International Transport Forum

Vision-led Transport Planning

A guide for policy makers

Research Report

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The International Transport Forum

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The full list of Working Group members appears in Annex A.

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Table of contents

Figures

Tables

Boxes

Executive summary

Main findings

“Vision-led” or “decide-and-provide” approaches to transport planning are driven by tangible, alternative visions of a desired future state. Unlike traditional forecast-based planning, vision-led transport planning begins with a shared, clearly articulated aspiration for the future of society, and the role transportation systems play within it. A vision-led approach ensures that transport decisions are actively based on the kind of cities, regions and societies we want in the future, rather than assuming existing trends are immutable.

While explicit or implicit visions are common in transport and important for setting aspirations, a vision-led approach translates those goals into actionable and measurable outcomes. It embeds the vision in decision-making frameworks, helping policy makers and planners to align strategic choices with broader societal, economic and environmental goals. These approaches enable policy makers and planners to navigate deep uncertainty, align short-term decisions with long-term objectives, and ensure transport systems actively contribute to societal goals.

Transport policy makers and planners are increasingly adopting vision-led approaches at different levels of government, as seen in the uptake of Triple Access Planning and Sustainable Urban Mobility Planning in Europe and beyond. Greater Manchester’s "Right Mix" Transport Strategy exemplifies early adoption of modern vision-led transport planning at the local level, while Austria’s 2030 Mobility Master Plan shows how it can be implemented at the national level. Academics are also devoting more attention to creating a shared understanding of vision-led transport planning. Though guidance on vision-led approaches exists, we continue to observe a lack of systemic approach to the application and interpretation of vision-led processes.

Taking a vision-neutral approach, this report sets out to provide practical guidance for policy makers and planners seeking to undertake vision-led transport planning. Concretely, it examines where such an approach works best, the key steps involved, and which tools and competencies it requires.

Deciding whether to opt for a vision-led approach should be guided by two main considerations: the underlying objectives of transport planning and the degree of uncertainty in the operating environment. Vision-led approaches are best suited where planning aims to foster transformative change over longer time horizons — especially when there is deep uncertainty.

Since vision-led approaches entail a cultural shift in planning that may challenge established norms and priorities, they require an explicit, high-level political and institutional mandate. This type of mandate is typically harder to secure than for traditional approaches. It requires consensus-building, new governance mechanisms, and the legitimisation of potentially transformative long-term change.

Structured analytical tools —and corresponding competencies —are required throughout all phases of the planning cycle, from defining the vision to analysing current conditions, developing strategies, refining proposals and monitoring implementation. They incorporate uncertainty, stakeholder values and societal goals. Such tools allow planners to anticipate emerging trends and test assumptions early on, weighing options and trade-offs, and tracking progress as policies are enacted and adapted. Different tools may be needed at different stages depending on the circumstances.

Vision-led planning does not necessarily mean abandoning traditional planning tools. While tools such as Cost-Benefit Analysis (CBA) will continue to play an important role in the selection of project alternatives,

a wider toolkit — from horizon scanning to scenario modelling, participatory modelling and collaborative simulations – may need to be employed especially during the early planning stages. These approaches account for uncertainty, explore multiple possible futures, and build shared understanding among diverse stakeholders.

Once a clear vision is established, transport policies must be translated into tangible interventions within institutional, infrastructural and social contexts. This requires a dynamic and adaptive process that reaffirms shared purpose and maintains alignment among actors through collaborative governance. Permanent stakeholder forums, such as advisory councils or co-decision platforms, are critical for maintaining alignment beyond electoral cycles and mitigating policy reversals.

Vision-led transport planning must be embedded within existing institutions. Governments can establish multi-year investment frameworks that integrate transport budgets with land-use planning and digital infrastructure strategies. Public-private partnerships and innovation funds can mobilise financial and technical resources. Additional strategies include diversifying funding sources, linking allocations to performance indicators, and embedding mobility objectives within cross-sectoral investment plans.

In the face of uncertainty, vision-led planning emphasises testing policy measures against alternative possible future scenarios to identify which best fulfil the vision. This enables least-regrets consideration and identifies robust policies that perform well across different possible futures.

Equally critical is the ability to adjust policy measures to achieve the vision — a process called “adaptive programming.” That said, evaluating specific policy measures may still resemble traditional, forecast-based planning approaches, particularly when assessing efficiency and execution.

Recommendations

Adopt vision-led planning for transformative change and in cases of deep uncertainty

If the objective of transport planning is to fundamentally reshape society and mobility, then forward-looking approaches like vision-led transport planning may be necessary. These place the desired future at the heart of decision making and allow deep transformations and behavioural changes to be addressed.

Short-term transport projects with less uncertainty and well-understood demand patterns may be left to traditional planning approaches. Medium- to long-term planning, however, typically involves deep uncertainty and requires clear understanding of multiple social, economic and technological factors. Unlike forecast-based models, which are constrained by the limitations of forecasting, vision-led approaches are more adaptable to unforeseen changes and external disruptions.

Secure a mandate for vision-led transport planning

Transport planning requires political and institutional mandates, particularly for vision-led approaches that challenge established norms, demand investment redistribution and necessitate cross-sectoral coordination. A clear, high-level mandate — along with bottom-up support — is essential for any departure from traditional planning approaches. It will also minimise friction during the implementation phase. Stockholm’s (Sweden) referendum on congestion charges illustrates this dynamic.

A mandate typically defines required outcomes based on strategic objectives. Ideally, it charts an optimum path for the delivery of the plan’s benefits and sets priorities among new and existing activities. However, to secure broad support, the roadmap must be sufficiently attractive and flexible to accommodate a broad range of stakeholders and users.

Ensure the vision is clear

A vision does more than sketch an improved future: it underpins the outcomes and benefits the plan is meant to deliver. It is therefore central to securing buy-in, sustaining motivation and aligning the actions of both institutions and users. If a transport plan aims at genuinely transformational change, a clear articulation of the desired end state, along with a credible timeline, is indispensable.

Consider the analytical tools and competencies required

Structured analytical tools, together with their corresponding competencies, should be employed across all stages of vision-led transport planning. Horizon scanning, scenario modelling, participatory modelling and collaborative simulation provide a framework for managing uncertainty, integrating evidence, building stakeholder consensus and aligning long-term objectives with practical realities. Finland's Government "Report on the Future" illustrates the application of such strategic foresight tools at the national level. To ensure relevance across contexts, these approaches must be flexible, adaptable and interdisciplinary.

Enable implementation through collaborative governance and multi-year funding

Collaborative governance is a strategic tool for implementing vision-led transport policies by aligning the incentives and actions of multiple actors. By encouraging trust and broad participation, it helps generate the durable commitment needed to translate plans into practice. In practical terms, this can involve permanent stakeholder forums —such as Vitoria-Gasteiz's Citizen Forum for Sustainable Mobility — that bring together government, operators, civil society and users on a regular basis.

Effective implementation also depends on the availability and coordination of financial, spatial, technical and data resources. Governments can support this by establishing multi-year investment frameworks that link transport budgets with land-use planning and digital infrastructure. Switzerland has applied such an approach to railway expansion and maintenance. Public–private partnerships and dedicated innovation funds can also be mobilised to secure both financial and technical resources.

Allow for course-correction via monitoring and evaluation

One of the defining features of vision-led transport planning is its emphasis on adjusting policy measures as conditions change. Adaptive programming allows policy makers and planners to acknowledge uncertainty explicitly and incorporate it transparently into decision making through predefined "tipping points." These signal when a given course of action is no longer effective in achieving the goal and when a shift to alternative measures is required to remain on track.

Defining vision-led transport planning

Why should we plan in transport?

"If I had 60 minutes to save the world, I would spend 55 minutes planning and 5 minutes doing."

