

Navigating Island Futures in Transport

**A guide to developing national transport strategies
for Small Island Developing States**

1st Edition | November 2021



Part II
**How to design a
national transport strategy
– a 5-phase process**



Navigating Island Futures in Transport: A guide to developing national transport strategies for Small Island Developing States | 1st Edition

Executive summary

Part I: A 21st Century approach to island transport systems

Part II: How to design a national transport strategy – a 5-phase process

Part III: Menu of strategies and technologies

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Abbreviations

GHG	greenhouse gases
AI	artificial intelligence
ASI	'Avoid-Shift-Improve'
CARICOM	Caribbean Community and Common Market
EV	electric vehicle
LGBTQI+	lesbian, gay, bisexual, transgender, queer, and intersex
LTTG	Long-term temperature goal (of the Paris Agreement)
MCDA	multi-criteria decision analysis
MDBs	multilateral development banks
NCDs	non-communicable diseases
NDCs	Nationally Determined Contributions (under the UNFCCC Paris Agreement)
NTS	National transport strategy
PESTLE	political, economic, social, technological, legal, environmental
PICTs	Pacific island countries and territories
PRIF	Pacific Regional Infrastructure Facility
PV	photovoltaic
SAF	'Suitability-Acceptability-Feasibility'
SIDS	Small Island Developing States
SV	Sailing vessel
SWOT	'strengths, weaknesses, opportunities, threats'
UK	United Kingdom
US/USA	United States of America

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What's in Part II

Part II – together with Part III – provides practical guidance and tools to support the development of a long-term national transport strategy (NTS) for an island country.

Part II describes a 5-phase process for developing a national transport strategy (see Figure 1). The guidance provides ideas and tools for each phase of the process.

This includes setting up stakeholder and governance arrangements, understanding the current transport system, creating a shared vision for a future transport system, designing strategies and pathways, and, finally, developing an investment roadmap.

Phase 1: Prepare

This phase includes gaining commitment within the country government and development partners, building the project team, establishing governance, agreeing the scope, and designing the process to develop the strategy.

Phase 2: Understand the past and present

This phase uses systems thinking and human-centred design approaches, alongside more conventional information gathering. The aim is to develop a deeper understanding of the current transport sector and where it is and isn't working and identify where the key opportunities for change lie.

Phase 3: Explore the future

This phase explores plausible future scenarios, including global and national trends, and articulates a vision that describes a desired future.

Phase 4: Design strategies and pathways

In this phase, strategies (including technologies, policies, and operational changes) are evaluated and sequenced into pathways.

Phase 5: Create a roadmap

This final phase is where the country government decides on its plan – early actions and investments, sources of financing, the sequence of activities, the resources needed, and where responsibilities lie.

What is a national transport strategy?

The purpose of a national transport strategy (NTS) is to guide the development of a country's transport system over the medium- to long-term (15 to 30+ years).

A national transport strategy provides a framework for the development of detailed actions and policies and identifies investment priorities (Lee & Hine, 2008). For small island developing states (SIDS), an NTS provides a framework for coordination and alignment between national and sub-national governments, development partners, and the private sector.

This guidance outlines how to develop key components of a national transport strategy:

- **Context** — the development of an NTS should occur within a deep understanding of the global and local context, including the present situation, and the emerging trends and issues that will affect transport in the future.
- **Vision** — this guidance adopts a vision-led approach to developing a sustainable transport system. A Vision is a story about a plausible and desirable future transport system that becomes the 'guiding light' for decisions about transport.
- **Objectives** — these express society's goals for the transport sector, in line with broader societal goals.
- **Strategies and pathways** — are the ways in which the Vision and Objectives can be achieved over time.
- **Actions and investments** — a set of prioritised steps to implement the Strategies, particularly in the near-term.

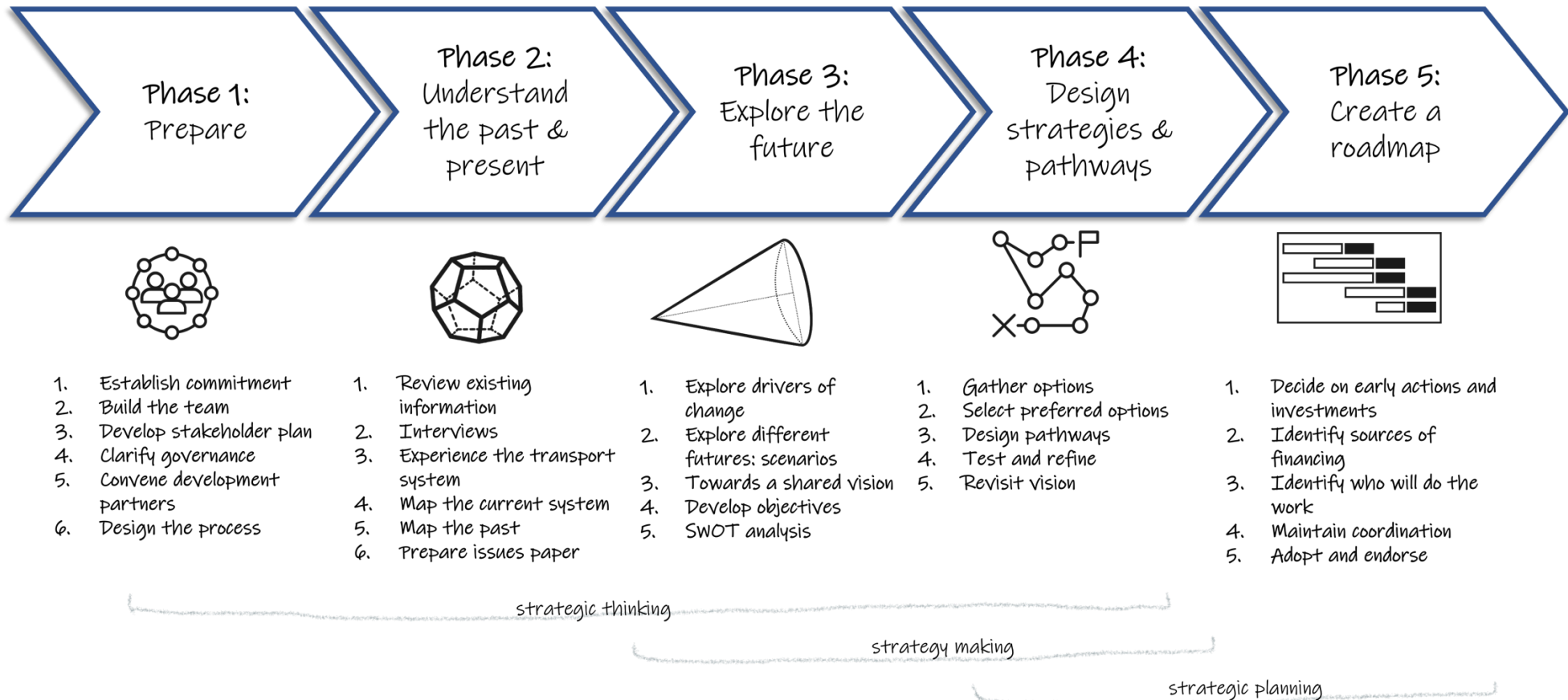


Figure 1: A 5-phase approach to developing a national transport strategy

How to use Part II

Each of the five phases has multiple 'steps' within it. While the steps are presented in a logical order, they are unlikely to occur in neat progression – some will happen in parallel, and others will need to be revisited after later steps are completed.

Throughout this guidance are prompting questions, explanations of key concepts, tips and tricks, and resources to assist you including templates, examples, and external tools, as well as a checklist of the outputs and outcomes expected for each Phase. Symbols are used to flag useful elements. These are explained below. Look for them throughout Part II.



Guiding questions prompt what needs to be considered in each phase and step.



Key concepts underlying the suggested approach.



Important to remember



Tips and tricks that might be helpful.



Resources – additional reading, tools, facilitator guides, videos, or templates



Examples from the fictional island country of Eilis Nert

An existing level of skill and knowledge in transport planning has been assumed, so the guidance focuses on applying these skills to a long-term strategy process.

The guidance emphasises the need to support meaningful discussions between country decision-makers – including governments, the private sector, and development partners.

It is acknowledged that the process of developing an NTS is unlikely to be as straightforward as the process shown in Figure 1 and laid out in the following pages. Developing a transport strategy occurs in a complex environment of government and development partner decision-making, with competing priorities, trade-offs, and constraints. The process of understanding the past and present, and imagining and then converging on possible solutions in this environment is likely to involve iteration and a bit of 'messiness'.

Having said that, the guidance aims to help reduce this complexity by creating a shared understanding of the key steps in developing a strategy, thereby improving the consistency, rigour, and transparency brought to this work. The aim is to improve decision-making – within governments, and by governments working with their development partners and investors.

The guidance is not intended to be rigidly prescriptive, but to provide a framework to be adapted for each situation.

Timing

The overall process of developing a national transport strategy is likely to take between 12 and 24 months. This includes several months early on in Phase 1 to establish the team, authorising environment, and governance arrangements. The process from there may take between 6 and 12 months.

Principles for the strategy process

The approach outlined here is based on the following principles for ensuring the strategy contributes meaningfully to the development of small island countries.

- **Country-driven** — Transport sector strategies (along with other long-term strategies) are to be country-driven, and establishing an authorising environment is a fundamental part of the process. The process of developing one should support the articulation of national values and development aspirations.
- **Comprehensive and integrated** — The approach considers transport as a system – strategies consider all the key aspects of the system.
- **Process oriented** — The focus is on facilitating strategic dialogue within the country government and transport sector, and with development partners
- **Flexible** — The process should be adapted to suit the context, level of complexity of the system, and appetite of the government.
- **Human-centred** — Human needs for access to social connection, economic participation, goods, and services should be at the centre of a transport system design.
- **Balances ambition and feasibility** — Well-thought through strategies/pathways are to include financing, social and workforce considerations, and appropriate institutional and policy reforms.
- **Long-term orientation** — Long-term, strategic thinking is applied to help ensure short- to medium-term investments are transformative.
- **Framework for investment coordination** — The strategy is intended to provide a framework for investment, such that the country and development partners can work together towards a clearly articulated vision. To this end, all key decision-makers – both country leaders and development partners – need to engage with the substance of the strategy during its development – the vision, pathways, key choices, and trade-offs.

Explanation Box: Distinguishing between strategic thinking, strategy making, and strategic planning

It is useful to distinguish between the concepts of 'strategic thinking', 'strategy making' and 'strategic planning'. The following descriptions (Mintzberg, 1994) will help explain the process outlined in this guidance.

Mintzberg describes *strategic thinking* as using creativity and intuition to open complex issues out to thoughtful consideration. *Strategic thinking* is about exploring and deepening an understanding of context and possibilities. It goes beyond hard data, to draw on the experiences, observations and intuition of the people involved.

He describes *strategy making* as the process of synthesising these insights and deciding on a vision and direction.

Finally, in Mintzberg's view, *strategic planning* is used to program how that vision can be achieved. As it is usually practiced (including in transport systems), *strategic planning* is about *analysis* – breaking down a goal into specific actions, designing how the actions will be done, allocating resources, and monitoring progress.

In line with Mintzberg's descriptions, Phases 1–4 of this guidance focus on a process of *strategy making*, using *strategic thinking* approaches such as futures thinking, systems thinking, and human-centred design. The intended outcome is that, by the end, key actors share a common understanding of the vision and directions provided in a National Transport Strategy. Only in Phase 5 does this guidance look at the more conventional approach of *strategic planning* to develop more concrete next steps.

A word about the approach

The 5-phase process aims to build collective understanding and to create an environment for transformative change.

To achieve this, the role of dialogue, systems thinking, and narrative approaches to talking about the future are emphasised. This differs from approaches that emphasise technical expertise, detailed economic forecasting, and model building. Here's why a new approach is recommended:

- To achieve the transformation needed to create a sustainable future, it is necessary to imagine a future different to the 'way things have always been'. Narrative, dialogue, and imagination offer opportunities to inspire and build awareness of new possibilities.
- Sharing stories and understanding others' views helps create alignment and collective agency between key actors. And it will help build a more sophisticated understanding of existing systems, and the beliefs that underpin them.
- While technical analysis and modelling are important tools to investigate and weigh options, they come with limitations – it is impossible to predict the future, and models often hide assumptions that need to be examined explicitly.

The role of data and modelling

Many examples exist where modelling is made the centrepiece of processes exploring future pathways or long-term strategies. In these cases, it is used to

illustrate the possible economic performance or GHG reductions offered by a range of key strategic choices and assumptions. Unfortunately, in practice, the modelling process is often a 'black box' that obscures those key strategic choices from decision-makers, reducing their ability and agency in making informed decisions.

Forecasting often takes past data and extrapolates it into the future. The danger is a false sense of certainty that the future can be known, especially at this time of great disruption and rapid, often discontinuous change in transport.

The approach presented in this guidance recognises the value that well-defined modelling and analysis can bring to the consideration of options, but ensures it is used to support – and not drive – strategic decision-making.

In particular:

- in Phase 4 Design, techno-economic analysis can be used to compare technological options, explore the consequences of different rates of deployment, or consider the economic feasibility of a specific technology choice/ project
- simple models may be used to illustrate emissions reductions pathways under certain assumptions about deployment of technologies and strategies chosen and can be useful in that way for both setting targets, and for assessing whether existing targets are feasible.

Eilis Nert – a fictional island country case study



This guide emphasises the role of imagination and storytelling as critical tools to explore the future and plan into uncertainty. Some of the approaches presented here are an emerging area of practice for which there are not yet real-world examples to use as a case study — and especially not in island transport systems. In the spirit of boldly exploring the future using imagination, a fictional island country, **Eilis Nert**, is used throughout Part II to bring the method to life, in the hope that island countries can see at least some part of their experience in here.

Geography and population

Eilis Nert is a Small Island Developing State located in the central Pacific Ocean. It consists of 11 islands — 6 high islands and 5 low-lying atolls, with a total land area of 4500 km². These are dispersed across 1.5 million km² of Exclusive Economic Zone. Eilis Nert was colonised by a European nation in the 19th century and has been a self-governing sovereign nation for over 40 years. The population of 300,000 Eilisians is distributed with 200,000 on the main high island of Ewer Kayo, a major population centre of around 50,000 on the low-lying atoll of Luvs Riva, and the remainder scattered across the remaining islands in communities, ranging from a couple of hundred to 3000 people. Ewer Kayo boasts the country's capital city, one other major tourist centre, and many smaller settlements.

