Innovation Growth Lab

IGL

Embedding Dynamic Learning

A guide to pilot and test interventions within mission-oriented innovation policies

0.1 What is an experiment?

In essence, an experiment is "*a test done in order to learn something or to discover whether something works or is true*".

Experiments are **structured** - they start with a clear question to be answered or hypothesis to be tested, and a predetermined process for gathering data that will help to do this.

Experiments are about trying to identify impact and so as far as possible, they are set up in a way that will enable an assessment of cause and effect. This usually involves **control** - holding some factors constant while changing others.

Crucially, experiments should generate evidence that will support **decision-making** - such as identifying promising ideas to try, adjusting the design of a programme to make it more effective, stopping an initiative that isn't having the desired impact, or scaling up one that shows potential.

0.2 The need for experimentation within mission-oriented innovation policies

Mission-oriented approaches have become increasingly popular as a way to direct innovation towards societal goals. While mission-oriented innovation policies inherently have multiple pathways to success, experimentation plays a key role in enabling missions to achieve their ambitious targets. Instead of viewing progress as a messy unstructured learning process, embedding experimentation in missions enables dynamic, structured learning to take place. From quick "nimble" trials testing small tweaks to optimise implementation through to larger field experiments to determine the impact of a programme on important outcomes, there are many ways pilots and tests can help generate evidence to steer missions in the right direction.

The rest of this report sets out:

- The key principles of experimentation to take place
- Where to identify are opportunities to experiment missions
- What the process of experimentation looks like
- Further reading and resources

1.1 Mindset

When we refer to an experimental mindset, we refer to a set of fundamental assumptions and perspectives that frame the understanding of one's own role, practice and potential. For example, openness to trying new ideas or questioning what we know or don't know, are ways of thinking that form part of the experimental mindset. Mindset goes on to drive behaviour (how we interact with the world) and eventually form experimental habits (unconscious competences required for experimentation to take place). Together mindset and habits come together as a set of principles that are essential for experiments to be designed and run, and for the evidence generated to inform public policy and problem solving.

1.2 Structure

Experimentation must also take place within a structured system that can capture learning. This is what differentiates experimentation from simply trying something new. Specific skills, resources and conditions are required to find out if what we have tried has worked or is true.
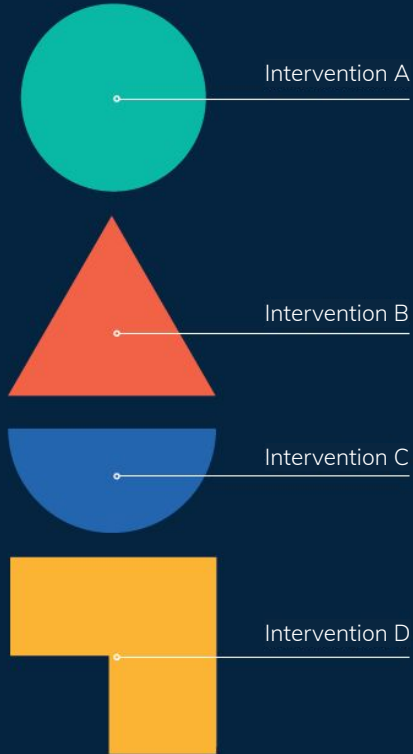
This structure must be in place before we get started. For example, having adequate data infrastructure, allowing time for failure and iteration in programme design, or creating the right processes for experimental findings to inform decision making, are some of the ways experimentation needs to be supported by a structured approach.

1.3 Culture

The culture of an organisation or collective is an equally important part of experimental policymaking. Traditionally, large-scale programmes launch without small-scale testing, with one design and a hope that it will work. We may only find out programmes did not achieve the desired impact after public money had been poured in. This approach is unlikely to make any innovation mission a success. Instead an experimental culture calls for an approach that starts small, trials different designs systematically, to learn what works to increase impact before we scale up the most promising ideas.

What is a policy experiment?

