

# ICE Insights Paper: How can governments plan for sustainable infrastructure?

## Overview and purpose

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The delivery of successful and lasting infrastructure starts by planning for the long term. Long-term planning should consider the overall need for infrastructure, the inter-dependence of infrastructure sectors and projects, and factors throughout the infrastructure life cycle, such as funding and financing, supply-chain, technological advancements, and skills. Failing to consider these factors can weaken the quality of infrastructure and shorten its lifespan.

Sustainable infrastructure is often thought to include only infrastructure related to the impacts of climate change. For example, the decarbonisation of power systems, or how transport and water infrastructure may be impacted by extreme weather. However, sustainable infrastructure means more than just dealing with climate change; planning early not only helps countries decarbonise and adapt infrastructure to climate impacts, but also helps them achieve long-term economic, social and environmental benefits. This includes promoting innovation, creating green jobs and improving the quality of life for communities.

This year, the Institution of Civil Engineers (ICE)-led Enabling Better Infrastructure (EBI) programme ran a series of joint events with the United Nations Environment Programme (UNEP) on how governments plan ahead to deliver sustainable infrastructure. The sessions heard from government officials on how their countries consider long-term challenges – namely, skills, financing and data to support the delivery of long-lasting infrastructure.

This paper combines the insights from these sessions and suggests some lessons for professionals embarking on long-term infrastructure planning. It acts as a guide for governments developing infrastructure strategies and tackling the issue of infrastructure maintenance. It sets out techniques that are working, challenges that countries face and learnings that should be considered. A special focus is paid to how prioritising skills, financing, and data and digital solutions can help strengthen infrastructure.

It combines insights from specialists who presented at the EBI and UNEP series of events, interviews with experts, including those involved in the EBI programme, and ICE Policy Fellows.

This paper presents key learnings that governments can use to improve sustainable infrastructure delivery:

- Conduct expert research on infrastructure to identify country needs and priorities.
- Engage with stakeholders, including politicians, government departments, specialists and the public, to strengthen planning.
- Identify and address skills gaps to ensure necessary capabilities exist.
- Incorporate local and regional needs to ensure a comprehensive view of the infrastructure system.
- Consider value for money in the beginning and throughout the infrastructure life cycle.
- Determine the purpose and role of data to help in the efficiency of sustainable infrastructure delivery.
- Connect strategy to delivery to make sure original goals match infrastructure outcomes.

To reflect the focus of the joint EBI and UNEP events, this paper centres on Principle 4 of the EBI guidance, which highlights the importance of planning for the future to deliver long-lasting infrastructure.

**Principle 4**

**Plan for the long term**

Infrastructure has a long life, and major infrastructure takes time to create, so it is essential to plan with the future in mind. Factoring in adaptability enables projects and policies to be strengthened and modified over time as needed.

Critical considerations include the sequencing of projects and how this might be impacted by funding and financing, supply chain concerns, technological advancement and changes in the market.

Skills also play an essential role in delivering successful planning (e.g. leadership, institutional and local-level capacity). As they take time to develop, they need to be considered as early as possible.

Figure 1: Principle 4. Image source: [EBI Guidance \(2025\)](#)

Consideration is also paid to Principles 5, 6, 7 and 8, whose aspects are equally important when planning.

- Principle 5: Agreeing on what value for money looks like to prioritise projects and policies.
- Principle 6: Building consensus among all stakeholders to reduce conflicting demands and drive the longevity of decisions.
- Principle 7: Strengthening data collection and usage to monitor and inform the planning process.
- Principle 8: Aligning strategy with delivery to ensure national goals are delivered through long-term planning.

## What is sustainable infrastructure, and why does it matter?

This paper uses the definition of sustainable infrastructure provided by UNEP.