The population of urban centres is steadily increasing as people move in from the outer islands in search of better economic opportunities, education, and access to healthcare, and often in the aftermath of cyclones or storms. The result is increasing unplanned urbanisation and informal settlements, with some conflict over land. On some outer islands, outmigration means up to a third of houses are now unoccupied.

Economy

Eilis Nert's economy is based primarily on tourism and agriculture, with a significant subsistence sector. GDP per capita is around USD8,000, however, there is significant inequality – around a third of people live below the poverty line. Subsistence farmers earn supplementary cash from copra, taro, kava, cassava, and bananas, and from fishing. Tourism contributes around 20% of GDP, agriculture around 18%, fishing around 7%. Personal remittances make

up around 15% of GDP. Foreign direct investment is limited to the tourism sector, with official development assistance of significant importance at around 25% of external finance.

In recent years, the arrival of high-speed and affordable internet has transformed the community, with plans to expand coverage to many outer islands over the coming decade.



Transport

There is a well-travelled ring road around the coast, with most traffic occurring between the two major towns. Ewer Kayo is well serviced by private bus services in the urban areas, longer-distance services between the main towns, and less frequent services to communities around the island. Goods arrive mostly via Ewer Kayo's main port and are then distributed by truck around the main island or transferred to inter-island supply ships for transport to outer islands.

The atoll of Luvs Riva has only one main road but is home to around 5000 registered vehicles. Traffic congestion is severe during peak hour – around 7:30am–9:30am and 3pm–6pm. While there is no formal public transport, a shared taxi system provides a relatively affordable service, although a very poor income to drivers.

The larger islands and several smaller ones are serviced by domestic air services, with more frequent services to the several resort islands. Supply boats travel at varying frequency (every 2–4 months) to outer islands with basic goods such as fuel, rice, flour, sugar, and canned goods, and return with copra, produce, and fish. Tourist islands are serviced by privately operated vessels. To reach the most remote outer islands takes 4 days by boat or USD300 for a roundtrip airfare on a 12-seater plane. Government provides significant subsidies to outer island shipping and air services.

In coastal areas, and in the atoll lagoons, some communities still use traditional sailing and paddling canoes but in general, in recent decades, these have been displaced by small motorboats. On outer islands, fuel is expensive, and supply can be intermittent, often leaving people unable to use the small motorboats.

A key challenge is the cost of fuel, which is as high as USD1 per litre in the main centres and USD2 per litre on outer islands. During the 2009 energy crisis, Eilis Nert spent up to 25% of GDP on energy.

Climate change

Eilis Nert has a tropical marine climate – mild temperatures year-round with a warm season from November to April. Cyclones and storms occur regularly and are forecast to increase in both frequency and severity in the coming decades, bringing strong winds, heavy rain, and storm surge.

Luvs Riva is already experiencing the effects of increased storm surge and sea-level rise, with regular inundation and damage to roads and ports. Outer islands have experienced several droughts in the last few years, which, along with increasing storm surge inundation, is leading to some discussion about the long-term viability of current settlements.

Phase 1: Prepare

Overview

A national transport strategy (NTS) can be initiated from many different places – it may come from a country’s head of state, or minister, or from a transport department official. It could emerge as an idea in a policy dialogue between a country and a development partner. Or from a consultant working on some part of the transport system who sees the need to look at the bigger picture. No matter where it emerges from, considerable effort is needed early on to gain support and buy-in for the idea.

Phase 1 aims to establish a shared understanding of the work to be done, and to orient participants around the nature of the process, which may be different from how things have been done before. This Phase is about setting up the environment for effective conversations between stakeholders throughout the development of the NTS. It is also about increasing your chances that the NTS will be implemented, by confirming commitment from the highest levels of the country government and gaining buy-in from development partners.

Phase 1 really represents a ‘go/ no go’ point in the process – if there is not sufficient authorisation and commitment from the country government, and a high-level champion, the process to develop an NTS should not proceed. If it does, there is a strong likelihood that it will simply add to the burden on country officials and be another consultant report ‘gathering dust’.

Steps

- + **Step 1.1 Establish commitment.**
- + **Step 1.2 Build the team.**
- + **Step 1.3 Develop stakeholder engagement plan.**
- + **Step 1.4 Clarify governance and decision-making.**
- + **Step 1.5 Convene development partners.**
- + **Step 1.6 Design the overall process.**

The Prepare phase may take six months or longer. This will depend on how your process was initiated, and the existing level of alignment both within the government, and between government and development partners.

Outcomes

At the end of Phase 1, you will have:

- authorising environment established
- adequate human resources, the right mix of skills, the right level of engagement from transport sector officials
- shared understanding amongst a Working Group of the importance of stakeholder engagement, and of how and when to engage with stakeholders
- shared understanding between consultants, government, and development partners of the scope of work and process to be undertaken
- commitment of resources and personnel from the initiating organisation
- commitment to use the results of the process to drive policy and investment decisions
- commitment of key stakeholders to be heavily involved in the process
- an expert multidisciplinary team to do the conceptual and technical work and facilitate the strategic dialogue process.

Outputs

- formal requests for assistance or funding issued from senior authorisers, or formal decisions from key governance bodies to commit to the preparation of a National Transport Strategy
- working Group, Consultant Team and In-country Coordinator roles established
- stakeholder engagement plan
- documented governance and decision-making arrangements
- detailed ‘project description’ document.

Step 1.1 Establish commitment



Who is championing this work from within the country? Who needs to commit to this work to ensure it will have impact? How committed are development partners?

Any activity aimed at policy change or building capability requires clear authorisation from the people and institutions with the appropriate authority and influence – sometimes referred to as the “authorising environment”. However, this authority is often difficult to establish, and the process requires adequate time and attention. Authority is seldom located in one office or person, and as the issues increase in complexity, risk and uncertainty, the work requires broader engagement. (Andrews, Pritchett, & Woolcock, 2017) Transport issues cut across many areas of policy and will involve several government agencies. Authority, in this sense, is not restricted to individuals who hold particular positions – it is likely to extend to influential individuals in the private sector and to customary leaders.

You should make an explicit effort to ensure the transport strategy process has a clear local authorising environment, with visible, senior champions. A long-term strategy is intended to establish a durable vision, and you should aim to gain cross-party commitment beyond the government of the day.

It is necessary to engage from the very start with development partners, such as the multi-lateral development banks (MDBs) or major bilateral donors, so that the NTS is accepted as the basis for the partnership and investment between the country and development partners going forward.

Some authorisers may be reticent to give their full commitment at the start of the process – and the whole process should be used to build trust with these authorisers – but there must be adequate high-level authorisation early on for the project to go ahead, otherwise chances are it will end up as a report gathering dust on a shelf, rather than a national policy to drive investment and change.

Note that engaging broadly with stakeholders from across the system may be useful but not a replacement for ensuring that the work has adequate authorisation from the right people and institutions.



Conversations that occur in Phase 1 can also be used to build literacy around futures/ long-term thinking and explore sustainable transport concepts. Introducing these concepts in informal ways can help people engage with the process and build knowledge in preparation for the early workshops.



There must be adequate high-level authorisation early on for the project to go ahead, otherwise or it is likely to end up as a report gathering dust on a shelf, rather than driving investment and change.



Authorising environment

Further reading and ideas on establishing and managing the authorising environment can be found in [Managing your authorizing environment](#) (Andrews, Pritchett, & Woolcock, 2017).

Step 1.2 Build the team

In this step you will put together the team to carry out the actual work of developing the NTS. Your team has two groups – a Working Group and a Consultant Team. In addition, you will need to fill two roles that are critical to the success of the project – a Team Leader, and a dedicated In-country Coordinator.

Team Leader/ Facilitator

A key role in the team is the person who leads the design and facilitation of the strategy process. They do not need to have deep expertise in transport but should be able to skilfully guide the Consultant Team, Working Group, and core stakeholders through the strategic processes outlined here. This role would be accountable for the final products, and for maintaining effective relationships throughout the process.

In-country Coordinator

You should give serious consideration to employing a dedicated role to support coordination of governance and stakeholder processes, particularly if most of the consulting team will be present in the country for short periods only. This role would be responsible for providing secretariat support for the senior governance committee (see Step 1.4 Clarify governance and decision-making), briefings and information flow between stakeholders, and coordination of development partner meetings.

Undertaking a strategy process can be a significant burden on local staff and organisations. Due to small populations, many SIDS have limited professionals available for such roles and recruiting locally can cannibalise existing important work. Care must be taken to hiring someone who will work easily in the country and have effective relationships, while not taking key local people away from other important work. To be effective, consideration should be given to this being a full-time in-country role for the duration of the NTS process (~12 months).

Working Group

A Working Group of key in-country personnel will make day-to-day decisions about the running of the project and drive the process of dialogue and influence with other key stakeholders. Ideally this would be around 5–6 people, including the Team Leader, key officials from the transport Ministry, the aid coordination office, and the In-country Coordinator.

Consultant Team

The Consultant Team will provide the expert resources for the project. They will carry out information gathering, analysis, preparation for workshops, and preparation of papers and reports. Ideally your Consultant Team will have multidisciplinary expertise, good understanding of the country context (including its transport system, financial systems, overall government arrangements, and human resource capacity) and the ability to build and maintain meaningful relationships within the country. The skills the team will need to draw on include:

- the design and facilitation of strategic conversations
- leadership in influencing and effecting change
- strategic thinking (using strategic foresight, systems thinking, and design thinking approaches)
- techno-economic analysis
- policy and financing analysis
- understanding of socio-technological transitions
- institutional development
- expertise in skills, workforce, and human resource planning
- transport sector expertise, across both infrastructure and vehicle technologies and transport systems.

Step 1.3 Develop stakeholder engagement plan



Who has interest and influence in the transport sector? Whose views need to be heard in this process? Who needs to act as a result of this process? How will we engage with these stakeholders?

In this step the Working Group will spend one or two meetings developing the stakeholder engagement strategy and will revisit it throughout the process. The members of the Working Group bring the in-depth knowledge of the stakeholder landscape and will also be responsible for engaging with key stakeholders throughout the process. The stakeholder planning process should be treated as a confidential process so that Working Group members can speak freely and really consider how best to work with key stakeholders over the course of the strategy development process. Developing a stakeholder plan has two key tasks:

- brainstorm stakeholders and place them on an interest/influence map
- develop a stakeholder engagement plan.

Brainstorm stakeholders and place them on an interest/influence map

When brainstorming stakeholders, consideration should be given to:

- users and beneficiaries of transport services
- key decision-makers, influencers, and advocates
- political leaders from across parties (not only those in government today)
- government agencies – transport, infrastructure, climate change, and environment
- local government
- private transport operators
- government owned transport companies
- development partners.

Stakeholders can then be mapped against their level of influence or power in the transport system, and their level of interest in the transport system. Sometimes it is useful to name stakeholders as a group or organisation (eg, local governments) and sometimes it is useful to name stakeholders as individuals, usually in the high power/ high interest category.

Once you have identified and mapped the stakeholders (see Figure 2), you can then determine what level of involvement they should have in the process. Stakeholders with very high levels of interest and influence should be participants in the process, collaborating on the analysis and strategy making work. Stakeholders with lower levels of interest and high levels of influence

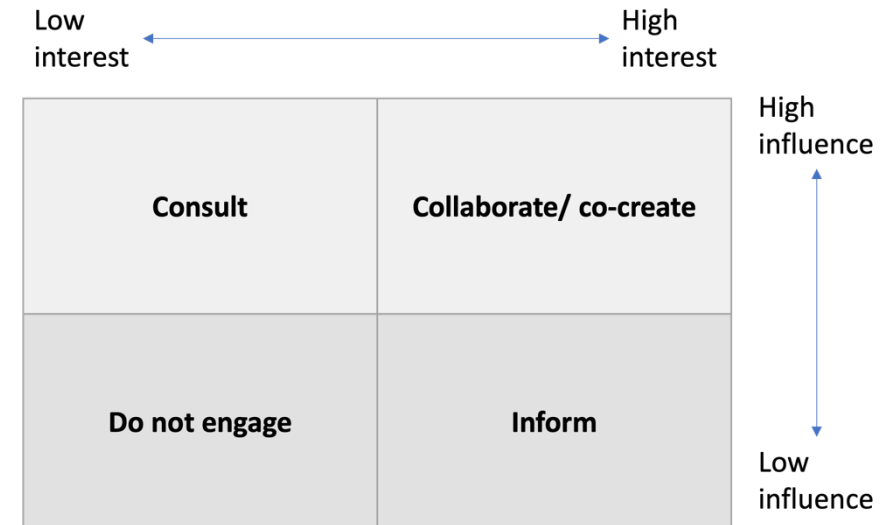


Figure 2: Quadrants for mapping stakeholders' influence/ power and interest

should be consulted and kept informed regularly throughout the process. Finally, stakeholders with high interest but low influence should be kept informed.

Develop a stakeholder engagement plan

A stakeholder engagement plan can then be developed that sets out the following:

- who you will engage with
- where they sit on the interest/ influence map and what level of engagement they need
- what their key interests are in the work and the key issues you will engage them on
- how you will use to engage the stakeholder – eg, regular face-to-face meetings, involvement in workshops, briefing papers (for Ministers and Cabinet), interviews, public information sessions
- how often you will engage
- who will be responsible for managing the relationship and engagement process.



When identifying and mapping stakeholders, it can be most useful to discuss individuals by name, as well as the organisations they represent. This allows a much clearer discussion of who you need to engage and their influence and interest.



Explainer video

[This 5 min video](#) provides a summary of how to do a stakeholder interest/ influence map and then how to use that information to develop an engagement strategy (Dyson, 2016).

Stakeholder analysis and communication planning

The MindTools website offers additional guidance on [stakeholder analysis](#) (Mind Tools, 2021) and engagement [planning](#) (Mind Tools, 2021).



Plan for regular and repeated dialogue and engagement at all relevant levels of decision making, and using different approaches: formal and informal, group discussions and one-on-one meetings.



Example of a stakeholder engagement plan from Eilis Nert

The table below shows an extract from the Eilis Nert team's stakeholder plan, showing the level of engagement and the way in which the team will seek to engage regularly with key stakeholders.