Step 1: Trial different interventions	Step 2: Evaluate their impact	Step 3: Scale-up what works best

Step 1: Trial different interventions

Intervention A

Intervention B

Intervention C

Intervention D

Step 2: Evaluate their impact

Intervention A
Result: Significant positive impact

Intervention B
Result: No change of impact

Intervention C
Result: A negative impact

Intervention D
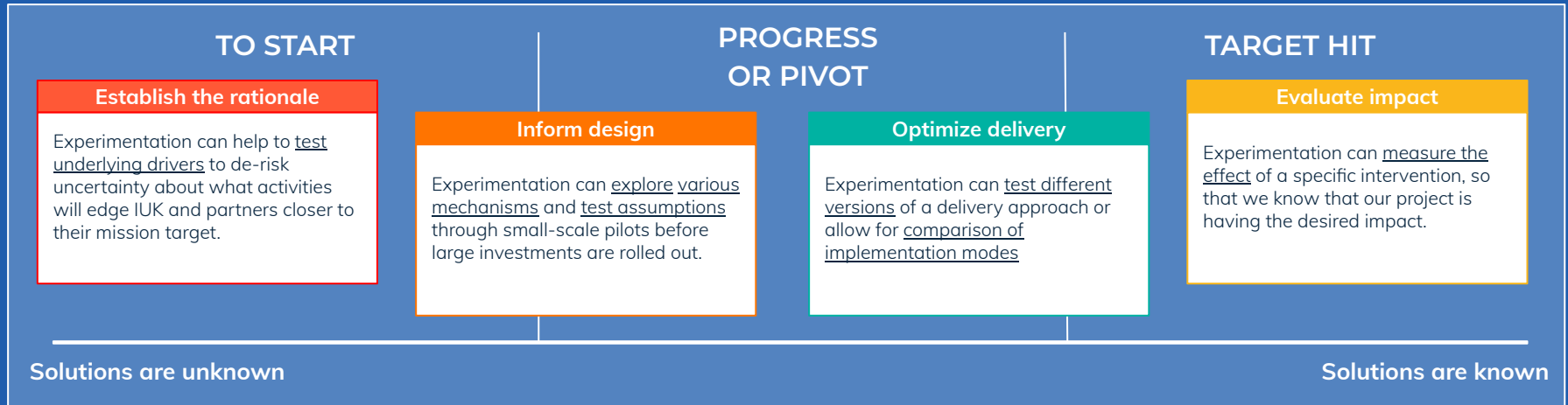Result: A positive impact

Step 3: Scale-up what works best

IGL

2.1 Big questions across mission levels

Missions will have to set ambitious targets. Selecting metrics to assess project, portfolio and mission level outcomes will be a key part of ensuring that targets are met. This will include for example evaluating implementation processes, outcomes, and interactions between institutions. But what if the metrics being measured tell us that we are not on course to achieving our desired mission goals? This is where experimentation comes in.

Along the mission life cycle, we may ask when is the right time to start an intervention, whether we should progress or pivot activities or if the interventions we are investing in are having the desired impact on our targets? Experiments can help us to:

TO START

Establish the rationale

Experimentation can help to test underlying drivers to de-risk uncertainty about what activities will edge IUK and partners closer to their mission target.

PROGRESS OR PIVOT

Inform design

Experimentation can explore various mechanisms and test assumptions through small-scale pilots before large investments are rolled out.

Optimize delivery

Experimentation can test different versions of a delivery approach or allow for comparison of implementation modes

TARGET HIT

Evaluate impact

Experimentation can measure the effect of a specific intervention, so that we know that our project is having the desired impact.

Solutions are unknown

Solutions are known

3.1 To start, pivot or progress, or hit the target?

At the Innovation Growth Lab our process to deliver an experiment is broken into four phases that help to:

Define & Explore
1. Identify or scope a project, portfolio or mission-level problem to determine the potential to improve outcomes and choose the most promising ideas to be tested in an experiment. *Goal: Understand the problem and identify clear intervention areas;*

Design & Plan
2. Determine how to evaluate the feasibility and promise of the intervention, planning the structure for a successful experiment. *Goal: Progress ideas to design stage and put in place the structures to learn;*

Pilot & Test
3. Deliver as planned the small-scale pilots, and when ready larger experiments. *Goal: Successfully run the experiment and capture learning;*