Sustainable infrastructure is defined as infrastructure that is planned, designed, constructed, operated and decommissioned in a manner that ensures economic, financial, social, environmental (including climate resilience) and institutional sustainability over the entire infrastructure life cycle.<sup>1</sup>

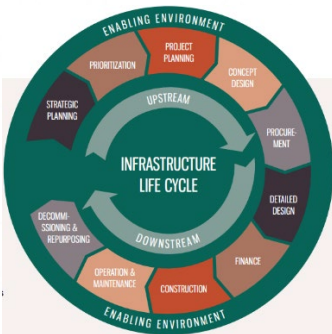


Figure 2: Infrastructure Life Cycle. Image source: [International Good Practice Principles for Sustainable Infrastructure](#)

This comprehensive approach can support the following sustainable benefits:

1. Economic: The efficient use of financial resources, a maximum return on investments over the infrastructure life cycle, job creation and technological innovation.
2. Social: Community input in planning and decision-making, accessibility for underserved communities, creation of local jobs and improving the quality of life.
3. Environmental: A decrease in greenhouse gas emissions, management of waste, water and energy efficiency, and biodiversity.
4. Institutional: A strong governance framework, accountability and transparency.<sup>2</sup>

<sup>1</sup> UNEP (2022) [International Good Practice Principles for Sustainable Infrastructure](#)

<sup>2</sup> Chandra Asri (2025) [Sustainable Infrastructure: Definition, Dimension and Benefit](#)

## Why are skills, financing, and data and digital solutions important?

Principle 4 of the EBI guidance suggests that critical considerations should be identified and factored in early to the planning journey. It identifies skills, funding and financing, and technological advancement as three areas that can help strengthen infrastructure projects and policies over time.

Skills play a crucial role in delivering successful planning and should be considered as early as possible. More sustainable forms of infrastructure are being prioritised, and the skills needed to deliver infrastructure are evolving. For example, the World Economic Forum's 'Future of Jobs Report 2025' highlights that environmental engineers, renewable energy engineers and data warehousing specialists will be among the fastest-growing job sectors by 2030.<sup>3</sup> At the national level, identifying these skills early and deciding on how to develop them can ensure that individuals will be available to perform these jobs, which is crucial.

Funding and financing challenges can create bottlenecks in infrastructure delivery. Polling – conducted on behalf of the ICE - found that over half of the respondents described major infrastructure projects in the UK as underfunded, and funding was seen as a major barrier to new infrastructure.<sup>4</sup> Advance planning in this area enables a wide range of financing options for sustainable infrastructure to be considered, including public finance (both national and multilateral), private finance and public-private partnerships. Planning can also help manage infrastructure costs and identify areas of economic growth.

Technological advancements have led to more efficient and effective tools, unlocking ever-more powerful data and digital solutions. This includes using surveys, questionnaires, digital applications and artificial intelligence. They can help governments understand future infrastructure demand and provide tools that offer accessible, timely and credible information that can support and improve the delivery of sustainable infrastructure.

## What are common themes that countries face?

The EBI programme has engaged with governments and organisations from around the world who have utilised effective techniques in long-term planning. Successful countries often use similar approaches to support sustainable infrastructure, including planning for skills and financing as well as identifying data and digital solutions. They are also able to identify planning areas that need strengthening. The following section will be divided into skills, financing, and data and digital solutions; however, it should be noted that they often overlap throughout the planning process.

### Skills

A skilled workforce is vital to building and maintaining infrastructure. Identifying and developing these skills may be difficult for governments to do on their own. Engaging with stakeholders throughout the planning process can ensure that countries will have sufficient skills to perform high-demand infrastructure jobs. Special consideration should also be paid to addressing skills gap challenges.

#### Partnering with relevant stakeholders

Working with stakeholders can assist governments in prioritising infrastructure areas, subsequent skills gaps and training required to support the delivery of sustainable infrastructure.

For example, in South Africa, the Just Energy Transition Investment Plan (JET-IP) sets out the needs and investments required to achieve the commitments made under the National Determined Contribution, which outlines how South Africa will reduce its greenhouse gas emissions.

Following widespread consultations within the government, businesses, labour groups and civil society, electricity, electric vehicles and the hydrogen economy were identified as three main areas that can reduce greenhouse gas emissions and support the economy of the future. These groups also helped the South African government realise that not enough people had the skills to perform jobs in these sectors.