Stakeholder/group & level of engagement	Interest/influence	Specific objectives/ key messages	Mode of communication	How often	Responsibility
Minister for Transport <u>Collaborate</u>	Minister is the champion of NTS	Will need to be across all aspects of the work Have material to support her discussions with Cabinet colleagues, senior officials, and development partners	Regular meetings and written briefings	Bi-weekly to monthly	Team Leader
Cabinet <u>Consult</u>	Cabinet approves NTS and there are implications across several portfolios	Will need to be across the key strategic choices, costs, and financing options	Presentations and discussions with Cabinet Cabinet papers	Several key touchpoints in process	Secretary of Transport and Team Leader
Secretary of Finance and key staff <u>Collaborate</u>	Manages overall budget, debt policy, main relationship with development partners	Critical to facilitating relationship with development partners, weighing finance priorities across all sectors	A key staff member is in Working Group. Regular meetings, participation in key workshops	Bi-weekly meetings	Team Leader
Local government for major urban areas <u>Collaborate (on urban aspects)</u>	Manage roads and urban planning	Build understanding of risk assessment, spatial planning, and street design	A key staff member is in Working Group. Regular meetings, participation in key workshops	Monthly meetings	Team Leader
Ministry for Outer Islands <u>Collaborate (on outer island aspects)</u>	Develops rural development policy, manages subsidy for outer islands shipping and air	Critical to imagining a desirable future for outer island life, and levels of transport services that are needed, level of subsidy	Interviews, ad hoc meetings, participation in key workshops	As needed	Project Coordinator
President and CEO for National Women's Forum <u>Consult</u>	Women's NGO concerned about rights, safety, and economic opportunity for women	Ensure women's perspective on the transport system is core to the design	Interviews, participation in key workshops. Invite all members of NWF to information sessions.	As needed	Project Coordinator
Chamber of Commerce <u>Consult</u>	Ensuring transport systems enable economic activity and are affordable	Ensure transport strategy design has support from business and captures their concerns	Interviews, participation in key workshops. Invite all members of COC to information sessions.	2 presentations	Project Coordinator
President of Association of Transport Operators <u>Consult</u>	Provision of land transport services	Understand the technologies, costs, new configurations, and funding opportunities that might be available. Transport Operators will need to collaborate with government and development partners to shift the system.	Interviews, participation in key workshops. Invite all members of ATO to information sessions.	2 presentations	Project Coordinator

Step 1.4 Clarify governance and decision-making



Who needs to make decisions? What will the decision-making and oversight processes be? How will the National Transport Strategy become official government policy?

Governance here refers to the structures and processes for decision-making and oversight of the national transport strategy development.

Wherever possible, to reduce burden on the country, you should make use of existing governance processes such as a sector-wide policy or coordination committee, and existing government policy processes. The effectiveness and level of formality of these will vary from country to country. In some smaller countries, a small number of people wear multiple hats, and their time is constrained.

There is no need necessarily for a highly formalised process. What matters is that there are processes to engage with the key people in the authorising environment, to build understanding and consensus throughout the process, and to make decisions and get sign-off at various stages. In practice, this will be done through a variety of smaller and larger meetings, over time. The process should reflect both the formal and informal authorities identified in Step 1.3 Develop stakeholder engagement plan.

As the process is designed to develop a strategy that will be adopted as official government policy, it is important to clarify and document the process of sign off and decision-making, including the formal process for deliberation and adoption as government policy. As for any government policy process, there should be regular written and in-person briefings to Ministers and support for Cabinet deliberations.

Step 1.5 Convene development partners



Which development partners have an interest in the transport and energy systems of the country? How will we ensure they are engaged in the process? How can we build their commitment to implement the NTS?

It is critically important that development partners buy into the overall process and, over time, commit to align their investments and plans with the resulting strategy. Development partners who have an interest in the country's transport sector should convene throughout the strategy process and engage actively with the government in the discussion of substantive issues. This is particularly important towards the later part of the process focused on pathways and planning (Phases 4 and 5).

In general, development partners will welcome the development of a strategy as a clear articulation of the country's aspirations and priorities. But they will also want assurance that the strategies and investment priorities have been thought through carefully.

Ideas for working with development partners include:

- Establish regular development partner roundtable meetings and information sharing mechanisms. Ideally in a larger country these can be in person, but in a smaller island country, regular teleconferences augmented with occasional in-person meetings are useful. Partners can also use this forum to share updates on transport-related projects already underway.
- Ask development partners to peer review the work at key points in the process to both improve the quality of the strategy through external testing of assumptions, and to help build confidence in development partners that the strategy is rigorous and credible.
- Where regular meetings have been remote, consider an in-person roundtable in the later part of the strategy process, to allow the opportunity for face-to-face discussion and negotiation between partners, government, and key private sector stakeholders.

Step 1.6 Design the overall process



What are the objectives and intended outcomes of the process? What will success look like at the end of the strategy process? What are the scope and boundaries of the work? What products will be developed? How will we work together?

What will success look like at the end of the transport strategy process?

Defining what success will look like is an essential starting point for inspiring the team to action. A shared understanding of success provides a frame of reference for the team and lays the foundation for the process design. Defining success should be done in a workshop with the Working Group and members of the Consultant Team. This exercise is not about the long-term vision for the country's transport system (that comes later in Step 3.3) but about what will be different at the end of this process in, say, 12 months' time.

Some prompts to help with this discussion:

- Look ahead one year to when the national transport strategy has been completed.
- What will be different when this project is complete?
- Who will behave differently and what will they be doing?
- What will they say about the project and why is has been successful?
- What will people say about the strategy when it is complete?
- What will people say about the strategy process and how it was managed?

Define the scope

As this approach can be used at a range of scales, from a comprehensive national strategy, or a strategy for one island or urban area, and across different transport activities, it is important to explicitly define the scope and boundaries for the strategy.

Ask the following questions:

- **Geographic coverage:** What is the geographic scope? Is it focused on major urban areas, a single island, or the entire country included urban areas and rural and outer-island communities?
- **How will international and regional transport systems be addressed or will they be excluded?**
- **Sector coverage:** Will all sub-sectors be included? Land transport, maritime and aviation?
- **What time frames will we look at?** (note this guidance supports a long-term view over three decades or more, along with a shorter-term investment plan over 5–10 years).

Map out the process using the 5 Phases and suggested tools and approaches

It is recommended to design the process using the 5 Phases outlined in this guide – one way to think of it is that in each Phase there will be a stakeholder dialogue process comprised of a few formal workshops, and many more informal discussions and meetings, supported by a parallel technical, expert-driven process. The process design should show how the work will progress over time, when workshops and meetings will be held, who will be involved, and the type of research and analysis that will be needed. As with all projects of this type, it can be expected that the process will need to be adapted as progress is made.

Draft a project description document

It's a great idea to develop a 'project description' document that captures all the key arrangements developed in Steps 1.1–1.6, including intended outcomes of the project, project plan, time frames, roles and responsibilities, and governance and decision-making arrangements. The overall time frame for the project from here is likely to be 8 to 12 months. The 'project description' is intended to guide the work of all participants in the process – including country stakeholders, consultants and development partners – and can be updated and adapted as needed.



A project description document can provide a clear shared understanding for participants in the process and helps with getting buy-in.



Defining success for the strategy process

A useful and creative approach to this is “Cover story vision” by Grove <https://grovetools-inc.com/collections/cover-story-vision> (paid \$) (note that the ‘vision’ referred to here is the direct results at the end of the strategy process, not the long-term vision for the transport sector as discussed in Step 3.3.

Phase 2: Understand the past and present



Where are we now? How did we get here? What was the journey to arrive at the transport system we have now? What are the major drivers and beliefs that underpin the current transport system? What are the key insights we can understand about the system? What is working and what is not working? What are the key challenges and opportunities?

Overview

In Phase 2 you will build a shared understanding of the current state of the transport system, and how it developed over time. The approach here uses concepts from systems thinking, together with more conventional approaches to information gathering and sense-making.

In this phase you will go beyond simply describing the tangible components of the transport system such as the length and condition of roads, the number of vehicles, the number and type of passengers and their journeys, the quantity of fuel used and GHG produced – although this description is essential.

The purpose of Phase 2 is to go deeper to understand where the system is not meeting the needs of the people of the country, and why it is the way it is. This is particularly important for SIDS, where sometimes solutions have been adopted from entirely different contexts and, some decades later, are found to be not fit for purpose.

In this phase you will engage in collective ‘sense-making’ – bringing in diverse views and experiences and using systems thinking approaches to build a shared understanding of the challenges and opportunities. You will gather and analyse existing information, carry out interviews, hold discussions and workshops with stakeholders. You will also spend time experiencing the transport system as a user. Building a view of the system may be iterative and different approaches and tools can be used at different times. A few tools and approaches are included here as a starting point.

Steps

- + **Step 2.1 Desktop review of existing information**
- + **Step 2.2 Interviews**
- + **Step 2.3 Experience the transport system**
- + **Step 2.4 Map the current systems**
- + **Step 2.5 Map the past**
- + **Step 2.6 Prepare an issues paper.**

Outcomes

At the end of Phase 2, the Consultant Team and Working Group members will have:

- an overview of the information available and the story that it tells
- an understanding of the key strategic issues as seen by key transport stakeholders
- a deeper, empathetic understanding of the real-world experience of transport system users and challenges and opportunities in the transport system.

At the end of Phase 2, participants in the process, including key decision-makers, will have a shared understanding of:

- the current state of the key elements, interactions, and cause-and-effect relationships in the transport system
- key issues and challenges
- shared understanding of how the transport system developed over time, and the drivers underlying that development
- key 'leverage points' or opportunities to intervene in the system.

Outputs

- documented observations, insights, and interviews about the real-world experience of the transport system
- maps of various parts of the system, in forms that reveal key features of the transport system for attention, including key actors and points of leverage
- multi-level map of the development of the country's transport system over time
- issues paper capturing the information and ideas from Phase 2.

Key concepts



Systems thinking

Systems thinking is a way of ‘zooming out’ to describe the world more holistically. It recognises that a system is made up of ‘elements’ and it is the interconnections or relationships between these elements in a pattern or structure that produces particular behaviours and outcomes (Meadows, 2008). Systems thinking, at its essence, is a mindset and approach of looking at the big picture, the dynamic nature of systems, and from the different perspectives of knowledge and experience different stakeholders bring. It is an emerging area of practice that contrasts with more reductionist views of the world which try to break complex situations into small parts, without seeing the connections between them (see additional resources on systems thinking below in Steps 2.4 and 2.5).

Systems thinking is a discipline for seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static ‘snapshots’. – *Peter Senge (Senge, 2006)*

Systems thinking starts with a mindset and is supported by a variety of visual mapping tools which are used to help capture different perspectives and understandings of the system, and to build more complete shared view of the whole. Systems thinking is also supported by the narrative/ storytelling approach, which is capable of weaving together more complexity often than numbers or graphs.



Iceberg model

Usually, we humans only consciously observe a small amount of a system – the parts above the surface, just like an iceberg. The iceberg model (Figure 3) is a systems thinking concept to help look at the deeper patterns, structures, and underlying beliefs that create the events you observe in day-to-day life. Events and patterns show you what is happening, and the deeper layers, structures, and mental models can help you understand why. For the transformational change that is needed to create sustainable futures, you must think deeper into these layers of the system.

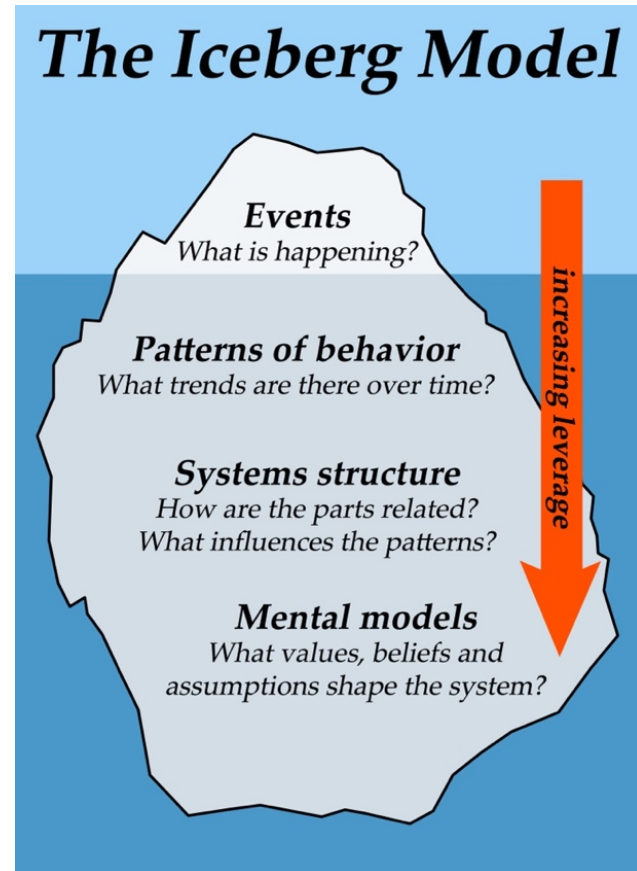


Figure 3: The iceberg model (Image: Adobe Stock)



Long-term thinking

Just as you must think more deeply into the system, you must also think across longer time frames than is usual in most planning. This helps you to see the larger patterns and forces affecting the transport system. In Phase 3 Exploring the future, you will imagine how the world might be and how you would like it to be, decades into the future. Here in Phase 2, you instead look back at the past to get that expanded view across time.



Human-centred design

Human-centred design is an approach that puts people at the heart of the process to develop solutions that meet the needs of the people involved. In Phase 2, applying human-centred design thinking means really understanding the experiences, motivations, and needs of people in and around the transport system which will then inform the selection of strategies. This guidance doesn't use the textbook 'human-centred design process' *per se* but rather the *mindset and principles* of human-centred design. These principles may be summarised as:

- focus on the people
- find the right problem to solve
- think of everything as a system. (Norman, 2018).



The systems thinking and human-centred design approaches introduced in Phase 2 are fundamental mindsets and approaches that carry through to Phases 3 and 4.



Systems thinking	<p>This video is a great introduction to how systems thinking differs from the reductionist approach that is sometimes found in engineering projects (Systems Innovation, 2014).</p> <p>This video introduces how to apply systems thinking, emphasising the mindset and questions that support systems thinking, while avoiding overly complex or time-consuming approaches (Centers for Disease Control and Prevention (CDC), 2017).</p>
Iceberg model	<p>This video introduces the iceberg model (Systems Innovation, 2018).</p>
Human-centred design mindsets	<p>This video by Don Norman emphasises the mindset of human-centred design (Norman, 2018).</p>

Step 2.1 Desktop review of existing information

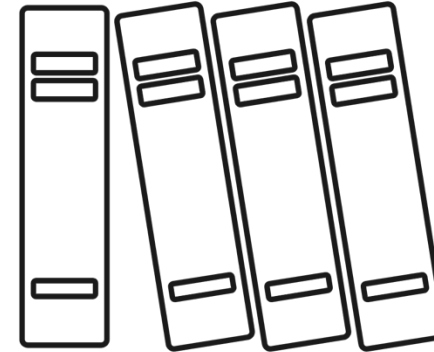


What are the key characteristics of the transport system? What do the existing arrangements look like for operation and financing? Who are the users of the system? What infrastructure is there and what condition is it in? What are the characteristics of the land, sea, and air transport fleets?