Albert Einstein

Effective planning is central to avoiding wasted resources, unintended consequences and aligning outcomes to societal objectives and aspirations. This is particularly visible in the transport sector, where high capital intensity and long infrastructure lifecycles underscore the need for careful planning and investments to avoid stranded assets and outdated technology lock-in. Such planning must also safeguard meaningful access to opportunities for people and firms.

Transport planning and decision making involves designing and organising transport systems to support the efficient, sustainable and safe movement of people and goods. Well-functioning transport systems are the mobility backbone of our societies and economies, connecting people, communities and goods. Good transport planning enables high-quality access while reducing congestion, improving air quality and public health, enhancing safety, and contributing to a better quality of life. The sector's socio-economic significance and broad societal footprint make transport planning a multifaceted discipline. Yet historically, transport planning has been dominated by a technical perspective. The planning of modern cities and regions was largely in the hands of engineers who focused primarily on optimising efficiency, flow and capacity (Pereira and Boisjoly, 2021).

The role of models in transport forecasting and planning

Transport models have become essential tools in transport planning and decision making. Models are used to evaluate policy interventions and inform investment decisions. They can also help inform environmental impact assessments, which are often mandated by regulation.

Forecasting with transport models means assessing likely futures based on current trends and estimating changes in parameters such as population, transport costs and economic output, while accounting for political initiatives in the sector (e.g. the opening of new rail lines). Where relevant, forecasting also considers policies implemented in other sectors of the economy. A typical forecasting methodology begins with a baseline assessment of the current situation, then designs and evaluates different policy interventions. Forecasting models are constantly refined to project futures without concrete policy interventions. As such, they provide a tool to assess behavioural change, associated costs and benefits, and the overall feasibility and realism of the vision for the future society that is uncovered.

As quantitative tools for evidence-based decision making, forecasting models are popular with planners and policy makers. Their scalability — from local to regional, national and trans-border contexts — has made them widely accepted by practitioners and authorities at all levels. Models compare baseline scenarios against policy alternatives, helping prioritise investments and regulations. They also provide valuable data that feeds into economic appraisals, such as cost-benefit analyses (CBAs).

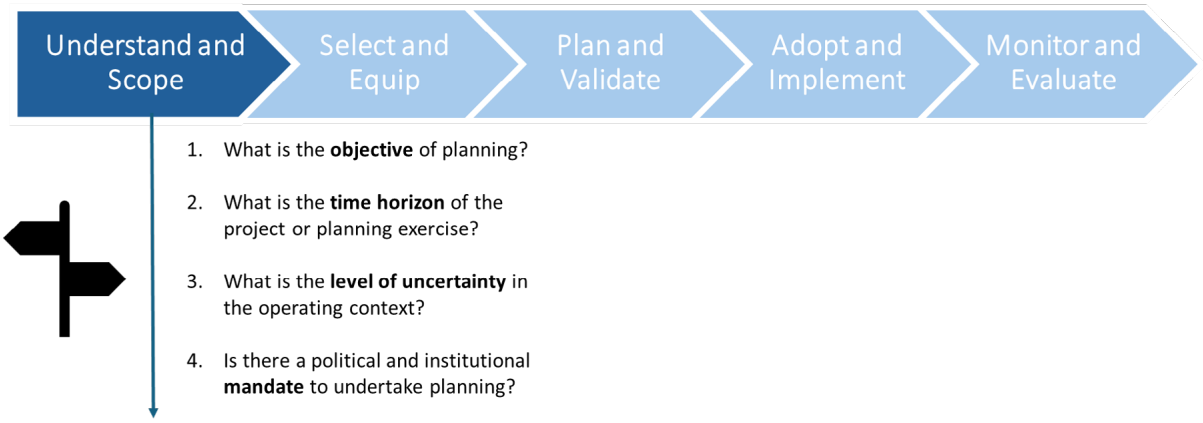
However, model outcomes are not facts about the future. They help simplify our understanding of travel behaviour, which in reality is far more complex than any model can capture. Models are therefore only as

good as their underlying assumptions. Central among these assumptions are that travellers make rational choices primarily based on cost and time, and that travel demand can be analysed in sequential steps with limited interaction between them. While, especially in research, attempts have been made to increasingly reflect the irrational or "random" behaviour of decision makers, non-sequential decision making and non-cost or time-related explanatory variables, applied transport models still mostly assume rational actors. If policy changes and technological advances are not factored into models or if projected input parameters follow past trends, transport models fundamentally assume future travel patterns will resemble past behaviour.

Planners increasingly worry that conventional approaches to transport planning often fail to account for uncertainty. This debate flares up whenever shocks hit the transport sector, revealing how quickly travel patterns can diverge (even temporarily) from forecasts. The advent of disruptive technologies such as automated vehicles may also fundamentally change how people and goods travel. Despite these considerations conventional planning remains the dominant, often unquestioned approach in most countries and contexts.

What is the goal of transport planning?

Figure 1. 4 guiding questions to determine whether a vision-led planning approach is needed



Source: ITF, 2026

Over the past 70 years, transport planning has evolved considerably, shaped by shifting societal needs and aspirations. Policy objectives strongly influence the choice of planning approaches and analytical tools. Traditional, forecast-based planning works well for incremental changes and objectives like tackling congestion or prioritising maintenance and infrastructure upgrades.

But to achieve transformative change, policy makers must start with their vision of the future. This is the essence of vision-led planning. Unlike traditional approaches, vision-led transport planning employs a broad range of analytical tools, accounts for cross-sectoral dependencies and welcomes input from multiple stakeholders.

Vision-led transport planning thus explores a wider menu of policy interventions and may suit other planning contexts as well. This includes situations where policy makers disagree about future conditions, or when there is doubt regarding a model's ability to handle uncertainty, disruption and shifting trends.

Greater Manchester's "Right Mix" Transport Strategy represents one example of an adaptive, vision-led approach, as outlined in Box 1 below.

Vision-led transport planning offers an alternative to traditional forecast-driven methods. It does not, however, require policy makers to abandon rigorous, evidence-based decision making when evaluating investment or regulatory options. Specific interventions within a transformative shift can still be assessed using conventional techniques, allowing their effects to be measured against a baseline trajectory. A more detailed discussion of the analytical tools and methods follows in Chapter 2.

Planning based on implicit value judgements

Forecast-based approaches to transport planning and decision making tend to perpetuate current policies with only incremental adjustments (Lyons and Davidson, 2016; Hegsvold et al., 2022; CONCITO, 2023; Pinchasik, 2025). Forecasting future demand based on past relationships – be these population growth, vehicle ownership or economic activity – often results in measures to remove infrastructure bottlenecks (e.g. roads or railways expansion) and increase the efficiency of transport systems. This has led to capacity increases to accommodate growing transport demand and reduce congestion-induced time losses.

However, transport demand itself is not independent of planning decisions. Infrastructure provision, service levels, and spatial accessibility actively shape travel behaviour, land-use patterns, and location choices over time. In this sense, transport systems do not merely respond to demand; they also generate and transform it through cumulative "feedback loops". Ignoring this endogenous relationship risks reinforcing self-fulfilling planning logics, whereby forecast demand justifies new infrastructure, which in turn induces additional demand. Recognising this dynamic interaction makes it increasingly untenable to treat demand as a neutral starting point for planning.

Moreover, contemporary transport planning inevitably entails explicit value judgments. Under severe fiscal constraints, it is no longer feasible to maintain all transport services and infrastructures uniformly. Decisions regarding which mobility needs should be prioritised and which functions should be scaled back cannot be resolved through technical optimisation alone. Instead, they involve trade-offs among public values such as safety, inclusiveness, environmental sustainability, and quality of life. When such value judgments remain implicit - "baked into" demand forecasts or cost-benefit calculations – the accountability of decision-making weakens, and the prospects for social consensus diminish. Concrete examples of these implicit assumptions in conventional transport planning approaches are discussed extensively in academic literature and ITF works (Cairns et al., 2002; Flyvbjerg et al., 2005; Næss, 2014; Tennøy et al, 2016; Hymel, 2019; ITF, 2022; Nello-Deakin, 2022; Hagen and Tennøy, 2021; Pinchasik, 2025).