The JET-IP Management Unit developed a close working relationship with the Department of Higher Education and Training to ensure that training is offered for individuals to perform jobs in the three priority sectors. This has led to the implementation of the

<sup>3</sup> World Economic Forum (2025) [Future of Jobs Report 2025](#)

<sup>4</sup> ICE (2025) [Paying for Britain's Infrastructure System](#)

JET Skills Desk, which was launched in August 2025, to coordinate the reskilling and upskilling of workers and focus on preparing them for opportunities in sustainable infrastructure industries.<sup>5</sup>

Furthermore, JET-IP Management Unit is aiming to create skills development zones in Mpumalanga, Eastern Cape and Northern Cape, where the electricity sector, automotive industry and the centre for the hydrogen economy operate. This is expected to bring in local partners who can support their area's economic development.

In Malaysia, the Twelfth Plan aims to address the gaps in the electrical and electronics (E&E) industry, which supports large-scale electrical infrastructure, by getting more people trained. The national government has partnered with local and international tech companies to provide hands-on training and internships to train students in this sector.

It also works with universities and colleges to ensure the curriculum aligns with its sector needs. For example, some institutions have integrated coding and programming in their curriculum to reflect the high demand for these skills. The government also offers tax incentives and funding opportunities to encourage tech start-ups, which promote more job opportunities for individuals with relevant skills.<sup>6</sup>

### Addressing skills gaps

Although governments do talk about the importance of skills development, many are still in the early stages of identifying skills gaps in their countries. To ensure that skills gaps are addressed, governments should consider incorporating skills development into their national infrastructure plans and offer development opportunities throughout departments.

#### Case Study: Singapore – Tackling workplace skills gaps

SkillsFuture is a national movement that was launched in 2015 to provide Singaporeans with the opportunity to develop their fullest potential throughout life.

In collaboration with the Ministry of Trade and Industry and the Government Technology Agency, GoBusiness Singapore was developed for businesses in Singapore to access government e-services and resources.<sup>7</sup>

It also provides support for businesses to find resources, tools and programmes to help identify the right area of training to develop their workforce in line with their business needs, such as skills development in relevant areas of infrastructure.

It does this in three ways:

1. Diagnosing skills gaps: Digital tools help businesses identify key skills in their industry and curated training course recommendations in these skill areas to get started.
2. Tapping into networks: Skills training advice is offered from industry leaders or professional bodies representing a sector.
3. Obtaining insight on skills: A curated list of industry-relevant courses for employees focuses on emerging skills in priority growth areas, including the green economy.

Green economy skills include environmental and sustainability management, green infrastructure and mobility, and energy, resource circularity and decarbonisation.

<sup>5</sup> SA News (2025) [South Africa Launches Critical Skills Initiatives for Just Energy Transition](#)

<sup>6</sup> Terato Tech (2024) [Bridging the Tech Talent Gap: How Malaysia is Addressing the Shortage of Skilled Programmers](#)

<sup>7</sup> SkillsFuture for Business (2025) [Understand your Training Needs](#)

## Costs, Funding and Financing Considerations

Building and maintaining infrastructure requires governments to secure the necessary financial resources. Failing to address this early on can lead to funding issues, including the inability to complete projects outlined in the overall vision. Conducting expert research, engaging with infrastructure specialists and exploring a wide range of cost, funding and financing options are needed for governments to be confident in being able to deliver their infrastructure ambitions.

### Conducting expert research to identify financial priorities

One approach that governments often use to help with funding and financing priorities is to obtain expert external research and advice. This helps to identify the status of infrastructure, and needs and specific issues that should be addressed. Often this research is independent, which helps governments identify priority areas they may have had a blind spot to if they had conducted the research themselves.

In Malaysia, the E&E industry is a major contributor to the economy's growth and a driver of export earnings.<sup>8</sup> This is useful for energy and telecommunication sectors, which develop important infrastructure such as power plants, electrical grids and cell towers. A study conducted by the World Bank identified that employees in the E&E industry would benefit from more specialised education.<sup>9</sup> The Twelfth Malaysia Plan aims to develop talent in this industry by establishing skills development centres and incentivising the industry to reskill and upskill workers. This can help create more jobs and stimulate economic growth.