In this step you will gather and compile information about the existing transport system using conventional methods of targeted interviews and desktop review of documents. Information should include:

- **Country overview** — geography, climate, economy, government, population, existing national planning processes, energy use.
- **Configuration of transport systems** — travel demand, tourism, description of overall transport system, registered vehicles, vessels and aircraft, location and condition of infrastructure, routes, ownership, policy environment.
- **Finance** — trends over time, capital and maintenance expenditure, subsidies, investment environment, debt sustainability analysis.
- **Configuration of related energy systems** — electricity systems, fuel supply chain.
- **Condition of infrastructure**

This stage of information gathering should be done by the Working Group and Consultant Team. Desktop information gathering can be supplemented with targeted interviews.





Transport sector description checklist

This checklist suggests the type of information and description of the existing system relevant in Step 2.1. Information can be gathered by the Consultant Team and Working Group through desktop review of existing documents and supplemented through targeted interviews with key stakeholders.

Country overview

- Geography
- Climate
- Government
- General economic information
 - GDP, primary economic sectors, debt, income level, debt sustainability analysis (DSA), economic trends
- Population
 - trends, demographics, births, deaths, location trends including urbanisation and outmigration, incidence of non-communicable disease (NCDs)
- Existing national policies and plans
 - quality and relevance of existing plans – eg, transport, climate change GHG emission reduction, electricity planning, rural/ outer island development, economic development, tourism, infrastructure master planning,
 - overarching goals and visions, development aspirations
 - legislative/ regulatory frameworks
- Relevant regional programs
- Policy and investment environment
- Energy use
 - fuel imports, fuel use across sectors (ie, electricity vs transport, road, maritime and air transport, domestic and international)
 - GHG emissions for electricity and transport
 - expenditure on fuel as a proportion of GDP

Configuration of transport systems

Overview of system

- Travel demand
 - reasons why people travel, tourism trends, and locations
 - movement of goods and access to services

Land transport

- Road vehicle fleet
 - number, type, age, condition, service type, ownership, and operation
- Public transport
 - type of service, location/ routes, frequency, type of users, numbers of users and reason for travel, economic cost of service and subsidies, cost of fares, sustainability of operators, cultural attitudes to public transport
- Road infrastructure
 - description of urban and rural road system, type, numbers of users and reason for travel, economic cost of service and subsidies, condition
- Active transport
 - prevalence and type – ie, walking and cycling, who, cultural attitudes, suitability of infrastructure, barriers

Sea transport

- Vessel fleet
 - number, size, age, condition, service type, ownership, and operation
- Ports and jetties infrastructure
 - location, type, community, types of boats
- Shipping services

- operators
- frequency and reliability
- travel demand: who uses, how often, which routes, why
- safety record

Air transport

- Aircraft fleet
 - number, size, age, condition, service type, ownership, and operation
- Airport infrastructure
 - number of airports, airstrips, and types of facilities
 - condition of airport infrastructure, responsibility for maintenance, etc
- Air services
 - operators
 - frequency and reliability
 - travel demand: who uses, how often, which routes, why
 - safety record

Configuration of electricity system

- Potential for renewables and integration of transport
 - current energy mix – renewable type/ diesel
 - potential and plans for renewable energy development

Finance

- Trend over time and outlook for transport-related finance
- Capital expenditure and source of finance on transport infrastructure
- Expenditure and source of finance for operation and maintenance

Inventory of projects

- Recent and planned transport projects
 - type, location, source of finance, date, expected outcomes and benefits

Institutional arrangements

- Roles and responsibilities
- Private sector participation
- Legislation and regulations – description and degree of implementation, compliance, and enforcement

Workforce

- How many employees, which sectors, degree of skill and training

Possible challenges

- Typical challenges for island transport systems include the following – during the system diagnosis, explore whether these challenges are present and to what extent (see issues section in Part I)
 - transport services insufficient to meet demand
 - transport is not affordable for many
 - transport safety issues
 - congestion in urban areas
 - too high proportion of household expenditure on transport.

Step 2.2 Interviews



What do key stakeholders in and around the transport system see as the key strategic issues? What are the pressing issues and concerns faced by people working in the transport sector?

In this step you will carry out one-on-one interviews with key stakeholders to unearth the challenges and opportunities that they see. These stakeholders will generally include elected officials, government staff, development partners working on the ground, key private sector stakeholders and civil society organisations. The “7 Questions” approach to semi-structured interviews initially developed by Shell is a useful way to structure the interviews (see link in Resources below).

You should do at least 12 to 15 interviews with diverse stakeholders – more interviews will build a fuller understanding. The interviews are a great way to bring people into the process and help them feel involved. They also provide an ideal opportunity to build trust and commitment to the process with senior stakeholders.

The interview approach is to ask open-ended questions around the following broad areas (The Futures Toolkit , 2017):

- the critical issues for the policy or strategy area being considered
- what a favourable outcome is
- what an unfavourable outcome is
- the key operational, structural, and cultural changes that need to be made to deliver the favourable outcome
- lessons from the past
- decisions which must be prioritised
- what the interviewee would do if they had absolute authority.



7 Questions technique

Detailed guidance pp 29-32 of [The Futures Toolkit](#) (The Futures Toolkit , 2017).

Step 2.3 Experience the transport system



How do people experience the transport system? How does the transport system actually work? Why do people travel? How often? What things do they take with them? What is the travel experience like? What are the difficulties and inconveniences? What works well? What doesn't work well? What else can we observe?

In this step you will spend time gaining a real understanding of people in and around the transport system – what are their experiences, needs and motivations? Conventional transport planning approaches use travel demand surveys to forecast demand. This guidance recommends an approach that develops a deeper connection with the people the system is being designed for – to see first-hand how things happen and what does and doesn't work.

Immersion is the process of 'walking alongside' the people you are designing for – really getting to know the way they access services, travel to work, run errands, meet up with friends, and attend church and family gatherings.

In this step you will spend time shadowing people and using local transport. You will observe 'on the ground' how the transport systems work.

Go down to the dock, watch the ships being loaded and talk to the people waiting for the ship and the people working around the dock. Or take a flight to an outer island and talk to your fellow passengers. *Where are they going to, or coming from? Why are they travelling? What cargo are people taking? What happens at loading time? What are the facilities like? How long is the journey? How do people experience the journey? What is the experience of the transport workers? How often do they make this journey? What do they find difficult? What do they enjoy?*

Take a car ride around town in quiet times, and in peak hour. *What can you observe? What are the roads like? What is traffic like? What kinds of vehicles are being driven? What are the streetscapes like? How many people are walking or cycling? What state are the footpaths in?*

It is highly recommended that the Consultant Team and Working Group spend at least a few days observing how the system works and talking to people to understand their experience.

Additionally, you can carry out targeted interviews with people with lived experience of groups of users who may be vulnerable, marginalised, or even excluded from the system. This might include people living with disability, women, LGBTQI+ people, or people living in poverty or outside the cash economy. Local team members should lead these interviews wherever possible.



Empathy as a mindset

[This video](#) from IDEO.org describes why empathy as a mindset is so important (Kolawole, n.d.).

Immersion

[This web page](#) provides some guidance on the immersion approach described here (IDEO.org, n.d.).



Spend some days immersing the team in the experience of the transport system by 'walking alongside' users. Carry out targeted interviews with users at the margins of the system.

Step 2.4 Map the current systems



What are the parts of the transport system? What are the relationships between them? How do some parts of the system affect other parts? Why are things the way they are? Where are the ‘leverage points’ where a small change might make a big difference?

In this step you will describe the transport system using systems mapping. Systems mapping is the process of describing the tangible and intangible elements and the nature of the interconnections, to reveal insights and identify key features of the transport system for attention, including key actors and points of leverage. Systems mapping is best done as a collaborative workshop activity with flipcharts, markers and post-it notes. It is the different perspectives that participants bring that will help describe the system more completely.

You can do systems mapping to different levels of detail, depending on the available resources and interest of the consultants and participants. Various formal methods exist but there are really no rules about how to do systems mapping. The idea is to ‘paint a picture’ in a collaborative way, so that different insights and perspectives can be included and discussed.

System maps can be very simple and still be a meaningful support for dialogue. Often when used by academics, they can be far more complicated but that is not required here. It’s important to find a balance between comprehensive mapping of the system and getting lost in the detail to the detriment of the strategic conversation.

Using paper and markers is the best approach for engagement and thinking, and then you may like to use digital tools such as [Kumu](#) to capture the outputs of the workshop, and to present and further refine the system maps. Systems mapping could look at the whole transport system across a country or could focus in on parts of the system. Zooming in and out is a useful way of gaining more insight.

Two techniques are suggested here:

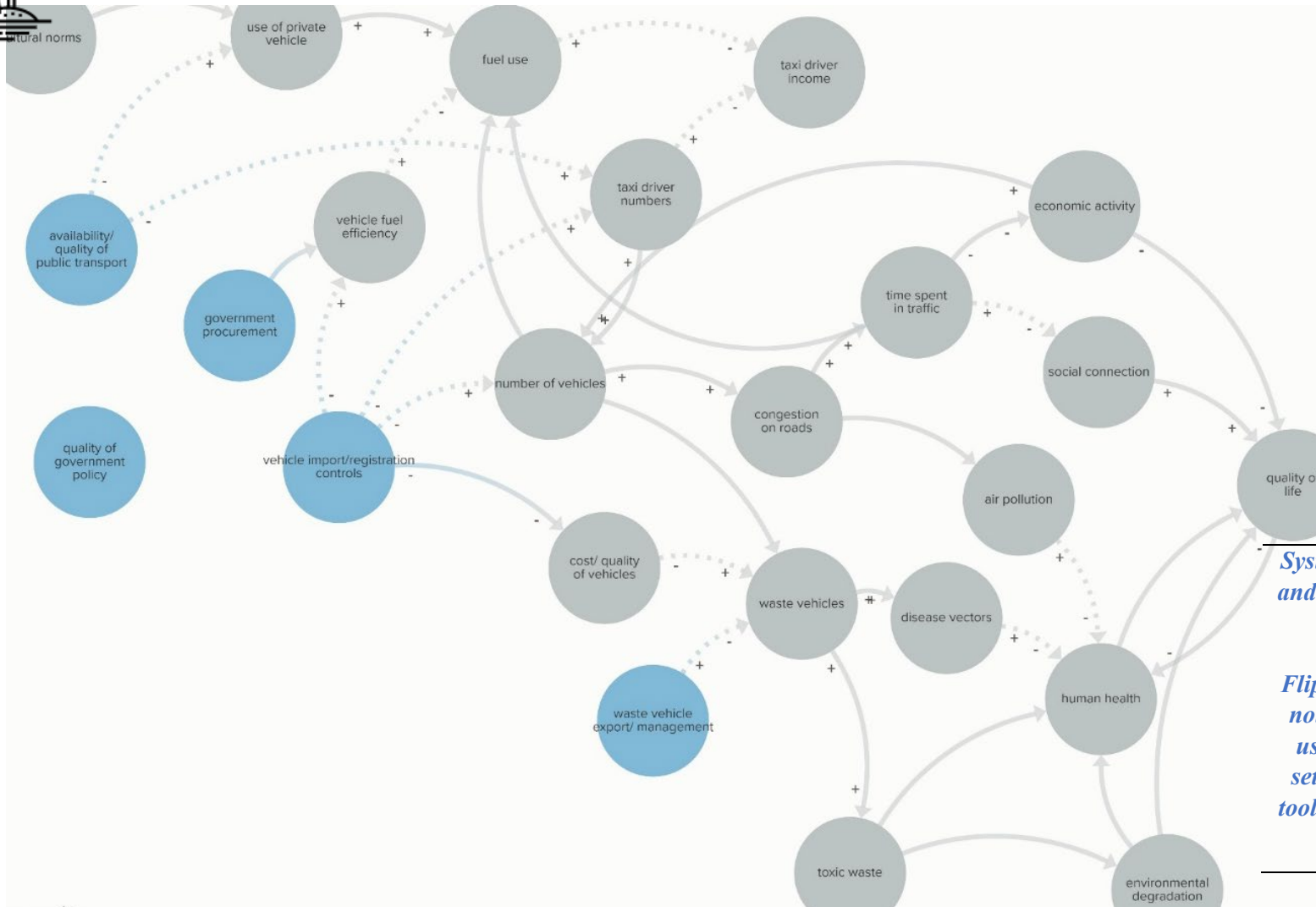
- **Cluster maps:** similar to a mind map but encourages more attention to the groupings (clustering) and interconnections of ideas. It’s a great way to start because there is no ‘right or wrong’ and it is a fast way to share and record aspects of the transport system and see the interconnections.
- **Causal loop diagrams:** a causal loop diagram is an aid to visualise how the different components of a system are related – how cause and effect between variables creates the behaviour of a system (see example of the Ellis Nert land transport system in Figure 4).



Cluster mapping	A nice intro here from the UnDesign School (Acaroglu, 2017).
Causal loop diagrams	Wikipedia page on causal loop diagrams (Causal loop diagram, 2020). Extended resource: Guidelines for drawing Causal Loop Diagrams (Kim, n.d.).
Digital tool	Kumu is a fabulous free digital tool that you can use to capture and add to systems maps after the initial on paper/ workshop stage.



Figure 4: Ellis Nert causal loop diagram on road traffic in Luvs Riva



Systems mapping can be messy and fun, and a highly engaging method for collectively exploring the system. Flipcharts, whiteboard, post-it-notes, and markers should be used in a real-life workshop setting while digital mapping tools can be used to capture the outputs.

Step 2.5 Map the past



How did the transport system evolve over time? What role has transport played in the islands? What needs did the transport system meet? What events and issues shaped our transport systems – local, regional, or global? What beliefs and assumptions can you see influencing the transport system over time? What is important from our past and present transport systems that will help us navigate the future? What should we discard and leave behind because it won't serve us?