Transport is not merely a means of movement; it shapes urban form, residential choices, public health outcomes, and the viability of local communities. Consequently, transport policy has evolved from a mechanism that supports existing socio-economic structures into a powerful instrument that actively configures future society. In this context, investing in transport infrastructure without clearly articulating the societal vision it serves, effectively amounts to engaging in unintentional social design.

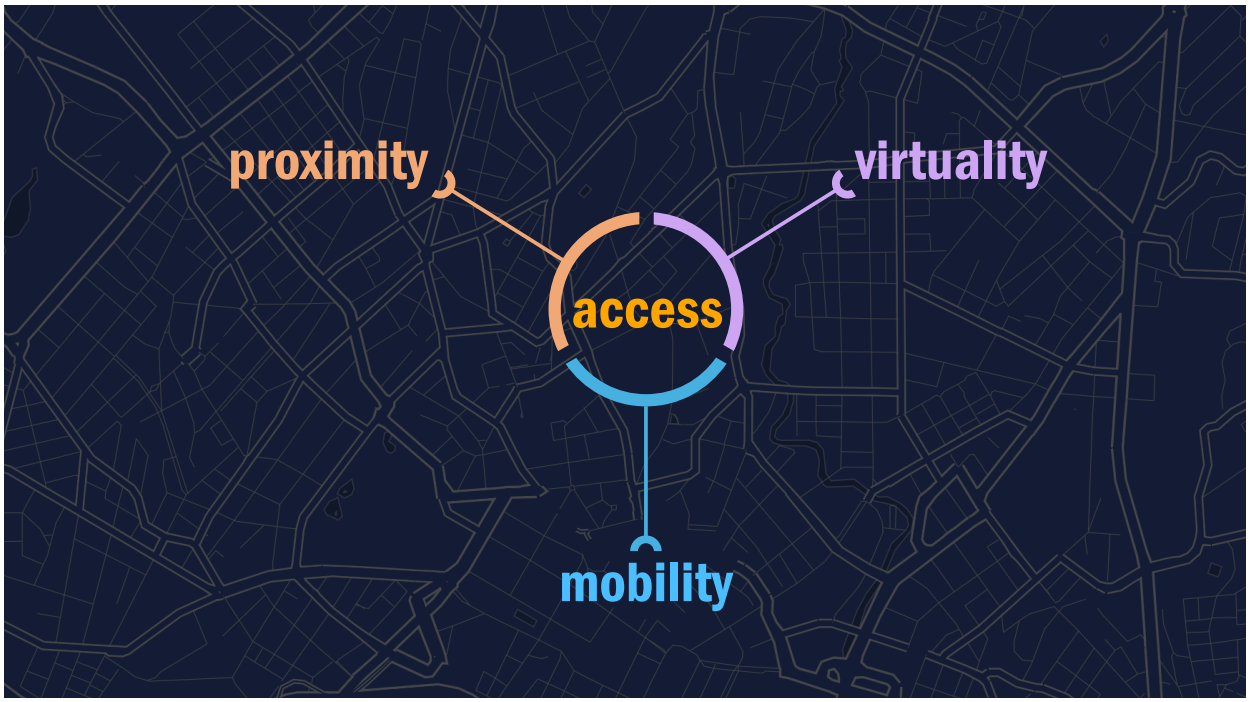
From this perspective, an emphasis on vision-led transport planning does not imply a rejection of past planning practices. Rather, it reflects the need to explicitly articulate expected societal outcomes that were previously implicit. Vision-led planning places the question – "What kind of society do we seek to realise?" – at the starting point (and at the core) of transport policy, rather than treating it as an afterthought.

Planning based on explicit visions for the future

As outlined above, the suitability of traditional transport planning and modelling approaches has become a subject of debate. In recent years, the notion of a "transition towards a vision-led transport planning" has attracted growing international attention. This can be attributed to an ongoing dialogue between academics and practitioners on the fundamental conditions under which transport planning is conducted as well as the underlying societal imperatives that guide it. Increasingly, policy makers have shown growing appetite for transformative change of the transport system as part of the planning process. This has created pressure, from within and beyond the transport sector, to place a clear strategic vision at the centre of planning and decision making.

Vision-led transport planning — also known as "decide-and-provide" — aims to ensure that transport decisions are explicitly based on the kind of cities, regions, and societies we want in the future. This approach can be used to examine how access to necessities, opportunities, people and goods might be delivered in the future through a combination of physical mobility, spatial proximity and digital connectivity — what is known as "triple-access" (Lyons and Davidson, 2016; ITF, 2021). While transport planning tends to predominantly focus on the movement of people, triple-access planning places an equal emphasis on access for people and goods. The COVID-19 pandemic demonstrated our capacity to leverage transport, land-use and telecommunications planning to change behaviours in the face of evolving circumstances. As such, triple-access planning stands to provide important resilience benefits, while reconciling economic activity with social justice and environmental sustainability (Lyons et al, 2024).

Figure 2. Mobility, proximity and virtuality provide access to necessities, opportunities and people



Source: ITF, 2025.

As its name suggests, decide-and-provide involves *deciding* on a preferred future and *providing* the means to achieve it. The term has been adopted by Transport Scotland and Transport for the North in the United Kingdom, who define the approach through the following steps:

- Identify a preferred future — a vision with associated outcomes that is desirable and achievable.
- Develop a series of plausible future scenarios to reveal the uncertain context in which efforts to achieve the preferred future will unfold.
- Establish and prioritise options for advancing toward the preferred future.
- Test how those options perform in each scenario, in terms of internal and external costs and benefits. Are they effective in all scenarios (resilience), or are they less so in some scenarios (risk)?
- Compose a strategy for realising the vision that incorporates the selected options while accounting for the identified uncertainties.

Box 1. Key components of vision-led transport planning in Greater Manchester

One real-world example of an adaptive, vision-led approach to transport planning can be found in Greater Manchester's "Right Mix" Transport Strategy (part of the Greater Manchester Transport Strategy 2040). This is a notable early example of modern vision-led transport planning in action, explicitly invoking the term "vision-led" and aligning transport investment with long-term goals rather than short-term trends.

Defines a vision, working closely with the community

- The Greater Manchester Transport Strategy 2040 (first published in 2017, updated in 2021) moves away from traditional forecasting methods and instead sets out a long-term vision for transport that aligns with social, economic and environmental objectives.
- The strategy defines success first (e.g. reducing car dependency, improving active travel and achieving net zero emissions) and then identifies the policies and investments needed.
- Its elaboration involved extensive public and stakeholder consultation.

The "Right Mix" target

- A specific vision targets 50% of all journeys to be made by walking, cycling or public transport by 2040 — compared to 39% at the time of publication.
- Rather than rely on traditional models, it sets a clear target and works backwards (akin to "backcasting," as defined in Table 1) to design policies to achieve it.

Integration with spatial planning

- Aligns transport investment with Greater Manchester's Places for Everyone spatial framework.
- Focuses on creating 15-minute neighbourhoods and ensuring new developments are planned around sustainable transport, rather than trying to retrofit transport solutions after development occurs.

Investment priorities and policy interventions

- Expansion of the city's Bee Network of integrated cycling and walking routes.
- Bus franchising to create a more coordinated public transport system.
- Investments in tram and rapid transit to improve connectivity without increasing car dependency.

Outcome-driven decision making

- Decisions are made based on their ability to deliver the desired vision for Greater Manchester rather than just responding to projected demand.