Learn & Scale
4. Learn continuously throughout all phases as part of a broader experimental approach. *Goal: Set in place the systems to ensure the evidence generated by experiments informs decision making.*
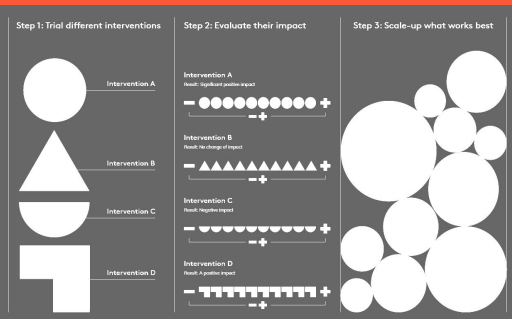
3.2 Deep dive: Using evidence to inform decision-making

A key part of embedding experiments in the mission approach is having dedicated stakeholders from the Mission to discuss evidence generated from projects and experiments taking place across Mission areas. The idea of a Mission forum aim to steer decision making.

Step 1: Trial different interventions
Step 2: Evaluate their impact
Step 3: Scale-up what works best

Intervention A
Intervention B
Intervention C
Intervention D

Intervention A
Result: Significant positive impact

Intervention B
Result: No change of impact

Intervention C
Result: Negative impact

Intervention D
Result: A positive impact

1. Areas to scale up based on evidence of what works and has a positive impact

"What should others in the Mission replicate or invest more in?"

3. Areas to be scaled down due to negative impact.

"What should other in the Mission be cautious of replicating or not do?"

What does evidence from individual project tell us about portfolio performance?

Project-level pilot & test findings

What does evidence tell us about progress on sub-mission objectives?

2. New ideas to test based on where evidence is weakest and where uncertainty remains (little to no impact)

"What should the Mission be testing more off?"

4. Having kept an eye across the broad evidence base, how confident the Mission should be on:

- Understanding of the problem;
- Completeness of available interventions;
- Feasibility/optimisation of solutions;
- Effectiveness of solutions

8

4.1 Within your organisation

This report was designed for use by the Innovate UK team but the experimentation principles that form the basis for dynamic learning to take place may be used for other innovation mission coalitions. The process to designing and running a test has taken randomised controlled trials (RCT) as the benchmark methodology for causal impact evaluations but pilots and other evaluation methodologies can also have an important role. IGL has designed a number of templates and curated resources that are useful to use when communicating with others or delivering experimental work. If you are interested in learning more, please get in touch with innovationgrowthlab@nesta.org.uk

4.2 With Mission partners

This report might also be useful to share with Mission partners outside of your organisation to develop a shared language around how experimentation and evidence-based decision making can inform projects, portfolios and mission targets. Again, please get in touch with the Innovation Growth Lab if you believe we can support you to embed experimentation across your mission ecosystem.

Further reading: References and useful tools

IGL's key resources

📘 IGL website: a repository of our publicly available material, including blogs, briefings and toolkits

🔧 Trials database: a curated collection of more than 100 randomised controlled trials (RCTs) in innovation, entrepreneurship and growth policy

🔧 Evidence Bites: a collection of actionable insights and ideas worth trying in the entrepreneurship and business support space

🔧 A guide to RCTs: a practical guide on why, when and how to do a RCT

📘 Boosting experimental innovation policy in Europe *(briefing)***:** outlining how innovation agencies can develop the openness and capabilities needed to embrace randomised experimentation

📘 Experimental Innovation Policy *(paper)***:** an NBER paper making the case for experimentation in innovation and growth policy, and setting out lessons learned from supporting experiments in this area

Section 1: Experimentation as a principle

📘 **Christiansen**, **Jesper, Bas Leurs and Guilio Quaggiotto**, Towards an experimental culture in government: reflections on and from practice (Nesta, 2017), https://innovationgrowthlab.org/blog/towards-experimental-culture-government-reflections-and-practice

📘 **Quaggiotto, Guilio, Bas Leurs and Jesper Christiansen**, *Exploring the unobvious: six principles to establish experimental practices* (Nesta, 2018), https://www.nesta.org.uk/blog/exploring-unobvious-six-principles-establish-experimental-practices

🛠 **Skills, attitudes and behaviours that fuel public innovation**, (Nesta, 2019), https://media.nesta.org.uk/documents/Nesta_CompetencyFramework_Guide_July2019.pdf

Section 2: Where to experiment?

📘 'Capacities and tools for working with the mission in beta mode' in *An inclusive and diverse innovation system in UK: Towards a mission-oriented framework for 'Knows No Limits*, (UCL Institute for Innovation and Public Purpose, 2023).