Reviewing history, both recent and long term, is very helpful when embarking on futures work. Mapping the past allows you to see how things have changed over time, and to comprehend the scale and rate of change you might see in the future. It helps reveal the assumptions and underlying patterns that create and maintain the current situation, so that you can consider what would need to shift to create lasting change. It also allows you to look back at a past that may have been grounded in sustainable practices, and to see what knowledge, behaviours, skills, or beliefs you might bring from that past into the future.

The suggested approach to mapping the past is in a workshop setting with the Working Group and key stakeholders, using a structured approach that looks at the journey of the transport system over time, at multiple levels – looking at the local context, the broader context, and the trend and patterns. You can think back at least 50 years to the arrival and dominance of motorised transport, 200+ years to pre-western colonisation, and even further back hundreds or thousands of years to the original arrival of people to the islands.



We do not map the past to predict the future – because the future will not look like the past – but to gain some altitude and perspective, and insight into why things are the way they are.



Timeline multi-level mapping

Here is a [useful workshop guide](#) to developing a history map (Davidson, 2020).



Eilis Nert transport history

Figure 5 shows a high-level sketch of Eilis Nert’s transport history from before the days of colonisation, to today. This sketch was used by stakeholders in a workshop to consider what the underlying beliefs were across time. For example, in the 1800s, the establishment of sailing trade routes fundamentally shifted the relationship of Eilis Nert to the rest of the world. The arrival of tourists in the early 1900s brought in Western expectations of transport services. In the 1980s, motorised transport (and western technologies in general) and fossil fuel use were seen as the ‘engine of development’. In more recent years, one underlying belief has been that technology will solve the problem of GHG emissions, without having to change behaviours.

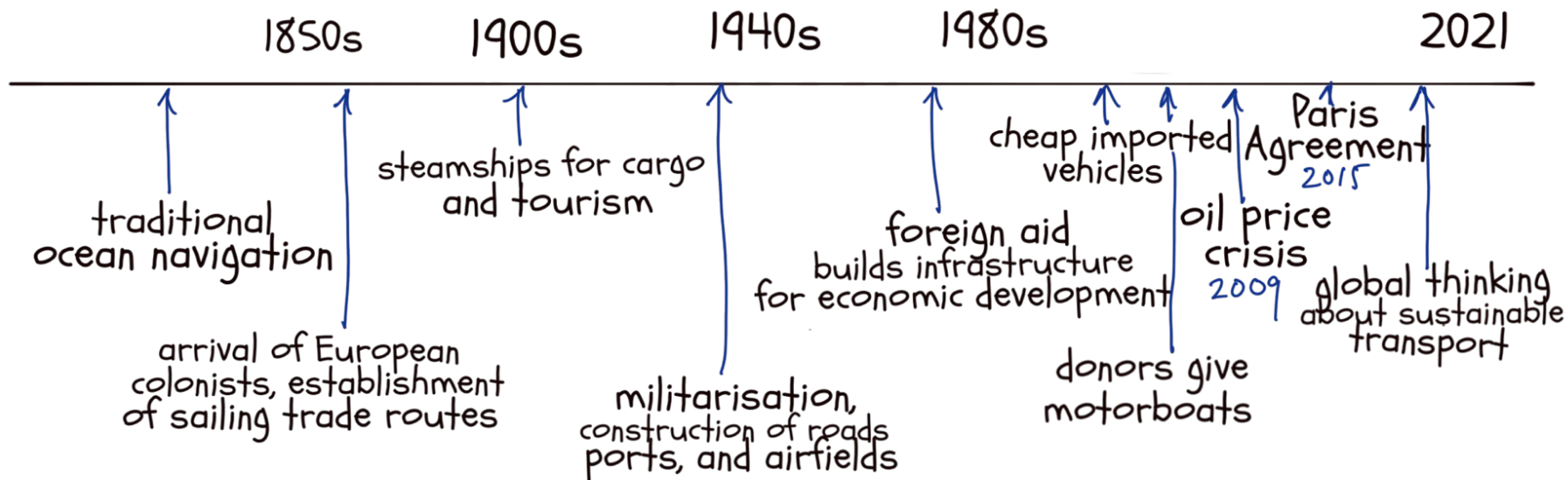


Figure 5: Eilis Nert high-level history timeline

Step 2.6 Prepare an issues paper

At this point it is useful to summarise and synthesise the findings from Phase 2 into an issues paper that captures the background information from desktop review and targeted interviews, and the additional insights gained from the ‘immersive’ process of observing transport systems and talking to people about their experiences with transport, along with the systems mapping. This then forms a record of the issues to be addressed in developing an NTS. The issues paper can be shared with key stakeholders for review and sense-checking.

Phase 3: Explore the future



What are the major factors that will affect the transport system over the short (<5 years), medium (5–15 years), and long term (15–30+ years)? What kind of future is ‘coming towards us’? How might that future play out, given large uncertainties? What implications does that have for the country, people, and transport system? What does a desirable transport future look like?

Overview

In Phase 3 you will develop a shared view of what the future might hold for the island transport systems. These are both the *futures coming towards you* – the major factors shaping transport systems – as well as the *desirable future* that you want to create.

In this Phase you will explore plausible future scenarios by considering global and national trends, and then articulate a desired future as a Vision.

As discussed in Phase 2, narratives and storytelling about the future are critical. These can shift the conversation from “a focus on new technologies and generally to the question of what’s next, to an exploration of the worldviews and myths that underlie possible, probable and preferred futures” (Milojevic & Inayatullah, 2015).

Information about the future is always speculative. Futures thinking is therefore not about forecasting what *will* happen, but about thinking through what *could* happen, to help chart a course that is robust across a range of possible futures. You will need to bring an exploratory and creative mindset to this work.

Steps

- + **Step 3.1 Explore drivers of change**
- + **Step 3.2 Explore different futures: scenarios**
- + **Step 3.3 Towards a shared vision**
- + **Step 3.4 Develop objectives**
- + **Step 3.5 SWOT Analysis**

Outcomes

At the end of Phase 3, you will have:

- a shared understanding among key stakeholders of the key drivers and uncertainties shaping future island transport systems
- a shared Vision for a desirable and plausible transport future
- a shared understanding of the key challenges, opportunities, and threats.

Outputs

- list of drivers of change against the PESTLE framework
- list of predetermined elements and key strategic uncertainties
- a set of plausible scenario narratives about what the future might look like as a result of external factors
- a documented Vision of a desirable future transport systems (narrative, or pictorial)
- documented SWOT analysis.

Key concepts



The Futures Cone

Futures work is not about trying to predict what will happen in the future but is a way of exploring what might happen (**possible futures**), what could happen, given what you know today (**plausible futures**), and what is likely to happen (**probable futures**). There is a fourth type of future, which represents what you *want* to happen (**preferable or desirable futures**). (Voros, 2001)

These futures are often represented by the ‘Futures Cone’ shown in Figure 6.

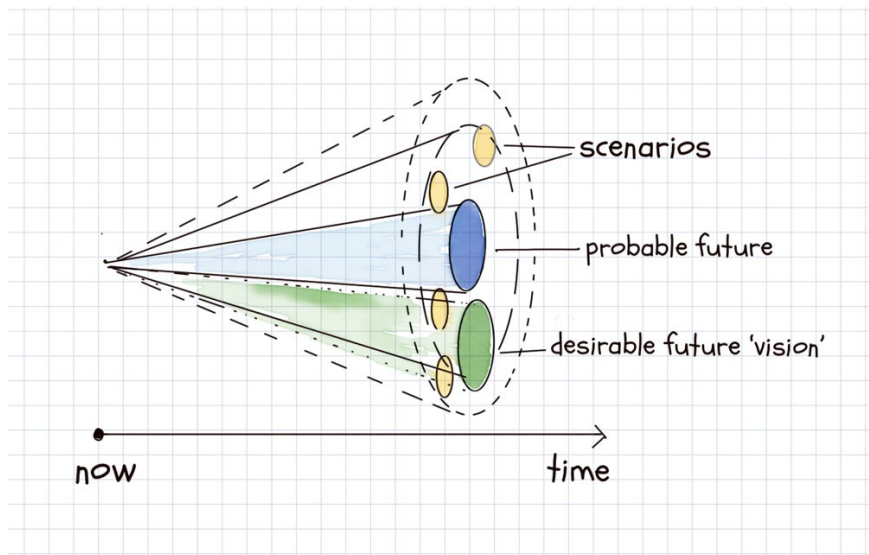


Figure 6: The Futures Cone (adapted from (Voros, 2001))



“The Three ‘Laws’ of Futures: The future is not predetermined. The future is not predictable. Future outcomes can be informed by our choices in the present.”- Joseph Voros (2001)



Drivers of change

Drivers of change are the trends and emerging issues that are likely to shape the future transport system. These may be local, national, regional, or global in nature – for example, urbanisation trends within the country, or global technological change created by the drive to decarbonise energy systems. The ‘PESTLE’ framework, described in Step 3.1, is a useful way to explore these drivers.

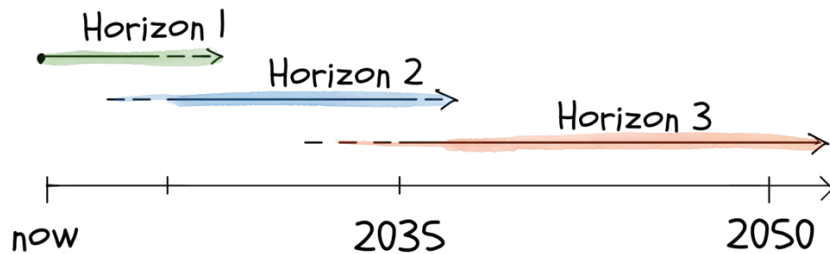


Time horizons

This guidance distinguishes between three time horizons – H1, H2, and H3 – representing the short, medium, and long terms. These are useful throughout Phase 4 and especially in *Step 4.3: Design pathways*. These time horizons are also used throughout Parts IIIA and IIIB in the discussion of strategies and technologies for island transport systems.

There are no standard definitions of time horizons, but to devise a long-term strategy that aligns with the Paris Agreement and looks out to mid-century (2050), you can adopt these time horizons as guidance:

- Horizon 1: short-term – immediate future from now to around 5 years
- Horizon 2: medium-term – 5 to 15 years
- Horizon 3: long-term – 15 to 30 years.



The Futures Toolkit

The UK Government’s [The Futures Toolkit](#) (The Futures Toolkit, 2017) is a practical set of tools with clear and detailed instructions, including how to use the tools in workshops. Specific sections of The Futures Toolkit are referred to in the following Steps, but the whole document is extremely useful, and you might find uses for tools not mentioned here.

Futures Cone

[A Primer on Futures Studies](#) briefly introduces the Futures Cone and provides some insight on the different ways futures thinking can be used (Voros, 2001).

Three Horizons

A couple of interesting papers on Three Horizons that can be helpful in designing workshops and conversations about the future and transition pathways in Phases 3 and 4: [Three Horizons and Working with Change](#) (Sharpe, 2015) and [Three Horizons: A Pathways Practice for Transformation](#) (Sharpe, Hodgson, Leicester, Lyob, & Fazey, 2016).

Step 3.1 Explore drivers of change



What are the major factors that will affect the transport system over the short-, medium-, and long-term? Which of those factors are the most important? Which of those factors are the most uncertain?

Sometimes called ‘environmental scanning’, this step is about building a shared understanding of the major trends and emerging issues that will influence your island country’s transport system. That is, what are those ‘drivers’ that affect the transport system in the short, medium, and long term, by creating or blocking change. The PESTLE (political, economic, socio-cultural, technological, legal, and environmental) framework (Figure 7) can be used to prompt thinking about trends and drivers across a range of domains.

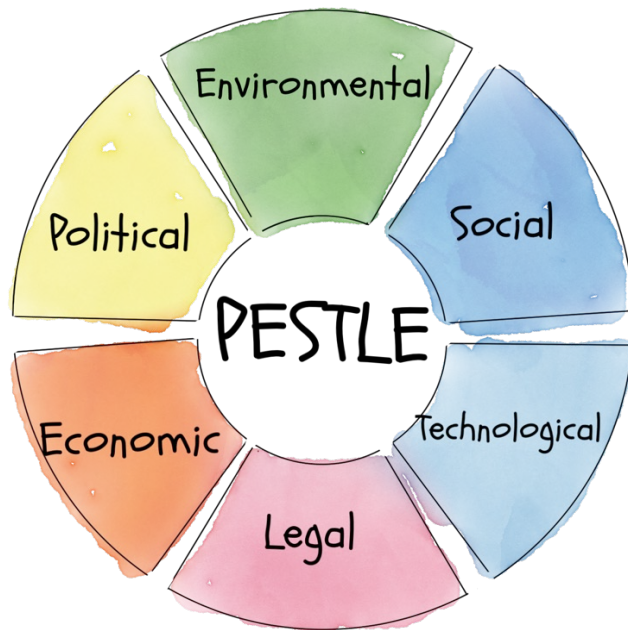


Figure 7: Domains of a PESTLE analysis

The approach has two components:

- Horizon scanning
- Exploring drivers of change and key uncertainties.

Horizon scanning is gathering intelligence about emerging trends and developments that may impact on the islands transport system. It can be done over several weeks by members of the Consulting Team and Working Group where individuals are tasked with exploring emerging trends they may notice. These scans can be written into short paragraphs and then compiled into material to inform the drivers of change workshop. Alternatively, you can skip this step and invite experts who already have a good sense of major trends and drivers.

Exploring drivers of change and key uncertainties can be done as a 2-hour workshop with the Working Group, key decision-makers, and external experts.

The first part of the workshop generates drivers through brainstorming, using the “PESTLE” framework. It is a great idea to have a range of views in the room, including experts who have a good sense of the emerging issues for the country and region, as well as global trends.

In this guidance, **Part IIIB: Menu of technologies** can be used to inform the PESTLE by looking at the emergence of technologies and when they may have a significant effect on island transport systems.

Table 1 gives examples of the kinds of drivers that might emerge from this exercise.