Monitored and managed

- The Right Mix vision will be continually monitored and adjusted to achieve goals. This is important, given the potential for plans to be affected by external events. Changes in the way Right Mix is achieved could lead to changes to the type of interventions set out in Greater Manchester's transport plans.

Source: Transport for Greater Manchester (2021)

Although multiple terms are used interchangeably with "vision-led" planning — such as decide-and-provide, monitor-and-manage, vision-and-validate and backcasting — each carries subtle distinctions, as set out in Table 1. However, across the transport and planning sectors, vision-led planning is increasingly recognised as the preferred term for clarity and consistency. "Vision-led" captures the essence of starting with a desired future and working systematically to achieve it, making it accessible to diverse audiences in transport and planning sectors. As the term becomes more widely adopted, it helps unify language across sectors, reducing confusion and fostering alignment between transport and spatial planning.

Table 1. Terminologies used in vision-led transport planning

Terminology	Definition
Decide-and-provide	Entails *deciding* on a preferred future and *providing* the means to achieve it. This planning paradigm is vision-led rather than forecast-driven, defining a preferred future for accessibility and outlining alternative pathways (allowing for adaptation if needed). As such, it accommodates uncertainty (Lyons et al, 2024).
Vision-and-validate	Starts with a long-term vision and uses models and evidence to test and validate whether proposed policies or projects can achieve the desired outcome. Vision-and-validate emphasises an iterative process, using data and evidence to ensure that actions remain aligned with the vision and provide confidence that it can be achieved (Adams, 1981; Jones, 2016).
Monitor-and-manage	Sets a vision and then continuously monitors and adjusts strategies to achieve it. Involves gathering feedback from users and stakeholders, analysing the effectiveness of measures, and making ongoing adjustments to ensure the vision remains effective and evolves over time (Stantec, 2024).
Backcasting	Begins by defining a desired end-state or vision, then works backward to identify the steps, policies, and solutions required to achieve it. Typically starts with an assessment of the current situation, context, gaps and needs (ITF, 2025).

Source: Lyons et al, 2024; Adams, 1981; Jones, 2016; Stantec, 2024; ITF, 2025.

How is uncertainty addressed in planning processes?

Beyond policy makers' underlying goals for society, the level of uncertainty in the operating environment is another key factor shaping the choice of planning approach. Future travel demand uncertainty can be classified on a scale from complete certainty (Level 1) to total ignorance (Level 5) (Walker et al., 2003). This model (Table 2 below) — based on the taxonomy developed by Prof. Warren E. Walker — addresses uncertainty in both values and processes, both of which are critical for foresight studies of travel demand (ITF, 2021).

Table 2. Uncertainty levels according to Walker

Level	Description	Examples
(1) Determinism	This is an unattainable level where everything would be known with full precision.	Almost no action produces a fully determined impact on travel demand.
(2) Statistical uncertainty	At this level it is possible to "describe [the uncertainty] adequately in statistical terms."	Demand data collection methods based on representative samples make it possible to compute sampling errors. Most variables used for inferring travel demand at short timescales (e.g. weather) are also associated with probabilities of occurrence.
(3) Scenario uncertainty	At this level "there is a range of possible outcomes, but the mechanisms leading to these outcomes are not well understood. It is therefore not possible to formulate the probability of any one particular outcome."	Many factors influencing travel demand fall into this range. For instance, a reasonable range for future socio-economic variables are known, but it is difficult to determine the probability distribution of their future values.
(4) Recognised ignorance	At this level it is not possible to describe "the functional relationships nor the statistical properties" so "the scientific basis for developing scenarios is weak." This can be partly alleviated through research reducing epistemic uncertainty, but this is partly indeterminate by nature.	The emergence of new technologies and business models in the transport sector have placed travel demand futures at this level recently (e.g. shared mobility). This is likely to continue, for example with vehicle automation.
(5) Total ignorance	At this level "we do not even know what we do not know" and "we have no way of knowing the full extent of our ignorance." This level of deep uncertainty makes it difficult to assign probabilities between different alternatives due to the complexity of the problem, limited information, or due to inherent unpredictability.	We can assume that transport will continue to be a derived demand (i.e. existing to satisfy other needs) well into the future.

Source: Adapted from Walker et al. (2003); ITF (2021); Jittrapirom et al., (2023); Engholm et al., 2024; Pinchasik, 2025.

In the transport sector, planning for the medium- to long-term is often marked by deep uncertainty and requires an understanding of multiple interrelated social, economic and technological issues (Lyons, 2018). Transport faces uncertainties from multiple sources. These include changing work arrangements (e.g. telecommuting) and travel demand, infrastructure damage from extreme weather, the transition away from fossil fuels, declining fuel tax revenues, and the impact of digitalisation on travel behaviour.

In the context of digitalisation, one should distinguish between two types of impact. The first is digital connectivity that reduces the need for travel by providing remote access to people, employment, goods, services and opportunities. The second is digital connectivity that facilitates travel itself, enabling people to access what they need through motorised mobility. The advent of intelligent, automated and connected vehicles compounds existing uncertainties from traditional factors like population growth, fuel prices, disposable income, and land-use distribution (ITF, 2024). While these innovations could fundamentally

alter social organisation and transport patterns, mapping the relationships between these uncertainties and quantifying their impacts is extremely challenging.

Concealing uncertainty through forecast-based planning

Conventional planning approaches may work well for short-term transport projects involving low uncertainty, proven technologies (such as road rehabilitation) and well-understood demand patterns. Such transport projects are well suited to cost-benefit analysis (CBA) because CBA requires agreement on the basic contextual assumptions. As uncertainty increases, establishing such consensus may become progressively more difficult (ITF, 2016). Nevertheless, policy makers are increasingly adapting CBAs for use in uncertain contexts. In the United Kingdom, for instance, the Department for Transport introduced Common Analytical Scenarios that require CBAs for major schemes to account for uncertainty, thereby making them suitable for vision-led approaches. The use of CBAs in transport planning is discussed in greater depth in Chapter 2.

However, medium- to long-term planning is often characterised by deep uncertainty, requiring planners to consider futures beyond those suggested by historical trends — including some that seem improbable but remain possible (Mäntysalo et al., 2023; Pinchasik, 2025). It is this inability to rely on past trends to inform policy in the face of deep uncertainty that increases interest in vision-led approaches.

Conventional planning approaches typically handle uncertainty through sensitivity testing of a baseline projection or a few variants (Engholm et al., 2024; Pinchasik, 2025). This captures only modest uncertainty, while ignoring deeper unknowns (Lyons et al., 2024). The fundamental problem with this approach is that sensitivity analysis assumes one “most probable” future and tests variations of it using historical trends and relationships. This represents only a fraction of imaginable alternative futures, however. Worse, focusing on one central scenario can make it seem like the inevitable outcome, obscuring decision makers’ agency to shape the future and transport’s role within it (Lyons, 2018; Blainey and Preston, 2019; Pinchasik, 2025).

A key shortcoming of conventional planning approaches is that they assume historical trends, relationships and needs will persist, yet these may change through both societal evolution and deliberate policy interventions, that often go unaccounted for in assessment decisions (Pinchasik, 2025).

Embracing uncertainty through vision-led planning approaches

In recognition of these limitations, many authorities are now exploring vision-led approaches to transport planning (Lyons et al, 2025; Wangsness et al., 2025). Box 1 above and Chapter 2 provide practical examples of this approach. In each case, policy makers articulate a clear vision of their desired future and then design policies to achieve it (ITF, 2021). A key strength of vision-led transport planning is its ability to manage future uncertainty. Unlike forecast-based models, which are constrained by the limitations of forecasting, vision-led approaches are adaptable to unforeseen changes and external disruptions (TRICS, 2021; ITF, 2021).

