapid experimental methods (such as online trials) to generate experimental evidence in a short timeframe. Failing this, the policy change could be run as a pilot and subject to a post-implementation review.
Least suitable	Pre-determined pathway for reform	If experimental evidence is unlikely to change the course of action being taken, then the time and budget required for regulatory experimentation will make it a poor use of resources.
	Experimentation is unethical or inappropriate	It is critical to assess risks and impacts from the experiment to those receiving the policy intervention, particularly when involving vulnerable populations. Where randomised trials or before-and-after studies cannot be conducted and quasi-experimental methods

		are unsuitable, agencies should rely on desktop research.
	Lack of data infrastructure	Access to reliable, high-quality and timely data is a necessary requirement for regulatory experimentation. Regulators must have the capacity to measure the outcome being targeted in the experiment.
	Complex target behaviours	For regulators that focus on behaviour (either of consumers or some regulated entities), experimentation is most useful where the policy change seeks to influence a behaviour that is relatively isolated and straightforward, as opposed to more complex, multi-factor behaviours (BIT, 2023).

Source: NSW Productivity and Equality Commission.

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