The New Zealand Infrastructure Commission (NZIC) was set up to develop national strategies for infrastructure, including the 30-year National Infrastructure Plan, which is scheduled to be published by the end of 2025.<sup>10</sup> In the early planning stages, the Commission sought to understand the cost to deliver infrastructure in New Zealand compared to other countries and why costs may differ.

The Commission reached out to Oxford Global Projects, an organisation specialising in project management, to offer a set of answers. It found that conducting ongoing infrastructure-delivery cost benchmarking is useful as it leads to a better understanding of what projects should cost. Knowing what projects should cost also helps New Zealand government make better infrastructure decisions on the affordability of infrastructure delivery.

Similarly, in Saint Lucia, to develop a clear vision for infrastructure development, the United Nations Office for Project Services (UNOPS) and the University of Oxford developed a strategy for Saint Lucia to attract sustainable infrastructure financing. The collection of data and cross-ministerial collaboration led to a report that evaluated the readiness of 36 national infrastructure projects for financing, identified potential financiers and developed a strategic infrastructure financing plan.<sup>11</sup>

In response to the effects that the 2017 El Niño event had on infrastructure in Peru, the World Bank published a report on how public finance can address climate risks while driving long-term economic growth. It conducted its research by collaborating with other international organisations and economists. The report recommended bringing together external experts, supporting the internal development of sustainable infrastructure projects, and designing financial tools to overcome climate-related challenges.<sup>12</sup>

### Securing political buy-in

Delivering sustainable infrastructure starts with having a clear understanding of the long-term economic, social and environmental goals and needs of a country. Having a clear plan encourages political buy-in, which is required to implement and enforce initiatives that deliver on national goals.

For example, with support from the National Integrated Planning and Programme (NIPP) Unit in Saint Lucia, the government has implemented a strategic approach to financing sustainable and resilient infrastructure. Having been faced with the threat of climate change and the volatility of the tourism sector, obtaining financial resources for infrastructure was raised as a national priority.<sup>13</sup>

To ensure that this strategy was implemented, the NIPP Unit formed relationships with politicians from the ruling and opposition parties, ensuring they were well informed about this approach. This helped raise awareness of national issues and encouraged the government in power to deliver the strategy. Even if the ruling party changes, they will likely continue to support the NIPP Unit's strategic objectives.

<sup>8</sup> Malaysia Investment Development Authority (2022) [Malaysia's E&E Industry](#)

<sup>9</sup> World Bank Group (2022) [12th Malaysia Plan Midterm Review Kick-off Seminar](#)

<sup>10</sup> NZIC (2025) [National Infrastructure Plan](#)

<sup>11</sup> UNOPS (2021) [Accelerating Financing for Sustainable Development in Saint Lucia](#)

<sup>12</sup> World Bank Group (2022) [Peru: Country Climate and Development Report](#)

<sup>13</sup> UNOPS (2021) [Saint Lucia: National Infrastructure Financing Strategy](#)

Planning has helped the government secure financing from blue-bond initiatives and public-private financing to address the need to respond to climate-change risks, such as risks of inland flooding, landslides and rising sea levels. This has helped streamline infrastructure planning and prioritise initiatives such as a wastewater treatment system and a new cruise port redevelopment project.<sup>14</sup>

### Learning from infrastructure specialists

To strengthen its 30-year infrastructure plan, the NZIC reached out to the EBI programme to peer-review its framework for prioritising infrastructure projects. EBI convened two virtual workshops to gather insights from 21 international specialists in strategic planning.

Key considerations included assessing value for money using cost-benefit analyses (CBA) and options testing. CBA was deemed useful to account for differences between old and new infrastructure. Incorporating options testing in a project proposal can boost cost-effectiveness and the overall value of projects.<sup>15</sup>

This feedback was incorporated in the assessment framework, which outlined how this will apply to proposals that directly relate to infrastructure and the choice between maintenance or the construction of new assets.