Adaptive programming, characteristic of vision-led approaches, addresses deep uncertainty and “known unknowns,” while enhancing the flexibility and resilience of policy pathways. It is particularly relevant when backcasting is treated as an iterative, rather than a one-time exercise. Pathways are regularly re-evaluated and adjusted in response to changing conditions and unforeseen events. Critically, adaptive programming also involves the monitoring of outcome uncertainty — the gap between expected and observed results — allowing for timely corrective action to maintain alignment with long-term objectives (ITF, 2025).

Table 3. Simplified comparison of forecast-based vs. vision-led transport planning

Forecast-based approach	Vision-led approach
Forecasts a most likely mobility future	Defines a preferred future
Demand-led supply	Supply-led demand
Conceals uncertainty	Accommodates uncertainty
Reactive	Proactive
Transport planning	Triple-access planning
Best suited for short-term projects with relatively low uncertainty aimed at incremental change	Best suited for medium- to long-term projects with deep uncertainty aimed at transformative change

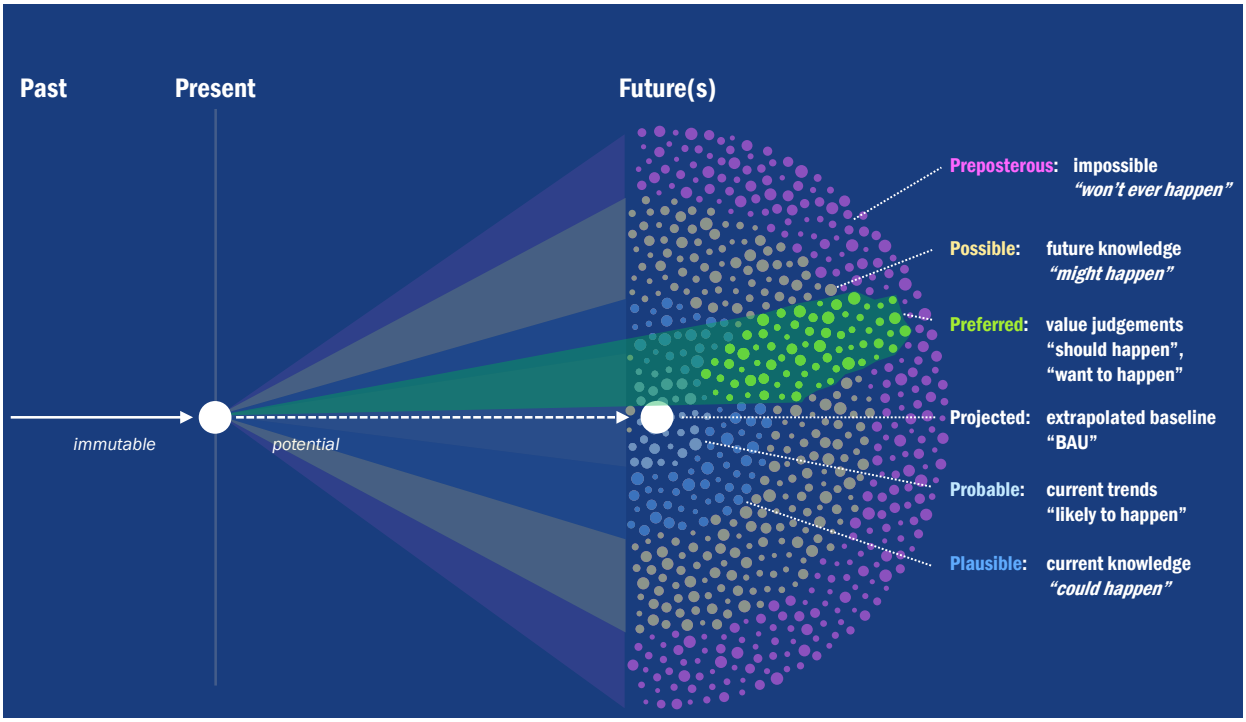
Source: Adapted from Lyons et al., 2024

Vision-led transport planning belongs to the research field known as future studies, which aims not to predict the future but to strengthen decision making amid uncertainty, particularly for long-term commitments. As illustrated in the Futures Cone (Figure 3), there are five main approaches to thinking about the future (Miola, 2008; De-Toledo et al., 2023; Pinchasik, 2025):

- Probable futures (What is *most likely* to happen?): This category includes projection-based studies typically using forecast approaches that monitor trends and analyse historical data.
- Possible futures (What *could* happen?): This includes scenario studies, which describe possible future situations and associated developments.
- Plausible futures (What *could realistically happen*?): Some studies make a further distinction between possible futures and a subset that are considered not just possible but *plausible*.
- Preposterous futures (What *won't ever happen*?): This category emphasises the need to consider and prepare for the most unlikely scenarios.
- Preferred futures (What do we *want* the future to look like?): This includes normative approaches focusing on desirable futures, such as vision-led transport planning and normative forecasting.

As the approaches of Transport Scotland and Transport for the North in the United Kingdom demonstrate, vision-led transport planning seeks to achieve *desirable* futures, rather than merely accept those that are *probable*. Preferred futures and visions require clear values, which are invariably subject to debate (Lyons et al, 2025). Given deep uncertainty and multiple possible futures, an important question is how policy measures perform under different scenarios in terms of their risks and benefits. Some measures may succeed under certain conditions but fail under others, while different measures deliver acceptable (if sub-optimal) benefits across multiple possible futures, reducing overall risk (Lyons, 2018; Pinchasik, 2025). Such considerations are at the core of vision-led planning.

Figure 3. Representation of the Futures Cone



Source: ITF, adapted from Lyons et al., 2021

What is the mandate for governments to undertake planning?

Because much of transport planning has developed in response to the needs of individual countries, regions and cities, the scope for transport planning is set by elected officials as defined by law (Meyer and Brinckerhoff, 2016). The genesis of transport planning — be it vision-led or forecast-based — assumes a political and institutional mandate.

The difference between explicit vs. implicit mandates

Vision-led transport planning typically requires an explicit political and institutional mandate, given that it challenges established norms and priorities, calls for the redistribution of investments and requires enhanced cross-sectoral coordination. Failure to secure such a mandate might lead to frictions in adoption and implementation. By contrast, conventional planning approaches often embed an implicit mandate given that these approaches rely on historical data and established procedures, allowing decision-makers to justify continuity rather than transformation. Conventional and vision-led planning paradigms are simplified representations of complex project planning realities. Nevertheless, they reveal an inherent asymmetry: the status quo requires less political effort or persuasion to maintain, while vision-led approaches demand consensus-building, new governance mechanisms, and the legitimisation of long-term transformative change.

Although vision-led planning requires governments to secure an explicit, high-level mandate, forecast-led planning is becoming increasingly challenging to apply in a rapidly changing world facing multiple societal imperatives. These imperatives highlight the need for transport planning that is guided by clear, and

transparent objectives rather than the conventional baseline forecast. Examples include “vision-zero” road safety targets and clean energy transition pathways.

Key elements of a vision-led planning mandate

Establishing a vision and developing an actionable plan to achieve it typically requires significant upfront investment. Securing this initial funding can be challenging even when it only represents a fraction of overall expenditure. Regardless, allocating staff and resources to begin the work requires a political decision — a trigger — tied to a political mandate. Vision-led planning is inherently political and aims to achieve long-term objectives. This makes it essential to ensure that visions and their supporting measures are sustained across political cycles.