Table 1: Examples of drivers and trends affecting island transport systems

Type of driver		Examples
Political	Factors relating to government and policy, domestically and internationally. May include political stability, tax policy, and government actions on health, education and infrastructure, political relationships with bilateral and multilateral donors, and other geopolitical considerations.	Global push to net-zero emissions
		Stability of country government
		Stability of bilateral donor governments and funding policy
Environmental	Factors relating to weather, climate change, waste, pollution, etc.	Increasing climate change impacts – sea-level rise, increased intensity and frequency of storms, changes in rainfall Increasing environmental pollution
Social	Factors relating to demographics, population, migration, income distribution, livelihoods, health, culture, and attitudes.	Increasing urbanisation (people moving from villages and outer islands to towns) and informal settlements
		Increasing need for improved resilience and adaptation in the face of environmental and economic challenges
		Out-migration and the islander diaspora
		Populations – growing/ shrinking, aging populations, birth rates
		Increasing rates of non-communicable diseases: obesity, heart disease, diabetes
Technological	Factors including the type and rate of technological change, both globally and within the country.	Attitudes to material possessions and consumerism, influence of outside cultures – eg, desire for comfort and social status that come with private cars
		Increasing use of internet for accessibility, remote working, learning, healthcare, etc
		Uptake of smart phones
		Increasing access to internet in remote areas
		Global development of decarbonised land transport technologies
		Global development of decarbonised sea transport technologies
		Global development of decarbonised aviation technologies
		Increasing digitalisation of transport technologies
Legal	Factors relating to both domestic legislation and international law.	Shift to renewable electricity
Economic	Factors to do with the economy, such as economic growth, type of economic activity by sector, risks, and shocks.	Ratcheting up of Nationally Determined Contributions (NDCs) (national GHG reduction targets) under the Paris Agreement
		Increasing costs of adapting to climate change globally, that may reduce aid financing
		Economic development or growth trends of the country – eg, tourism, exports, aid
		Increasing frequency and severity of climate related disaster, that may create economic disruption
		Increasing and volatile fuel prices (including from carbon pricing)

Identifying key strategic uncertainties and predetermined elements can be done as part of the same workshop. In this task, you ‘map’ the drivers across two axes according to a) how important is the driver to the transport system (or how big is the impact), and b) how uncertain is the outcome of that driver. This gives four categories of drivers as in Table 2.

Table 2: Four categories of drivers

	Certain	Uncertain
More Important	<p>Predetermined elements: drivers that are strategically important to the transport sector, and the outcome is certain. These drivers are already impacting the system in a way that is predictable, and so the transport strategy must address these directly.</p>	<p>Key strategic uncertainties: Drivers that are strategically important but uncertain can be used to help explore possible futures in</p> <p>Step 3.2 Explore Step 3.2 Explore different futures: scenarios.</p>
Less important	<p>Drivers that are less important and certain generally need no further action (although they provide background and context to the strategy).</p>	<p>A watching brief should be kept on drivers that are less important and uncertain.</p>



Horizon Scanning

Detailed guidance pp 27-29 of [The Futures Toolkit](#) (The Futures Toolkit , 2017).

Information on Technology trends in Part IIIB: Menu of technologies.

[Climate change impacts in the Pacific](#) (Pacific-Australia Climate Change Science and Adaptation Planning programme, 2018).

Drivers of change and uncertainties

Detailed guidance on how to do driver mapping using PESTLE, including instructions for facilitating workshops, pp 42-45 of [The Futures Toolkit](#) (The Futures Toolkit , 2017).

Explanation Box: Predetermined elements

A clear example of a ‘predetermined element’ for island transport systems is the increasing impact of climate change. Although it is true that there are uncertainties around how quickly emissions are reduced globally and the response of the climate system to those emissions, the direction and general magnitude of the impacts is understood well enough that you must plan for significant sea-level rise and overall increased frequency and intensity of storms. Another driver that falls into this category is the electrification of land passenger transport globally. While only a few years ago, it was unclear what kind of technology (ie, hydrogen, biofuels, or electric) would replace fossil fuels in cars, there is now enough evidence to say that electric cars are very likely to become a dominant technology for cars, and so, in the medium-to long-term, islands must plan for electric cars.

Step 3.2 Explore different futures: scenarios



What kind of future is coming towards us? What are plausible stories about how that future might play out under different critical uncertainties? What implications does that have for our country, our people, and our transport system?

Scenarios are stories about the different ways in which the external environment might play out in the future. The purpose of using scenarios in this guidance is to explore how the future might be different from today. Scenarios can help you to think differently and develop strategies that can be robust under a range of possible futures. Scenarios help you to ‘break out’ of current thinking and assumptions. Where you might naturally assume that the future will look somewhat like the present, the use of scenarios challenges that view and helps you consider a wider range of possibilities. As in Step 2.5 where you mapped the past, scenarios are an important part of the strategic thinking process, helping to uncover assumptions and identify transformative strategies.

There are various ways to construct scenarios. You may wish to explore these further and choose the most appropriate method for the situation. One of the most common methods for scenario construction uses a 2x2 matrix of selected key uncertainties identified in Step 3.1. The approach can be very creative and makes use both workshops and additional work by the Consultant Team and Working Group to develop the narrative. You may also wish to seek the assistance of a consultant experienced in the development of scenarios.

It is good to remember that the aim of the scenarios process is to ensure decision-makers have a good, shared understanding of the key drivers and uncertainties and have internalised that understanding to some extent. Other methods for constructing scenarios include the four archetypes approach, which may also be very useful. Links to further resources on scenarios are provided.



Scenarios	Detailed guidance pp 51-56 of The Futures Toolkit (The Futures Toolkit , 2017; Lyons, Rohr, Smith, Rothnie, & Curry, 2021).
	Jim Dator’s Manoa School approach to Alternative Futures — this is a detailed workshop plan for a ‘four archetypes’ approach to constructing scenarios as an alternative to the 2x2 Matrix (Dator, 2009).
	This video from Shell introduces how scenarios help stretch our imagination to think about the future. (Shell, 2017).
	This video from Arup describes 4 plausible future scenarios for the entire world (thinking bigger than just transport). (Arup, 2019).
Extended reading on scenarios	This paper (Lyons, Rohr, Smith, Rothnie, & Curry, 2021) explores the application of scenarios to transport planning.

Step 3.3 Towards a shared vision



What do we want our transport future to look like? How would it work? How will people experience it? What will be different from today? What will be similar to today?

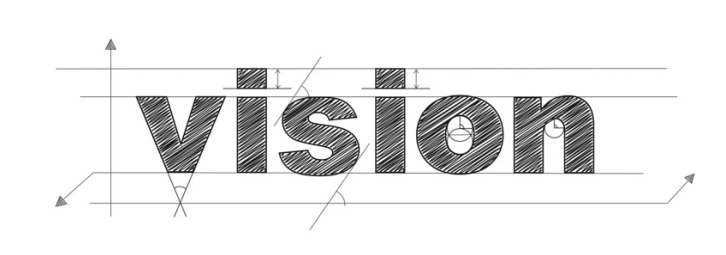
The aim here, and throughout the entire strategy process, is for decision-makers to align around a shared vision for a future transport system. A *vision* is a story about the future you want – a plausible, desirable transport future – that can then be used to inspire others. It is important to think about how to present this vision in engaging and meaningful ways, using pictures and other storytelling formats.

Developing a shared vision doesn't happen in just one workshop. A vision is a creative process resulting from the cross-pollination of ideas, insights, and inspirations of multiple people and multiple conversations. First people must explore what is possible, before choosing what is desirable, and gradually forming consensus about the overall direction forward.

Step 3.3, however, is about having a focused conversation on vision in a workshop setting to crystallise and articulate the emerging ideas of this desired future. This can be revisited in Phase 4 in light of the new insights and understandings about strategies, pathways, and technologies that you will gain in that phase. All key stakeholders and decision-makers should be involved in the initial visioning workshop.

There are no rules on how to present a shared vision, except that it must be engaging and inspiring. It can be as simple as the City of Melbourne example (see Box: Melbourne Transport Vision 2030), or as lively as the stories told in 'Eilis Nert: A day in the life 2050', on the following pages.

The 'a day in the life' method is powerful because it brings an almost visceral experience of what life might be like if you achieved the vision, and it places people at the centre. Images and videos are other powerful ways of depicting a vision. There are several resources in the table below that you can use for inspiration.



Visioning

Detailed guidance pp 58-60 of [The Futures Toolkit](#) (The Futures Toolkit, 2017).

Parts 3A and 3B of this guidance on suitable strategies and technologies will be useful to inform the visioning process.

[Insights](#) on the ways in which Visions come into being (Nooyen, Hilberts, & Dijk, 2014).

[The Future of Urban Mobility: an Arup Animation](#) — a lovely short video that presents a vision using a family living on the outskirts of Rio – but you could almost imagine this in any large urban centre in a SIDS (Arup, 2015).

Jan Kamensky develops [these wonderful animations](#) to inspire different ways of thinking about how streetscapes and transport systems could be transformed for people, and for sustainability (Kamensky, n.d.).



Eilis Nert: A day in the life 2050

Temuera (Senior Policy Officer, Ministry of Health)

Phew — this morning was hot! I woke up at the usual early time to get the kids ready for school. I took Malu (5) and Rafi (3) to school on the cargo e-bike. Pema (12) rode to high school on her push bike together with her cousins. It's about 10 km to work but traffic was easy this morning, so it took about half an hour. I had a quick cold washcloth and put on a fresh shirt in the change room at the office, before my first meeting. The meeting was a teleconference with our team colleagues on Luvs Riva island. Mama is coming to meet me for lunch today. It's great that they have finally repaired that ramp so that Mama can get her scooter into her favourite restaurant. Today she will pick up the kids from school – they love riding on the back of her mobility scooter and then spending the afternoon at her place until I can pick them up.

Antoni (CEO, Island WindCats Ltd)

I love my morning commute. The feeling of zooming across the lagoon in the early morning light, sliding into the beach while I drop the sail – it never gets old. The workshop was busy this morning – we have just had another order for an inter-islander cargo cat with an urgent delivery date. The old rust-bucket the government shipping company bought in 2023 has finally died, despite the various efforts to breathe in new life, with retrofits and biofuel adjustments, she has only been limping along. So, we need to get a new WindCat ready in the next two months. We've been refining the design for over 15 years now, and she's a smooth, easy handling boat. She can carry 100 tonnes of cargo, 25 passengers, and, with the PV electric assist, she makes a good and steady time. We've got 7 of them in operation around Eilis Nert and have sold another 30 across the Pacific. Although we'd love to do more, we operate pretty much at capacity and so are very happy to have our mates over in Fiji and Tonga also making this model to license.

Elisapeta (Director, Eilis Nert Shipping Corporation (ENSC))

Aside from having to scramble to reschedule some cargo trips to the northern islands before the produce rots, I am very happy the old SV Manatee has finally gone to her grave. The last 10 years trying to keep her running with constant repairs and breakdowns has been stressful. Finally, we have upgraded the entire fleet to wind-cats. There are so many great things about them – they are just the right size for our supply trips to take out groceries, household, and construction supplies, and to bring back fresh produce. The draft makes them easy to navigate and to do beach landings, which means we can get to more communities. The crew love them because they are quiet (sometimes I think they might sail them even if we didn't pay them!). Repairs are easy with local boatbuilders, and the best thing is they don't use any expensive dirty fuel. They run on wind with an auxiliary electric motor, solar PV panels, and a modest battery. They even have a refrigerated compartment to bring back fresh fish.

It has really changed life here. Regular boat services to outer islands mean that people can make a good life out there. Since there's no fuel costs, the shipping corporation almost breaks even, with just a little top-up from the government. Our outer islands can get their copra and produce to market, and, with the kids now able to do more learning online, and others able to telecommute for work, we have thriving communities. It means the hard choices we made after COVID-19 – to really invest in our communities and in an island way of life – have worked out great for us.

Lani (e-trike taxi driver)

I just got an alert that, since the sun has been out for days, the town batteries are topped up, and the dams are full, the power will be free for vehicle charging from 1pm. I've got three more rides in the queue and then I'll try to get a charging spot at the mall, find a stool at Tane's Cafe and maybe give my mate in Sydney a call for half an hour while I wait. The free top-up won't quite pay for my iced coffee but it's a good time to take a break before people start picking up kids from school. And that will keep my e-trike going for the busy peak hours of late afternoon until I get home later and plug her in at the house.

Charles (Director, Remote Services, Ministry of Rural Development)

We have now had net migration from Ewer Kayo to outer islands for over a decade. It's not huge, but it's a reversal of the way things were going only one generation ago, when people were leaving outer islands en masse to find jobs, give their kids a better education, and for healthcare. Certainly, a couple of the low-lying atolls are now uninhabitable due to sea-level rise, and villages on other islands had to be relocated to higher ground, but... the last three decades have seen people resettle without too much conflict.

I'm very proud that the services people can access now on outer islands mean that idyllic island life, a simple, largely subsistence life, close to nature, is viable. Indeed, it is the envy of many around the world living in increasingly hot and crowded cities. A family now living on outer islands can access education right through from late primary school to university. Our broadband internet works on satellites, linked to the network of trans-oceanic undersea cables. Health care is provided by doctors not only on the main island, but we can

access doctors from around the world, including the US, Taiwan, Philippines, Australia, and New Zealand. We have a good stock of medicines here on Ewer Kayo and can get them out to islands by drone within a day usually, or several hours in an emergency. Of course, all this is underpinned by the regular shipping services from ENSC.

Harriet (final year engineering student)

I know it seems strange, but I am really excited about the exam today. I sat next to Julia on the bus, and she is feeling sick with nerves. I've been studying at home this week, with a few tutoring sessions with my edu-guide over in Fiji. She is great at encouraging me and helping me with good study habits. I can't believe that after all these years I am finally 'this close' to that electrical engineering degree! Today's exam is practical – we have to reprogram the e-bus charging system to optimise it for the cool season renewable energy generation. Lucky for me the AI does most of the thinking!

Box: Melbourne Transport Vision 2030

Walking on our streets and laneways will be safe and comfortable with expansive unobstructed footpaths, seating, and substantial tree canopy coverage. We will extend Melbourne's renowned laneway culture linking the 'Little' streets. Our future laneways will be places for people, knowledge exchange and hospitality, walking, meeting, eating, and drinking. Melbourne will be Australia's premier bicycle city. More people will be confident to ride with a connected network of safe and protected bicycle lanes and high-quality bicycle parking facilities. Our train stations will be international gateways to our city – iconic public spaces celebrating arrival to our city for hundreds of thousands of people, with seamless interchange between transport modes that is intuitive and easy. Public transport will be safe, accessible, fast, and frequent. Private vehicle access to the city will be prioritised for efficient deliveries, servicing and for people who need to use a car. We will embrace the future with smart city and micromobility trials that deliver public benefit. Disruption will be co-ordinated, managed and communicated. (City of Melbourne, 2020)

Step 3.4 Develop objectives



How can the vision be more specific around economic, environmental, and social aspects? What are important principles that should guide the transport system design?