The framework is now used to assess if project proposals align with New Zealand's strategic objectives over the next 30 years, such as taking a long-term approach to infrastructure across cities and strengthening infrastructure against natural disasters.<sup>16</sup>

The success of these dialogues has led other governments to connect with the EBI programme and NZIC to schedule dialogues to gain insights from specialists on how to strengthen long-term planning.

### Securing public consensus

Securing buy-in from the public is equally important to political buy-in. Building consensus from the public on how infrastructure should be prioritised can reduce conflicting demands and drive the longevity of decisions. This can be achieved by including the public as early as possible in the planning process.

For example, Chile works closely with the Indigenous Chango people who live in the Atacama region to plan and deliver maritime and coastal port infrastructure. From this process, the government learned more about balancing national economic priorities with territorial considerations and the benefits of preserving infrastructure. This experience helped influence priorities in Chile's latest national infrastructure plan, which prioritises investment in infrastructure across territories, while also valuing its cultural significance.<sup>17</sup>

### Connecting strategy and delivery

Another aspect that should be considered is how to deliver sustainable infrastructure. This is often thought of too late in the infrastructure life cycle and has led to project delays and wasted finances. At times, outcomes are made clear at the beginning of a strategy, but by the end, the project objectives are different.

To prevent this from happening, governments should align their strategy with delivery to ensure that their plans can be delivered. This involves considering the wider set of processes and policies that support the design and procurement of projects. This ensures that projects are funded and delivered to achieve their long-term outcomes.

<sup>14</sup> ICE (2024) [3 Reasons Why Planning Infrastructure for the Future Needs Collaboration](#)

<sup>15</sup> ICE (2024) [EBI Submission to the NZIC's Call for Peer Review on their Interim Assessment Framework to Create an Infrastructure Priority List](#)

<sup>16</sup> NZIC (2024) [Infrastructure Priorities Assessment Framework](#)

<sup>17</sup> National Public Infrastructure Plan (2025) [Habitability in Populated Centres](#)

### **Case study: Rwanda – Financing national plans**

Rwanda is working toward becoming climate-proof by 2050.

It has developed two national plans to deliver infrastructure that is climate resilient: The National Investment Policy and the Green Growth and Climate Resilience Strategy.<sup>18</sup>

The government has ensured there are enough resources in place to fund key activities in the plans by:

- Tracking progress on climate action: monitoring climate-related funding across sectors to advise policymakers on areas that need more resources.
- Identifying opportunities for green infrastructure: encouraging the private sector to invest in these initiatives by highlighting and promoting sustainable projects, such as flood management and water storage development.
- Encouraging skills building providing engineers with on-the-job training to better understand the different ways that infrastructure can be more sustainable. This includes ways to deliver more resource-efficient solutions for road construction, such as using drainage systems to reduce flooding and protect ecosystems.
- Coordinating with stakeholders: running a public investment committee made up of experts to discuss finances before resources are assigned to projects. Working together ensures that enough financing is provided for all infrastructure projects and environmental issues are addressed.<sup>19</sup>

## **Data and Digital Solutions**

Successful planning starts from understanding the extent, condition and performance of the existing infrastructure stock of a country. Extracting appropriate data on existing strategies is crucial to assist with long-term planning. This information can be combined with digital tools to produce estimates of future needs and then used to model how best to respond to them. Governments should work with key stakeholders to make better decisions on infrastructure priorities (while also making sure that data is useful and necessary) and use digital solutions to assess the value for money in delivering long-term infrastructure priorities.

### **Obtaining data to strengthen long-term initiatives**

Data and digital solutions can heavily influence the planning process. They can be used to support long-term planning, monitor progress and track outcomes. These solutions are reliant on engaging with stakeholders, who can help strengthen strategies with their influence and knowledge. This involves holding governments accountable to their commitments and encouraging changes in the planning process that better align with the national vision.