A transport plan’s mandate defines the expected outcomes, based on strategic or policy objectives. Vision-led transport approaches work best when embedded in a clear political strategy. Such a strategy should outline the optimal pathway for delivering benefits and setting priorities among new and existing activities. Critically, delivery pathways must be attractive and flexible enough to engage the majority of users while accommodating any vocal opponents. A clear bottom-up mandate is equally important. Stockholm’s 2004 decision to hold a referendum on congestion charges demonstrates how to build support for a major departure from traditional planning. Public backing evolved significantly over a decade: 45% supported the charges in the initial 2004 referendum, rising to 53% in 2006, after implementation. By 2013, support for congestion charges had increased to 70% (Börjesson, 2018). Similar patterns have been observed in cities like London, Oslo, Singapore, Milan and Rome, where public support increased once residents experienced the benefits of the new schemes (Tools of Change, n.d.).

A political mandate may arise from combining prior policies and current legislation. Austria demonstrates that establishing a national vision — such as the Mobility Master Plan — motivates municipalities to create their own supporting visions. A political mandate should also articulate the case for change — or at least provide the basis for one — to support desired outcomes. Ideally it should also address value for money, viability, affordability, legal robustness and governance. Box 2 provides a non-exhaustive list of some of the key elements of a vision-led planning mandate.

Box 2. Key elements of a vision-led planning mandate

- Strategic or policy objectives for the transport plan
- Views of organisations, citizens and transport user groups likely to be involved or affected
- Critical success factors for assessing the plan
- Intended deliverables in terms of new services and operational capabilities
- Boundaries and scope of the plan
- Possible delivery strategies and approaches
- Expected organisational improvements resulting from implementation
- Expected timescales, costs, benefits, constraints and deadlines
- External drivers or pressures shaping the approach
- Alignment with existing political goals and ongoing initiatives
- Initial budget

Successful transport plans require ongoing top-level sponsorship to maintain the necessary commitment to the resources, timescales, delivery pathways and operational changes involved. Those responsible for delivering the mandate's requirements form the sponsoring group.

Sponsoring groups are typically composed of ministers, mayors or senior public officials who:

- have a strategic interest in the transport plan
- have responsibility for investment decisions
- will be significantly impacted by the plan
- will be tasked with delivering the change.

Work on the vision statement (see Chapter 3) should begin as soon as a responsible "owner" of the plan has been appointed by the sponsoring group. The political mandate should articulate the direction, constraints, priorities and aspirations for the transport plan. This allows work to begin in a controlled manner.

Practical guidance for public authorities

- Ensure your planning approach is fit-for-purpose. Tailor your planning approach to your objectives, the project's time horizon and the level of uncertainty in the operating context. Consider a vision-led planning approach where the planning exercise is intended at fostering a transformative change, spans longer-term horizons, and is marked by deep uncertainty.
- Secure a mandate. An explicit, high-level mandate is particularly critical for vision-led transport planning approaches, given that they challenge established norms and priorities, demand the redistribution of investments and necessitate cross-sectoral coordination.
- Secure bottom-up support. Bottom-up support is equally key to authorise a departure from traditional planning approaches or to strengthen a high-level political decision, while minimising frictions in adoption and implementation of vision-led plans and policies.

Analytical tools

Developing holistic, vision-led transport plans is challenging when governance systems and policy-making cultures are fragmented, administrations work in silos and where legal and financial frameworks are resistant to change. The challenges arise from differing views on the role of transport in society, contrasting decision-making cultures among ministries and agencies, and varying legal norms that can hinder vision-led transport planning. At the individual level, cognitive barriers can also foster resistance to new approaches.

For example, siloed governance systems can lead transport ministries to treat transport investment as an end in itself, rather than as a means to broader goals like well-being or economic growth. When individual ministries advocate only for their own spending priorities, comprehensive, whole-of-government planning becomes difficult, if not impossible.

Outdated legal frameworks can also impede vision-led transport planning. While legal norms provide transparency and predictability, they can also entrench conventional practices. For instance, existing land-use laws that mandate equal consideration of all transport modes can often lead to sub-optimal, formulaic solutions that preclude more innovative, vision-led approaches.

Rigid financial structures, too, can discourage transport ministries from adopting vision-led approaches that require reallocating resources or breaking from existing practices. Budget processes that rely on precedent entrench existing priorities, making it difficult to fund more innovative solutions. Successful vision-led transport planning may thus require adapting budget processes and financing methods.

Impact-assessment methods can also constrain vision-led transport planning. For example, when cost-benefit analyses (CBAs) focus solely on travel-time savings or vehicle-kilometres travelled, projects that perpetuate current conditions may appear more cost-effective than those designed to steer transport in a different direction. It is therefore important to understand the nature and limitations of different impact assessment methods and to strengthen the decision-making knowledge base by combining quantitative tools like CBAs with and qualitative methods.

Another challenge to vision-led transport planning relates to time horizons. As noted in the previous chapter, vision-led planning is inherently long-term: the vision and the strategic objectives that support it should endure from one political cycle to the next. At the same time, they need to be adaptable to changing political priorities and evolving operating contexts. At the national level, a long-term approach may be reinforced, for example, through the involvement of a parliamentary support group in the preparation process. At the regional and local levels, citizen or stakeholder groups can play a similar role by stewarding and championing the vision over time.

The latter approach is especially relevant in the context of Sustainable Urban Mobility Plans (SUMPs). One example is the “Citizen Forum for Sustainable Mobility” established in 2006 in the Spanish city of Vitoria-Gasteiz. In 2007, this forum established the “Citizen Pact for Sustainable Mobility,” which was integrated into the city’s participatory governance framework (*Elkarguneak*). This framework functions as a permanent consultative body, providing citizen perspectives and targeted recommendations for mobility planning and policy. Another example is found in Azerbaijan, where a “Transport Council” was established in 2023 to overcome fragmented decision making and identify system-level solutions to congestion. Under the oversight of the Ministry of Digital Development and Transport, the Council brings together relevant Ministries and specialised agencies to enable shared strategy and joint decision making across modes.

More generally, the flexibility required in democratic systems and fast-changing environments can be supported by clearly defined cycles and procedures for reviewing and updating plans (e.g. at the start of each parliamentary term). Nevertheless, the often decades-long timelines associated with planning, approval and implementation of infrastructure projects remain a persistent barrier to new, vision-led approaches.

Overcoming these challenges requires a range of analytical tools —along with the competencies to use them. Throughout all phases of the planning cycle — defining the vision, analysing current conditions, developing strategies, refining proposals and monitoring implementation — structured methods must incorporate uncertainty, stakeholder values and societal goals. These tools enable planners to anticipate trends, test assumptions early, evaluate trade-offs, and track progress as policies evolve.

As discussed in Chapter 1, conventional tools and methods remain important for evaluating investment and regulation options and will likely continue to be best practice for transport decision making across all levels of government. However, a wider set of tools — from horizon scanning to scenario modelling and collaborative simulation — will be essential for accounting for uncertainty, exploring multiple futures and building consensus among diverse stakeholders. This chapter highlights some of the key analytical tools and competencies for developing and implementing vision-led transport plans. Though notionally aligned with the phases of vision-led transport planning outlined in this report, these tools can be adapted to various stages depending on user needs and circumstances.

Figure 4. 4 guiding questions to ensure the selection of analytical tools is fit-for-purpose and that organisations are well-equipped to use them

Source: ITF, 2026

Define the vision

A clear vision is the cornerstone of vision-led transport planning. It provides direction by engaging stakeholders, clarifying aspirations and setting ambitious yet realistic long-term goals. Anticipatory governance, strategic foresight and whole-of-government approaches can support building a systemic and holistic understanding of today's world (Box 3). Such higher-order framing can then shape a number of more concrete applications (Box 4). Analytical tools at this stage help planners to identify possible futures, highlight key drivers of change and set collective priorities. Techniques such as horizon scanning and the Delphi method (both defined below) are particularly valuable here. Horizon scanning broadens awareness

of external forces and weak signals, while the Delphi method distils expert judgment into shared perspectives. Together, they establish a foundation for all subsequent analysis and planning.