Developing a sustainable island transport system will require balancing multiple objectives. Objectives can be used to clarify the vision and make it more specific. These statements can then be used as touchstones as you design the strategies and pathways. Use them to check ‘does this strategy achieve these objectives?’

Suggested objectives are shown in Figure 8 and described below. These suggestions can be used as the basis for a workshop discussion with key stakeholders. You should aim to explore each of these dimensions and develop statements of what the island transport system should aim to achieve for each one. You can also explore how trade-offs might need to be made between these objectives, depending on the solutions.



Figure 8: Objectives for sustainable island transport systems

Objectives for sustainable island transport systems

Accessible, equitable, socially inclusive

Transport services are available where and when needed for economic and social activity, and disaster response.

Services recognise the needs of diverse populations and are accessible to those who need them in an equitable, and socially and culturally appropriate manner – including where they are needed to achieve regional development objectives and equity for more remote communities.

Appropriate

Means of transport – the modes and technologies – must suit the context and transport needs of the island community, including consideration of materials, value chains, maintenance, fuel, costs, lifespan, etc.

Healthy

Transport options contribute to a healthy community and healthy people in a positive way by encouraging physical activity and social connectedness and reducing negative health impacts, such as air pollution.

Affordable

Transport and accessibility services are affordable to providers (eg, the government) and to people who use the services. A whole-of-life approach should be used to determine the comparative costs and benefits of options.

Reliable

Transport services are reliable and safe in scheduled operations and in responding to emergencies. Because transport fulfils important functions, such as distributing food and necessities, its users should be able to rely on it. Transport underpins critical disaster responses, and timely emergency responses, such as delivering water, health workers, and supplies.

Safe

Accidents and risk of injury or death should be minimised.

Economically resilient

Locally sourced renewable energy sources improve islanders' economic resilience and energy security. This can reduce the relatively large amount of national expenditure on purchasing fossil fuels. The transport system is resilient to price volatility, operates in a financially robust manner, and provides employment opportunities. Where possible, it contributes to macroeconomic growth and stability, and helps reduce poverty (Davies & Sugden, 2010).

Clean and decarbonised

The transport system minimises damage to ecosystems, water, and air quality to the benefit of both the environment and people. In the long run, it is free of greenhouse gas emissions.

Climate resilient

The transport system is resilient to existing and emerging climate risks – based on the best available information and a long-term perspective that accounts for the long lifetimes of infrastructure.

Future-ready

Transport systems apply holistic integrated strategies and invest in assets that meet foreseeable future needs in a sustainable way. They avoid creating lock-in and stranded assets.

Step 3.5 SWOT Analysis



What are our strengths in transport? What are we good at? What skills, assets and resources do we have? What are we not good at? Where do we fail? Where do we lack capacity or finance? What are the opportunities in the external environment can help us develop a sustainable transport system? What is happening in the external environment that could make a sustainable transport system more difficult?

A SWOT analysis is a simple and widely used strategic planning tool to identify **Strengths**, **Weaknesses**, **Opportunities**, and **Threats**. Up to this stage you have thought about the current transport system, and the trends in the external environment. In Step 3.5 you will be able to synthesise some of that understanding into a SWOT analysis.

A SWOT is a straightforward workshop activity which can be done with the Working Group, members of the Consultant Team and key decision-makers. A SWOT analysis can consider the overall transport system, or it can focus on segments or sub-sectors of the transport system. For example, you might carry out a SWOT on the aviation sector separately from the road infrastructure sector.

	Positives	Negatives
Internal	<p><u>Strengths</u></p> <p>What are we good at? What special assets or skills do we have? Where do we have good capacity – people and finance?</p>	<p><u>Weaknesses</u></p> <p>What are we not good at? Where do we sometimes fail? Where do we lack capacity – people and finance?</p>
External	<p><u>Opportunities</u></p> <p>What is happening in the external environment that can help us?</p>	<p><u>Threats</u></p> <p>What is happening in the external environmental that we need to minimise risk or damage from?</p>



SWOT Analysis

Detailed guidance pp 62-63 of [The Futures Toolkit](#) (The Futures Toolkit , 2017).

Phase 4: Design strategies and pathways



What strategies and transport technologies are best suited to our situation? Are the strategies robust to the uncertainties in the external environment? What are the likely pathways over time, given the way external factors might play out? What might be the unintended consequences? Where do we need to pay special attention to workforce and financing?

Overview

In Phase 4 you are now well into the ‘strategy-making’ process (see Figure 1.), working towards agreement on the ‘best fit’ strategies and technologies, and the policies and arrangements that will be needed to support them. This is the most complex phase of the process and may take several months to complete, depending on how much time decision-makers can commit to discussions.

In this Phase, you will design strategies and consider how they might play out over time. This way of thinking about change over time is referred to here as ‘pathways’. To do this you may consider a wide range of potential strategies and options – including technologies, policies, infrastructure, and operational changes – assess these for suitability, and then sequence them into pathways.

Thinking about island transport as a holistic system means the strategic solutions you design will often be intertwined, and sometimes complex. This is quite different to the more conventional engineering approach adopted to date, where standalone options are developed for specific problems, and may or may not work well together.

You will need to develop strategies for financing and workforce alongside the general strategies and pathways. Finance and people are the greatest constraints on SIDS being able to implement more sustainable approaches to transport, and so these must be explicitly considered. This will ‘ground’ the strategies and ensure that development of financial and human resources is given the highest level of attention.

The key reference for this Phase is **Part III: Menu of strategies and technologies**. In *Part IIIA: Menu of strategies* you will find descriptions of approaches, strategies, and measures to develop a sustainable transport system for islands. In *Part IIIB: Menu of technologies* you will find a catalogue of technologies that have been screened for suitability in SIDS settings.

As for other Phases, it is unlikely you will move through these steps in a linear fashion – you may find the conversation looping back to revisit ideas and decisions made in earlier conversations, with each loop continuing the process of learning and refining strategies.

In this Phase, the shared Vision that you developed during Phase 3 can be expected to undergo substantial revision as it becomes more deeply informed by the transport options available and the pathway design. You may see the Vision become more ambitious and transformative as participants learn about new ideas and paradigm shifts that open up possibilities that they perhaps weren’t aware of before. Or you may find the Vision becomes more grounded and pragmatic, as the limitations of options, at least in the short term, become more apparent.

It is important that the participants of this Phase of the process are well-informed about the following:

- The history and the context of the country, the current transport situation, and ongoing constraints (developed during Phase 2).
- Sustainable transport strategies that are being applied with success around the world and which are likely to be suitable for small island countries (from Part IIIA).
- The current state of transport technologies, and which of these are most likely to be suitable for small island countries and in which time frames (from Part IIIB).
- The shared vision developed in Step 3.3.

You will find that designing transformative transport strategies is an art. You will need to be ambitious and creative about what can be achieved. You will need to temper this with making sure you are testing strategies against feasibility and risk. Technical expertise in transport systems is essential to designing robust strategies.

To prepare for the work in Phase 4, the Consultant Team and Working Group should become familiar with the following:

- the discussion about sustainable transport systems in Part I
- the Objectives developed in Step 3.4
- Part IIIA: Menu of strategies.

Steps

- + **Step 4.1 Gather possible options including strategies, technologies, and policy measures.**
- + **Step 4.2 Select preferred strategies, technologies, and policy measures.**
- + **Step 4.3 Design pathways.**
- + **Step 4.4 Test and refine strategies and pathways.**
- + **Step 4.5 Revisit Vision.**

Outcomes

At the end of Phase 4, you will have:

- shared understanding amongst key stakeholders and decision-makers of the high-level strategies and technologies and the key choices and trade-offs involved in those strategies
- a shared view of the pathways and how change could occur over time
- a set of strategies and technologies with support from key decision-makers, including development partners
- confidence in the robustness of the selected strategies
- revision of the Vision developed in Phase 3
- agreement to move forward in the direction of these strategies.

Outputs

- documented analysis supporting identification of preferred options
- diagrams and narrative descriptions of pathways for key strategies over time
- written document describing the transport strategies for the country, and how there are expected to play out over time
- revised description of the Vision.

Step 4.1 Gather possible options including strategies, technologies, and policy measures



What transport options (strategies and technologies) are possible over what time frame? What are people doing in other places around the world? What are the considerations for different strategies and technologies?

Step 4.1 is all about what strategies and transport technologies might be applicable to islands, and how they work together as a system. Bring an open mindset to learn about what may be possible – decisions on any preferred options come next, in Step 4.2.

Part III of this guidance has been specifically developed to help – the strategies and technologies it presents have been screened for ‘fit’ in a SIDS context.

You should encourage all key participants to read Part IIIA and the summary of Part IIIB. You can then hold workshops and information sessions on the strategies and technologies – present, discuss and explore the strategies and technologies and how they might fit with your specific island context. You may identify other options from the ideas or experience of participants, or from the work done on environmental scanning and visioning in Phase 3.



Transport options for SIDS

Navigating Island Futures in Transport Part III contains a menu of strategies and technologies to use as a key reference in Phase 4.

Workforce development strategies

An example of possible approaches to workforce development can be found [here for the Marshall Islands Electricity Sector](#) (Baker & Revfeim, 2018).

Box: A note about workforce development strategies

SIDS are characterised by a small population and therefore limited human capital. Remoteness and small size mean there may be few education facilities in-country and a lack of specialised skills. The small scale in the job market means there are limited opportunities for employment. Transformation of the transport sector that takes advantage of advances in low carbon sustainable technologies and implements new approaches such as compact urban planning and public transit requires a skilled workforce. Strategies to develop the local workforce, and to otherwise access the right expertise internationally, need to be considered as a critical component.

Step 4.2 Select preferred strategies, technologies, and policy measures



What strategies should we pursue? Which technologies will have the best fit within our island context? What will help us achieve our vision, while being feasible and acceptable to the community? What policies and other measures will we need to make it work?

In this step, you will evaluate the different strategic options canvassed in Step 4.1 and select those which have the best fit. It may take some time as the implications of the different strategic options are considered and debated within a group of key stakeholders. The process may consist of several workshops or meetings, augmented with detailed analysis by the Consultant Team to support deliberations.

It is important that this is a multi-stakeholder process where decision-makers become informed and weigh up the benefits and trade-offs between different approaches. They will need to hear various points of view to be able to do that. This structured dialogue approach needs to be inclusive of key decision-makers/stakeholders and aims for consensus.

Often in infrastructure or transport sector planning, a simple workshop-style multi-criteria decision analysis is used that compares and ranks individual projects. For dealing with a more strategic, systems-level view, you can instead use the 'strategic fit- acceptability- feasibility' framework explained next.

Analysis to support evaluation and selection of options

Depending on questions that come up about different options, in Step 4.2 you can dig deeper into analysis to support decision-making. At this stage, relatively simple techno-economic analysis of different options may be useful.

Techno-economic analysis can be used to compare technological options, explore the consequences of different rates of deployment, or consider the economic feasibility of a specific technology choice/project.

For example, if a new public transport system is proposed, some techno-economic analysis can help answer questions such as: How many passengers will it need to be viable? What level of subsidy will be needed? Which vehicles would be more viable: a fleet of large diesel buses, large electric buses, or small electric mini-buses, or a combination of these? Which of these options has the least whole of life carbon emissions and which has the least whole of life economic cost?

It is important that techno-economic analysis and modelling be used as a decision-support, and not – as is sometimes the case – as a way of determining the 'right answer', and thereby reducing the agency of the decision-makers. It is also important to ensure the key assumptions are transparent and tested by stakeholders, and that appropriate sensitivity analysis is carried out. Models can often be misleading when assumptions are made by analysts without verifying, or when there is inadequate testing of uncertainties.

‘Strategic fit – acceptability – feasibility’ lenses for considering options

The ‘strategic fit- acceptability- feasibility’ (SAF) framework (see Figure 9,) is adapted from two widely used set of criteria to assess and select strategies – the ‘suitability-acceptability-feasibility’ framework (Johnson & Scholes, 1997) and IDEO’s ‘three lenses’ (IDEO.org, 2015). The SAF provides a framework you can use to select the optimal strategies and technologies for island transport systems. The assessment framework suggested here can be a useful starting point and participants can add or change aspects they feel are important.

When you are considering the strategic options through the ‘SAF’ lenses, a strategy really needs to meet all these requirements to have a chance to be successful, or there needs to be a concerted effort to put in place measures that overcome the lack of fit. If you are considering two similar approaches, this framework may help you decide which approach is the better fit. The strategies that best meet all the criteria should be selected. Decision-makers should participate in this process. In considering feasibility and acceptability, you should take a view beyond what capacity, behaviour, and preferences exist in the community now and consider what is possible to change with some effort.

Table 3 shows a fictional example of how the framework was applied to some options by the Ellis Nert team.

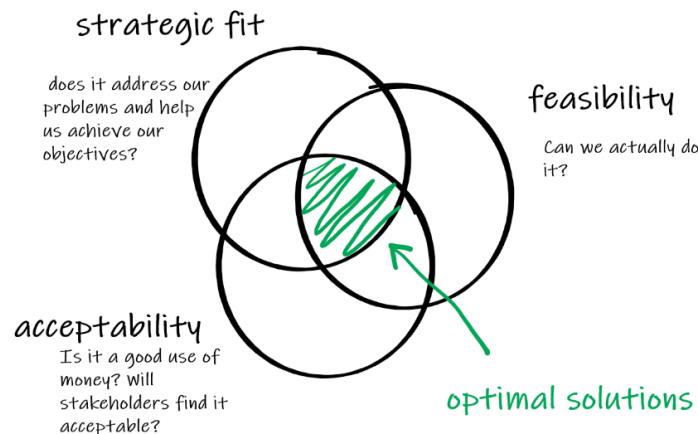


Figure 9: ‘strategic fit-acceptability- feasibility’ lenses for considering possible solutions

Strategic Fit (does it address our problems and help us achieve our objectives?)

- Does this strategy help achieve the Vision and Objectives? What benefits would it bring? How would it help us achieve our Vision?
- Does this strategy help address the challenges and issues identified in Phase 2?
- Does this strategy fit with the expected drivers and trends (internal and external) identified in Phase 3? Will it be robust under a range of conditions? Or is it vulnerable to a key uncertainty?
- Does this strategy address the opportunities and threats identified in the SWOT in Phase 3?

Feasibility (can we do it?)