📘 Experiment Ideas for the 'Knows No Limits' mission, (IGL, 2023), https://docs.google.com/document/d/1GYvaB5KXNOpwPD1dxKUmmEHC8g6Hj7xT_Xqv7AR6xXM/edit?usp=sharing

📘 Experimental Innovation Policy *(paper)***:** an NBER paper making the case for experimentation in innovation and growth policy, and setting out lessons learned from supporting experiments in this area

🛠 **Leurs, Bas and Isobel Roberts**, 'Continuum of experimentation' in Playbook for innovation learning (Nesta, 2018)

Section 3: The experimental process

📘 **Zolho, Nyangala**, How experimental learning takes place (IGL, 2023),
https://www.innovationgrowthlab.org/blog/how-experimental-learning-takes-place

🛠️ 5 Whys, Interaction Design Foundation, https://www.interaction-design.org/literature/topics/5-whys

🛠️ Ideation Method: Mash-Up, IDEOU, https://www.ideou.com/pages/ideation-method-mash-up

🛠️ Building support for experimentation

📘 **Czibor, Eszter and Teo Firpo**, "Challenge everything" - A challenge prize centre embraces experimentation (IGL, 2021),
https://www.innovationgrowthlab.org/blog/%E2%80%9Cchallenge-everything%E2%80%9D-%E2%80%93-challenge-prize-centre-embraces-experimentation

📘 **Ludlow, Joe and Ruth Puttick**, Nesta's Standards of Evidence (Nesta, 2013), https://www.nesta.org.uk/report/nesta-standards-of-evidence/

📘 **Hopkins, Anna, Jonathan Breckon and James Lawrence**, The Experimenter's Inventory (Nesta, 2020),
https://media.nesta.org.uk/documents/Experimenters_Inventory.pdf

🛠️ PICO approach

🛠️ Scoring assumptions guide and worksheet

📘 **Vos, Harry,** Prioritise the riskiest assumptions in big problem spaces (UK Civil Service, 2022), https://services.blog.gov.uk/2022/11/03/prioritise-the-riskiest-assumptions-in-big-problem-spaces/

🔧 **Keane, Theo and Brenton Caffin**, DIY Toolkit, Nesta, SBTY and Quicksand, https://www.nesta.org.uk/toolkit/diy-toolkit/

📘 Magenta Book, UK HM Treasury and Evaluation Task Force, https://www.gov.uk/government/publications/the-magenta-book

📘 Guide to scoring the evidence (What works centre for local economic growth, 2015), https://whatworksgrowth.org/resource-library/guide-to-scoring-the-evidence/

🔧 IGL Trial Analysis Guide (update coming soon)

🔧 IGL Trial Protocol Template

🔧 Statistical Analysis Plan

🔧 Introductory video on analysis from Nesta

🔧 **Glennerster, R**, Running Randomised Evaluations, http://runningres.com/course-details

📘 World Bank curated list of Development Impact blogs

The Innovation Growth Lab

IGL is a global non-profit research centre that works to build more productive, sustainable and inclusive economies by generating and applying new ideas and rigorous evidence. We make innovation and growth policy more experimental and data-driven by partnering with and connecting policymakers, practitioners, researchers and funders to address key policy challenges.

Since launching in 2014, we have supported over 70 policy experiments in 28 countries. We have also collaborated with over 35 government agencies across 5 continents to help them become more experimental.

Our work leverages a range of methods and approaches to:

- **Help organisations to become more experimental** by developing the capabilities of our partners to adopt an experimental approach and engage in evidence-based decision-making

- **Drive experimental research** by conducting pilots and randomised controlled trials to identify what ideas to try and when to adapt, scale or move on

- **Leverage data science and innovation mapping** by creating and using new data sources, methods, and visualisation tools to inform current and future research and innovation policy

- **Analyse and influence policy** by researching and assessing relevant policy trends, and advocating for a more experimental approach to policymaking

- **Convene learning communities** by making connections to support peer learning and exchange of lessons and best practices between policymakers, researchers and practitioners

- **Make evidence more actionable** by collating, analysing and sharing insights and evidence with partners and policymakers

This Framework and the research that informed it was produced by the Innovation Growth Lab, as part of the development of the 'Knows No Limits' Mission, led by Innovate UK.