Box 3. How anticipatory governance, strategic foresight and whole-of-government approaches enable vision-led transport planning

At the United Nations Summit of the Future held in September 2024, Secretary General António Guterres declared: "We cannot create a future fit for our grandchildren with a system built by our grandparents." The summit's Declaration on Future Generations also emphasised the importance of anticipatory planning, foresight and whole-of-government approaches.

These approaches help build systemic understanding of today's world and break down administrative silos, thereby creating the right context for vision-led transport planning. The aim is to view transport through a broader societal lens and analyse how changes in the strategic operating environment and related uncertainties affect transport — as well as how transport can help create desired futures. These methods also strengthen consideration of future generations' interests in public policies and planning.

The global economy and society have become more interconnected and complex, leading to increased uncertainty about the future. Strategic foresight is a structured and systematic approach to exploring plausible futures and preparing for change (OECD, n.d.). Strategic foresight is not about predicting a single future, but about the analysis of plausible futures, which can support better policy making. Rather than making predictions based on linear extrapolation from past experience, foresight cultivates the capacity to anticipate alternative futures and imagine multiple, non-linear outcomes. Strategic foresight improves governance by helping policy makers identify future opportunities, challenges, risks and disruptions (OECD, n.d.). Foresight helps identify long-term changes as well as related opportunities and threats, building situational understanding for preparedness and contingency planning. It also contributes to proactive risk assessment and management — at the decision-making, operational and project levels.

At the organisational level, foresight helps build the anticipatory culture and situational awareness needed in a constantly evolving operating environment. Building this capability requires high-level commitment as well as efforts to develop foresight skills throughout the organisation. Numerous foresight tools and platforms exist today, with artificial intelligence being used increasingly to support horizon scanning and scenario planning. However, applying these methods requires a clear mandate to use and integrate them into transport planning. Ultimately, it requires permission — and encouragement — to think and act in new ways.

When it comes to applying these measures, policy makers can draw from a wealth of existing guidance and best practices. The OECD, for instance, has been promoting Anticipatory Innovation Governance as a tool for governments to manage complexity and uncertainty, to respond to global challenges, and to anticipate as well as shape future developments. This tool integrates foresight, innovation and continuous learning while promoting a future-oriented, whole-of-government perspective. Key strategic foresight methods identified by the OECD include horizon scanning, megatrends analysis and scenario planning, as well as visioning and backcasting (OECD, 2020).

Horizon scanning

Horizon scanning is a systematic method for identifying emerging trends, risks, opportunities, and weak signals that may shape the future of transport. One variant, known as "threat-casting," specifically addresses unknown or poorly understood threats. Horizon scanning draws on scientific literature, industry reports, patent databases, policy documents and cultural shifts in media or consumer behaviour. The

purpose is not to predict the future with certainty, but to broaden the field of view beyond immediate operational concerns and consider developments that could fundamentally alter transport systems.

In transport planning, horizon scanning is particularly valuable at the vision-defining stage, where the goal is to anticipate transformative forces. For example, shifts toward electrification, automation, or decarbonisation may appear as early signals before becoming mainstream. Cataloguing these signals helps planners identify drivers of change and build them into scenarios, ensuring the vision can withstand disruptive developments. The concept of megatrends, coined by John Naisbitt in 1982, refers to large social, economic, political and technological changes that develop slowly and influence us for extended periods — typically seven to 10 years, if not longer (Naisbitt and Aburdene, 1990; Naughtin et al., 2024). Together with horizon scanning, megatrend analysis can help policy makers, administrative bodies, stakeholders and citizens form a shared and systemic understanding of the future strategic environment. This shared understanding supports future-proof visions and strategic objectives that transcend administrative silos.

An inclusive and cross-sectoral approach ensures that information about future trends and developments is diverse and comprehensive. This requires cooperation between administrative sectors, interest groups, academia and citizens through consultation and dialogue. These consultations also help map current and future customer needs, while shared imagination and discussion play a key role in shaping the vision.

Horizon scanning is best suited to large-scale, long-term vision planning, such as national transportation strategies or urban mobility plans spanning 20 to 30 years. Recent shocks such as the COVID-19 pandemic have led to a greater appreciation of horizon scanning and other futures methods over shorter timeframes. Its emphasis on breadth and early warning makes it better suited to shaping strategic awareness than to fine-grained, short-term interventions. Horizon scanning provides essential foresight for long-range planning, even if its insights sometimes feel too abstract to guide immediate action.

Table 4. Strengths, weaknesses and applications of horizon scanning

Strengths	Weaknesses	Applications
Helps identify emerging trends, risks, opportunities and weak signals that may shape the future	Outputs may feel too abstract to guide immediate action	Best suited for large-scale, long-term visions, though equally relevant over shorter time spans

Effective horizon scanning requires multidisciplinary competencies. Analysts need substantial research and information literacy skills to identify and evaluate diverse sources, from academic studies to industry trend reports. Foresight and systems thinking capabilities are also crucial, enabling practitioners to detect weak signals and situate them within broader socio-technical contexts. Competence in communication and synthesis ensures that insights from scanning exercises are translated into strategic narratives that policy makers can act upon.

Box 4. International and national applications of anticipatory governance and strategic foresight

The European Strategy and Policy Analysis System

The European Union promotes strategic foresight and anticipatory governance through the European Strategy and Policy Analysis System (ESPAS), which supports future-oriented and resilient decision-making. Within ESPAS, nine European Union institutions and bodies co-operate on horizon scanning and foresight activities, producing global trend reports, foresight papers and an annual conference that brings together political figures and experts from around the world (ESPAS, n.d.).

The World Economic Forum

The World Economic Forum (WEF), an international organisation for public-private cooperation, regularly publishes future-oriented reports with valuable insights. For example, the WEF's annual Global Risks Report draws on insights from more than 900 experts worldwide, analysing global risks across three timeframes to help decision makers balance immediate crises with long-term priorities. The report covers various fields from the global economy to technology and the environment (WEF, 2025).

Finland's Report on the Future

National governments are also embracing strategic foresight and anticipatory governance methods. Finland's Government Report on the Future establishes formal strategic futures dialogue between the Government and the Parliament and lays the foundation for joint and continuous foresight within the Government and its Ministries. The report is jointly prepared by all 12 Ministries and presents a shared assessment of the strategic operating environment and its key uncertainties. It explores alternative development paths through scenario analyses, identifying associated opportunities, risks and threats. Crucially, it examines how to prepare for these futures, outlining the measures required to strengthen preparedness, including a set of "must-win battles." Futures dialogues with citizens provide valuable input and perspective throughout the report (Finnish Government, 2025).

Germany's Federal Ministry of Research, Technology and Space

The German Federal Ministry of Research, Technology and Space has used strategic foresight and forecasting since the 1990s, beginning with Delphi studies that drew on recurring expert surveys to assess global developments in science and technology and to inform research policy guidelines. To date, three multi-year foresight cycles have been completed, the most recent between 2019 and 2022.

The aim was to visualise possible, probable and desirable — as well as undesirable — futures. The resulting scenarios are not forecasts or target visions, but evidence-based explorations of how different futures might unfold. They offer citizens and policy makers insight into how technical and social developments could evolve. The foresight process also deepens understanding of the present and helps identify future opportunities and risks. A total of 112 trends were identified and discussed, including expert consensus on their likely emergence and societal impact. The findings inform a range of German strategies, including the High-Tech Agenda Germany (Federal Ministry of Research, Technology and Space, n.d.).

Ministry of Defence (United Kingdom)

"Global Strategic Trends: Out to 2055 (Seventh Edition)," a 2024 report by United Kingdom, is part of a series of foresight publications by its Ministry of Defence. The report lays out a future global strategic context complemented by five scenarios that illustrate alternative pathways toward a future world order. It offers tools for the Ministry and the Government to test assumptions and better prepare for an uncertain world (Ministry of Defence, 2024).