- Is it technically feasible? Is the technology available?
- Do we have (or can we get) the resources and capability to manage it?
- Can we operate and maintain it sustainably? Can we manage it over the whole-of-life, including disposal? Do we have the capacity, or can we build it?
- Could we get the finance to do it?
- What would be the difficulties or challenges? What do we need to pay attention to for it to be feasible?

Acceptability (is it a good use of money? will stakeholders find it acceptable?)

- Is it affordable? Is it a reasonable use of finance? Does it make economic sense?
- Will it meet the general expectations of the community?
- Will it meet the general expectations of other stakeholders – including development partners?
- Are the social and environmental consequences acceptable? How would we avoid and mitigate undesirable consequences?
- What might be the unintended consequences?



Table 3: An extract from the Ellis Nert team's discussion of various strategies against the SAF framework

		Strategic fit		Feasible		Acceptable	Overall?
Multi-hazard risk assessment	●	We need to do this to achieve the objectives of resilience	●	Support and expertise are available from partners	●	The information may be difficult for people to hear, but we need to do it	
Build new urban transit system using full scale electric buses	●	In the long-term an electric transit system would help achieve the vision	●	Not feasible in the short-term due to technical complexity and cost	●	Passengers would find it acceptable, but it would reduce employment for taxi drivers	
Build new urban transit system using electric mini-buses	●	In the long-term an electric transit system would help achieve the vision	●	Technology available, affordable, and serviceable in country (will still need serious attention)	●	Will require careful planning to shift from existing taxi system over time, including attention to employment	
Bicycle lanes and connected sidewalks	●	It helps achieve our vision of an active and healthy community	●	Currently road and path maintenance are very poor so this is feasible but would require specific focus. We would need to reallocate construction and maintenance funds away from roads.	●	Over time, expect this would be welcomed by the community	
Early and rapid uptake of electric vehicles	●	In the short term does not address our objectives (ie, minimal GHG or fuel savings), but in the longer term EVs will be a key part of the system	●	Technically feasible and we could develop support, but currently not an option we could finance	●	Would be very acceptable to passengers, but overall, the cost would be unacceptable	
Early preparation for EV uptake later	●	Helps us achieve our vision in the long term by supporting EVs as a part of the transport mix	●	We have partner support for pilot programs and can use this to build our capacity and infrastructure	●	Good way to build acceptability of EVs in the community, acceptable cost	

Step 4.3 Design pathways



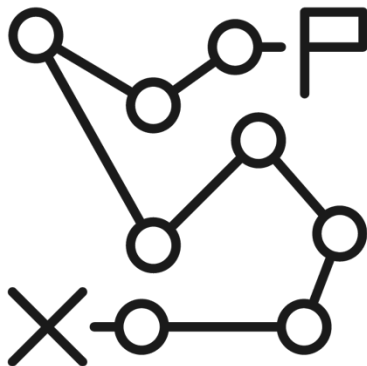
What steps do we need to take to move from where we are now towards our Vision? What external changes are we likely to see and how can we sequence our actions accordingly? What would be the difficulties or challenges? What are the barriers? What needs to be in place that is not? What might be the unintended consequences?

Transport systems are inherently path dependent – that is, because transport systems are costly and involve significant infrastructure, and because they are intimately bound with urban form and patterns of settlement, the choices available today are constrained or enabled by historical decisions. This is reflected not only in the physical transport systems themselves, but also in the institutions and organisation of transport systems, and in dominant views on transport problems and solutions (Low & Astle, 2009). This is one of the reasons you often see more attention paid to building roads, and less attention to public transport systems.

Taking a long-term approach and mapping out pathways over time allows you to grapple with how to transform some of these more challenging aspects of the transport system.

For example, you might be tempted to think, because roads and sidewalks are in poor condition, that the uptake of bicycles and micro-mobility can only ever be a minor part of the transport system. But when you take a vision-led approach, you can identify the first steps that will start you moving down the pathway to realise a more ambitious vision.

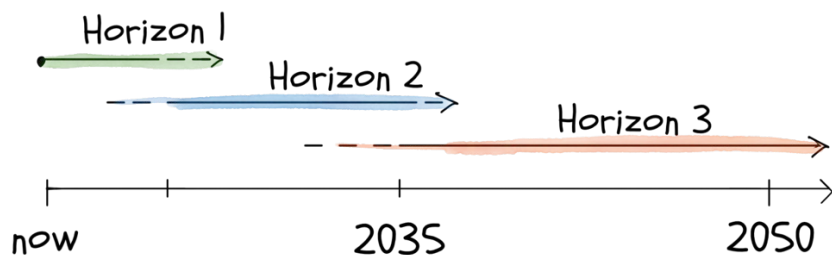
Start by imagining a future where a healthy, active community moves around easily on bikes and micro-vehicles. You then work out what you would need to begin doing now to enable that transition over time. You might include urban design and spatial planning for walkability and cyclability, followed by progressive upgrading of paths and roads. In the meantime, you might also mark out some dedicated bike lanes, and establish programs where children learn to ride bikes at school, so that in 10 years' time there is a generation that is accustomed to riding bikes.



Designing pathways follows on from the Vision and uses an idea known as ‘backcasting’. Essentially, designing pathways is where you imagine how your desired future might be achieved over time – what key events, decisions, interventions would need to happen between now and 2050 (or whatever the time frame is for our imagined desirable future from Phase 3). Plausible storylines can be mapped on paper, supplemented by a story or narrative about how events and changes, including external shifts, will contribute to the achievement of the Vision over time.

The approach to this is a workshop with the Working Group and key stakeholders to map out what needs to happen between now and the future for each strategy. These can then be synthesised and drawn up by the Consultant Team.

The three time horizons introduced in earlier are useful when designing pathways.



Eilis Nert: Pathway for locally designed, wind-electric ships for fishing and local transport

One of the elements of Eilis Nert’s vision is to have locally-built wind-powered sailboats for fishing and local transport. At present, powerboats dominate small maritime transport, and many communities no longer practice traditional boat-building and navigation. These skills are being lost. By taking a long-term view, Eilis Nert thought about what they would need to put in place to revive that capability over time. They decided to establish a training school to apprentice young people in both traditional and modern boat-building, similar to *Waan Aelōñ in Majeļ* in the Marshall Islands. Part of this would include learning about and using electric motors. They also decided to invest in a boat maintenance, repair, and drydock facility. This would enable domestic and visiting boats to be worked on locally, without the need to travel to another country. This foundation capacity might take a decade or more to develop properly and would need consistent funding and technical support for at least that long. Once it was established, however, the country would have the capacity to pursue the more ambitious vision of having locally-built, larger, wind-powered vessels for domestic shipping.



Backcasting Workshop

Detailed guidance pp 68-72 of [The Futures Toolkit](#) (The Futures Toolkit , 2017).

Step 4.4 Test and refine strategies and pathways



Will this strategy be robust under a range of future conditions? Or is it vulnerable to key risks and uncertainties? What is the best way forward in terms of investments? What might be the unintended consequences?

This purpose of Step 4.4 is to refine and nuance the descriptions of the strategies. In this step you will pay particular attention to how things might play out, to insure against unwanted unintended consequences. You can use different approaches, depending on what questions remain about the strategies and pathways.

Two approaches you can consider using are:

- Stress testing the strategies against scenarios developed in Phase 3:** Stress testing is a way of checking how well the strategies will perform under a range of possible outcomes, to see if they are robust and resilient in the face of some of the key uncertainties and drivers

There is no way to capture the full range of possibilities, but by testing the strategies against the scenarios developed in Step 3.2 you may gain new insights into how best to design strategies that will be robust under a range of future conditions.
- Futures wheel/ Consequence wheel:** Futures wheel is a technique to help us identify the unintended consequences resulting from a decision. It works best to take a particular strategy or change that is being considered. The process is to consider opportunities and unintended consequences and to refine the strategy to manage the risk of that consequence.

It is very useful at this stage to ask development partners, experts, and other key transport stakeholders to peer review the proposed strategies and pathways. This can be a combination of a written review, and meetings to discuss and explore the implications of the strategies and pathways with those who may be the potential financiers.

A peer review process will add to the rigour of the thinking, provide a valuable reality check on the feasibility (both from a financial and capacity perspective), and provide another mechanism to gain the support and buy-in from development partners.



Stress Testing	Page 64-71 The Futures Toolkit (The Futures Toolkit , 2017).
Futures Wheel	Instructions for a Futures Wheel workshop (Swanson, 2020).

Step 4.5 Revisit Vision



How can we refine our vision in light of our new understanding of suitable strategies and technologies? Do we need to ‘ground’ the vision a little more in practicality, or do we need to enhance the ambition of the vision?

With the convergence on preferred options, strategies, and pathways, you may find it useful in this step to revisit the Vision developed in Phase 3. At this stage of the process, you have done some ‘reality-checks’ and key stakeholders have a much more grounded view of what can be done in the future transport system. You can use these new insights and understandings to go back and recast the Vision as plausible, but still ambitious. This can be done in a workshop or informal meetings.

Phase 5: Create a roadmap

Overview



What are the priority actions and investments over the next few years? What order should they be done in? How can they be financed? What resources do we need? Who will be responsible?

In Phase 5, you will map out the near-term actions and investments needed to implement the strategies and pathways developed in Phase 4. You will consider the resources and supporting arrangements needed, including financing, human resources, technical assistance, and government policy. You will sequence activities over a 5- to 10-year period and assign resources and responsibilities.

This phase of work sits more squarely in the familiar space of ‘strategic planning’. The information contained in this guidance on Phase 5 is less detailed than previous Phases. This is simply because this type of planning is well understood and commonly practiced, and there are many resources and tools from project and program planning disciplines that can be used to support this phase.

Phase 5 should include detailed discussions with government and development partners about sources of financing and technical assistance to support the implementation of the national transport strategy.

Roadmapping occurs in the reality of complex government processes of negotiating priorities and allocating of resources. Trade-offs need to be made between national priorities, and priorities will shift – sometimes suddenly such as during a natural disaster or pandemic. Availability of finance from government will depend on the opportunity cost of putting those funds to other uses across all sectors. In this way, Phase 5 is also a ‘reality check’ of how far, and at what pace, it might be possible to take the strategies and direction agreed on in Phase 4.

Finally, a rapidly changing context, or new insights gained, may mean better and more suitable options are identified. A national transport strategy and investment roadmap should be reviewed and updated at least every few years.

Steps

- + **Step 5.1 Decide on early actions and investments**
- + **Step 5.2 Identify sources of financing**
- + **Step 5.3 Identify who will do the work**
- + **Step 5.4 Maintain coordination across agencies and with development partners**
- + **Step 5.5 Adopt and endorse.**

Outcomes

At the end of Phase 5, you will have:

- a framework of priority actions and projects to guide investment by government and development partners over 5–10 years
- clear initial steps needed to implement the chosen strategies and move towards the shared vision.

Outputs

- “Roadmap” of actions and investments over the next 5–10 years
- plan for financing, including reallocation of government budget, subsidies, new fiscal instruments and donor funding with loans and grants.

Step 5.1 Decide on early actions and investments



What are the priority actions and investments over the next few years? What order should they be done in?

In this step, you will take the long-term pathways and decide what will be done in the next 5–10 years to implement them. As the NTS is high-level, this will also be at a high-level and it is important to factor in the time and resources needed for good quality activity design.

Note this will be adaptive – it is likely that there will be significant uncertainties. Finance won't be clearly available for all desired investment. The decisions you make here will need to anticipate adaptive changes to the roadmap over time. Other adaptations will be needed as the detailed design is done for specific projects or actions. For example, the techno-economic analysis of detailed projects may mean that different/more suitable options are identified. The level of certainty about financing will be dependent on ongoing discussions with development partners.

Given the importance of urban spatial planning, vulnerability assessments, and system-wide planning for inter-island transport (as discussed in Part IIIA: Menu of strategies), these would be expected to be early priority actions that then inform subsequent investments.

Options: For some actions and investments, the option to scale by size or place can be included – eg, redesigning urban streetscapes could be for just one area in one township.

Step 5.2 Identify sources of financing



How can the early actions and investments be financed? Can current arrangements be reconfigured? What new financing would be needed? What is the potential for new fiscal instruments such as import duties, levies, subsidies, etc?

The first task is to assess the current financing arrangements for transport – can they be reconfigured to implement the strategy? What proportion of cost would be capital vs operating? What new financing would be needed for infrastructure, capital cost of equipment, contracts, subsidies, and support to service providers? What is the potential for new fiscal instruments such as import duties, levies, etc? How will ongoing asset management be financed?

At this stage, it is unlikely that identified sources of financing can be fully committed, as there will be larger processes in play – such as government budgets and country partnership plans with development partners – but this gives a good sense of where to look and what structural changes to existing systems might be needed. Attention should be given to financing mechanisms for ongoing maintenance of assets, to ensure the asset lasts for its planned lifetime.

Step 5.3 Identify who will do the work



What knowledge and skills would be needed to implement the strategies? Do we have the capacity in country? How can funders/ development partners play a role? Do our current institutions have the organisational capacity?

Identify the skills and knowledge needed to carry out the work and where you might source these from. It may mean that you need to create new roles, and possibly bring in long-term technical assistance from outside the country. Leadership of the implementation is critical – you want to make sure there are champions amongst elected officials, as well as senior stakeholders across the sector. Maintain support for the governance structures and working group to continue from strategy development into driving implementation.

Step 5.4 Maintain coordination across agencies and with development partners

By this stage in the process, there will have been several development partner roundtables to discuss the progress of the NTS and to participate in the discussions. It is important to maintain this ongoing sector-specific collaboration between the country and multiple development partners through regular meetings and sector-wide reporting etc.

This will ensure the NTS (the Vision, Objectives, and selected strategies and technologies) continues to guide investment decisions made between the country and development partners and to allow for synergies and partnerships between partners to result in more integrated and effective outcomes.

Step 5.5 Adopt and endorse

In this step you will ensure official adoption by the country government via the processes identified in Phase I. There are several examples of country-level strategies that were developed using a great deal of expertise and engagement, but that were not adopted as official plans by the relevant governments. As was emphasised in Phase I, the commitment of government and key financiers should be secured and strengthened during the development of the National Transport Strategy, so that adoption and endorsement is a natural consequence of that process of working with stakeholders.

You will also aim for the endorsement of key development partners for the strategy. You may find that some development partners prefer to provide assistance in line with existing country agreements, or according to their own organisational program priorities, rather than aligning completely with the national transport strategy. In this case, the NTS will act as guideposts for the country to be able to guide the scope and design of such projects more clearly, or to decline the project altogether.

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