Housing Infrastructure and Communities Canada (HICC) engages with other departments and organisations to improve infrastructure investment across the country. It engaged with Statistics Canada to develop surveys that helped evaluate the stock, condition and performance of public infrastructure across Canada.<sup>20</sup> The respondents included municipal, regional, provincial and territorial governments, northern communities, public transit authorities and Crown corporations.<sup>21</sup>

HICC also conducts other surveys to respond to specific needs. For example, it distributed surveys to the Canadian Network of Asset Managers (CNAM) to collect data on infrastructure across the country to make sure it is more sustainable, inclusive and climate resilient. CNAM is made up of representatives from all levels of government, Indigenous communities, not-for-profit organisations, academia and the private sector. The surveys sought to find out information on infrastructure, demographics and hazards where the infrastructure is located.

This helped the government to identify roads across Canada that are most susceptible to floods and wildfires, including the affected road lengths and the estimated cost of damage.<sup>22</sup> This information can help governments better maintain and build infrastructure in these areas to withstand extreme conditions.

<sup>18</sup> Republic of Rwanda (2023) [National Investment Policy](#), Republic of Rwanda [Green Growth and Climate Resilience Strategy](#)

<sup>19</sup> ICE (2025) [How Rwanda And Peru Are Financing Climate-Proof Infrastructure](#)

<sup>20</sup> Government of Canada (2024) [Canada's Core Public Infrastructure Survey](#)

<sup>21</sup> Government of Canada (2024) [Canada's Core Public Infrastructure Survey](#)

<sup>22</sup> Canadian Network of Asset Managers (2025) Climate Change Exposure and Assessment Project

In Chile, the national government used data to engage with other levels of government to agree on an overall vision for the country.

The government had access to an inventory of over 90 plans from past governments at the regional and local levels and used it to analyse the data and identify areas for future work. National and regional governments then worked together to find common areas to prioritise.<sup>23</sup>

This helped lead to an infrastructure plan that incorporates priorities from all levels of government. For example, the latest plan outlines an increase in investment in energy security, including the deployment of infrastructure for the production and use of green hydrogen, which stemmed from priorities identified by both national and regional governments.<sup>24</sup>

### Assessing value for money

Frequent evaluation throughout an infrastructure life cycle can help policymakers decide whether their current projects are delivering the maximum benefit. This requires data and digital solutions that can keep track of how infrastructure initiatives are progressing.

For example, international engineering firms use data to monitor water management at every level, including water resource planning, management between fluvial and coastal networks, wastewater networks and wastewater distribution systems. Digital tools using artificial intelligence use the data collected to analyse how water systems respond to different scenarios, such as weather forecasts and the impacts of climate change.

This information is also used to strengthen asset management, since it helps to optimise the long-term value of infrastructure by considering costs and risks that may be associated with different weather events.

### Making data accessible

Governments have realised that data can be used to support the needs of their country. Specialists, who are qualified in data collection, can read it and identify how it can be used to support the delivery of sustainable infrastructure. In an open information age, this data is often made available for the public to view. However, the public may not be able to understand the data, nor understand how it may be beneficial for them, in the same way that specialists do. This has resulted in people not using the services stemming from collection as soon as they're available.

For example, the Canadian government developed a 'spatial access measure' which can be used to help the public easily access transportation services.<sup>25</sup> The tool generates data and analytical work in support of sustainable and resilient active and public transport systems across Canada. Even though the purpose and benefit were clear, individuals only started using this service three years after it was introduced.

There was a lot of speculation as to why the information wasn't used earlier, including a shift in the public's reliance on public transportation systems, perhaps due to the COVID-19 pandemic.

Governments should consider the right time to develop and utilise data, including thinking about situations that would deter the public from finding it instantly useful.

### Addressing regional and local needs

Including all levels of government throughout the planning process supports a common understanding of infrastructure needs. This can build trust, reduce conflicting demands and drive the longevity of decisions.

Furthermore, it is important to consider that infrastructure capabilities differ depending on the area. In Spain, one way to manage water management systems is to collect data across municipalities, but some areas have more digital tools to do so than others.

Considering local needs requires governments to consider that Madrid, for example, is more advanced than other areas, such as the south of Spain, which have a lower digital maturity. Local needs can also guide governments on how digital tools can be used differently. For example, tools in the south help Spain respond to droughts, while in the north, they respond to flash floods.

<sup>23</sup> ICE (2025) [How Chile Involves Regional Governments to Make Infrastructure Plans](#)

<sup>24</sup> National Public Infrastructure Plan (2025) [How We Prepared the PNIP 2055](#)

<sup>25</sup> Government of Canada (2025) [Spatial Access Measures](#)

### Case study: How digital solutions are helping Ukraine

In 2019, the public raised concerns about using government services to process paperwork for items such as marriage licences or passport applications. They complained that the waiting times were too long, there was excessive paperwork, and the procedures for what they needed to do were unclear.

The Ministry of Digital Transformation was formed to respond to this concern and set out a vision to build a 'state in a smartphone'. A Chief Data Transformation Officer was introduced to every ministry to promote the use of digital services to access government services.<sup>26</sup>

In 2022, Russia invaded Ukraine. Countless assets have been destroyed in the process, with damages calculated at around £126 billion.<sup>27</sup>

Digital services are playing a huge part in rebuilding the country.

An application called Diia is helping citizens repair windows, doors, roofs and walls, buy a new home, or invest in new properties, depending on the damage.

Citizens can also keep track of investment plans, projects and programmes aiming to restore infrastructure through an online system called DREAM (Digital Restoration Ecosystem for Accountable Management).

Ukraine's restoration will not only bring back the economy and infrastructure post-war but will also lay the foundation for long-term development and prosperity.

## Learnings

Building on the previous sections, below are key learnings that governments can use when planning early to support the delivery of sustainable infrastructure.

- 1. Conduct expert research:** To understand infrastructure needs and identify where to invest as a country, governments should start by conducting expert research that provides an overview of their infrastructure. Third-party expert researchers may be beneficial to help governments avoid their blind spots.
- 2. Engage with stakeholders:** Although this may be obvious, governments should consider who to engage with and how this might support their strategy. Different stakeholders can help with different parts of the planning journey. For example, working with elected parties can ensure infrastructure plans are implemented and working with government departments can help promote plans. Working with specialists and the public can help strengthen plans.
- 3. Identify and address skills gaps:** Governments should not only identify skills gaps in infrastructure sectors but also establish plans and strategies that promote skills development.
- 4. Incorporate local and regional needs:** National governments should better engage with local and regional governments and the public to incorporate their needs into a long-term strategy. Incorporating all needs drives the longevity of the decision and can help infrastructure last longer throughout its life cycle.
- 5. Consider value for money:** To avoid cost overruns and unexpected pricing, governments should agree early what value for money looks like and continue to monitor their original financial expectations throughout the infrastructure life cycle.
- 6. Determine the purpose and role of data:** Governments and relevant stakeholders should collaborate to determine the objectives for collecting data and how it is useful for infrastructure. Considering this early in the planning life cycle will save time and resources.

<sup>26</sup> EGA (2025) [Ukraine is Digital by Design: Resilience and Trust, Embedded in Governance](#)

<sup>27</sup> ICE (2025) [The Apps Helping Ukrainians Rebuild their Homes During the War](#)

- 7. Connect strategy to delivery:** Long before reaching the delivery stages of a project, governments should consider whether the wider set of processes and policies is supporting service needs and priority projects. This will ensure that projects are delivered with similar purposes outlined at the beginning of a strategy.

This paper serves as a guide for policymakers, ensuring that key themes proven to strengthen the infrastructure planning process are considered. The examples provided can help policymakers identify similar governing structures and techniques that can be adapted to their national context. Planning for the long term can make the delivery of sustainable infrastructure more achievable.

This approach aligns with the purpose of the Enabling Better Infrastructure programme, which supports governments in strengthening strategic infrastructure planning to deliver better outcomes for the economy, society and the environment.

## About the ICE

Established in 1818 and with over 97,000 members worldwide, the Institution of Civil Engineers exists to deliver insights on infrastructure for societal benefit, using the professional engineering knowledge of our global membership.

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