The Delphi method

The Delphi method is a structured technique for achieving consensus on complex issues with limited data or high uncertainty. It involves multiple rounds of anonymous surveys with expert panels, with controlled feedback between rounds. Experts assess emerging issues, likelihoods or desirable outcomes and revise their responses based on aggregated results. In vision-led transport planning, the Delphi method consolidates expert opinion on contested or uncertain questions, such as automated vehicle adoption timeframes or making trade-offs between freight logistics and passenger mobility. Explorative and normative futures serve different purposes, but a credible vision still requires an understanding of how the world is changing. In this context, the Delphi method can distil a range of perspectives into an informed, balanced assessment. The anonymity feature prevents influential actors from dominating the process and ensures that minority perspectives receive equal consideration.

This highly adaptable approach can be applied to both targeted, short-term visioning exercises (e.g. assessing options for a regional transit authority's 10-year strategic plan) and broader, national-level efforts (e.g. shaping long-term innovation roadmaps). Its strength lies in fostering consensus where uncertainty is high but expert judgment is available. However, it is resource-intensive, requiring careful panel selection and iterative facilitation — making it best suited to high-stakes decisions that justify the investment. The exclusive reliance on experts also limits democratic participation and risks excluding novel ideas that might otherwise surface through broader stakeholder engagement.

In the United Kingdom, Nesta, an innovation foundation, and the Policy Lab (part of the Cabinet Office) are both known for their participatory approach to policy making. Both have used Delphi exercises to gather expert views on long-range national policy challenges such as productivity, health, education and net zero goals. These exercises involved multiple rounds with experts to identify and rank key policy issues and interventions, informing subsequent public discussion and research (Nesta, 2026).

Successful Delphi exercises require diverse, complementary skills. Facilitators must have expertise in survey design, stakeholder engagement, and consensus-building, as well as skills in statistical analysis and qualitative interpretation to analyse iterative rounds of feedback. Above all, facilitation demands impartiality and ethical awareness, ensuring that expert contributions are respected, anonymity is preserved, and the process maintains credibility.

Table 5. Strengths, weaknesses and applications of the Delphi method

Strengths	Weaknesses	Applications
Helps to achieve consensus on complex issues with limited empirical data or high uncertainty	Resource-intensive; requires careful panel selection and iterative facilitation Relies exclusively on expert participation, which can make the process less democratic and exclude unconventional ideas	Can serve both targeted, short-term visioning exercises and broader, national-level exercises

Analyse the present and anticipate the future

Analysing current conditions and emerging trends establishes a factual foundation for vision-led transport planning. This phase involves assessing network performance, identifying bottlenecks, and diagnosing key challenges and opportunities. Analytical tools help structure understanding of travel patterns, demand pressures and infrastructural capacity.

Scenario modelling

Scenario modelling extends beyond traditional forecasting by testing how different assumptions about demographics, technology, land-use patterns and policy choices shape transport outcomes. Unlike the four-step model (discussed below), which typically projects future demand by extrapolating from current trends, scenario modelling explicitly embraces uncertainty and divergence, recognising that multiple, equally plausible futures must be considered. A variant of scenario modelling — robust decision-making — is specifically designed for situations of extreme uncertainty and is therefore particularly relevant to vision-led approaches (Watkiss and Dynzynski, 2013).

Scenario modelling provides a structured way to explore multiple alternative futures rather than trying to predict a single outcome. By varying key assumptions embedded in the four-step model — including household growth rates, fuel prices, transit investment levels, or technology adoption rates — planners can generate alternative demand scenarios that expose the sensitivity of outcomes to underlying conditions. This approach grounds scenario analysis in quantitative rigour while enabling exploration of disruptive or unexpected change.

Analysing the impacts — opportunities as well as risks and threats — of different scenarios and identifying preparedness actions for each strengthens future-readiness and helps steer the future in the desired direction. Scenarios can also be used to stress-test visions, strategies or measures intended to advance strategic objectives, by assessing their feasibility across different future contexts. They also help surface implicit assumptions about future developments, making explicit the expectations that underpin each vision or strategic objective.

Gathering information on wild cards — also known as “black swans” — helps to better understand the role of uncertainty and surprise. Wild cards are low-probability events with potentially high-impact and disruptive consequences. Incorporating wild cards in foresight exercises encourages participants to think beyond expected or probable futures. They can be used to identify risks, uncover opportunities and explore courses of action that may be relevant across different scenarios. Wild cards can also show how different visions, strategies and actions may fare under unexpected conditions, highlighting risks and opportunities for adjustment.

A well-documented example of this approach comes from the United Kingdom’s Department for Transport. Its National Transport Model (NTM) has been used to test a range of future travel scenarios (UK Department for Transport, 2020). The NTM applies a traditional four-step framework, varying assumptions on factors such as population growth, economic performance, carbon pricing and technology adoption (e.g. electric and automated vehicles). By running multiple scenarios, the model illustrates how congestion, emissions and modal shares evolve under different policy and societal conditions. These outputs have directly informed the country’s long-term transport strategies and carbon-reduction plans, allowing policy makers to identify investment and policy options that remain robust across divergent futures.

Scenario modelling is most useful at regional, national, or long-term strategic scales, where uncertainty is high and decisions must withstand decades of change. It helps planners to frame today’s conditions within potential futures, revealing the risks of inaction and the benefits of proactive investment or regulation. It also allows decision makers to stress-test infrastructure plans, ensuring that projects remain viable even if demand or technology evolves differently than expected.

Practitioners require both systems thinking and technical expertise, combining quantitative models (e.g. four-step demand, land-use and economic impact tools) with qualitative techniques (e.g. expert elicitation, stakeholder workshops) to build multidimensional scenarios. Equally critical is communicating uncertainty:

effective scenario modelling turns complex outputs into accessible narratives and visualisations that help policy makers and stakeholders assess trade-offs and explore future possibilities.

Ultimately, scenario modelling drives the development phase of vision-led planning, turning aspirations and diagnostic insights into coherent strategies and investment pathways. By linking transport planning with housing, economic, and environmental goals — and stress-testing strategies against multiple futures — scenario modelling ensures plans are robust, adaptive and resilient rather than optimised for a single projected outcome.

Table 6. Strengths, weaknesses and applications of scenario modelling

Strengths	Weaknesses	Applications
Embraces uncertainty and divergence Places current conditions within potential future contexts, revealing the risks of inaction and the benefits of proactive investment or regulation	Requires multidisciplinary and technical expertise for effective application	Most suitable at regional, national, or long-term strategic scales, where uncertainty is highest Supports the development phase of vision-led planning, turning aspirations and diagnostic insights into coherent strategies and investment pathways

Four-step planning

The four-step planning model remains one of the most widely used and enduring frameworks in transport analysis. It consists of four sequential stages: trip generation (estimating how many trips originate and end in different zones), trip distribution (determining where those trips are likely to go), mode choice (predicting whether car, transit, cycling or walking will be selected), and route assignment (allocating trips across the available network). Together, these steps produce estimates of travel demand patterns that can be compared against existing or planned network capacity.

Four-step planning is particularly useful for getting a baseline understanding of regional mobility. It allows planners to identify congestion points, evaluate accessibility, and test the effects of incremental changes such as new roadway links, added transit services or pricing strategies. Because it aggregates flows across large populations, it is best suited to regional or metropolitan contexts where the focus is on system-level patterns rather than individual behavioural choices. Its strength lies in producing clear, diagnostic results that can anchor broader strategic discussions. However, given its cumbersome nature, the four-step model tends to be less suited for analysing multiple what-if scenarios.

Though it has been widely applied, a notable example comes from Canada's Greater Golden Horseshoe region in Ontario, where provincial agencies have used the four-step model to assess long-term growth scenarios and infrastructure needs (Ontario Ministry of Transportation, 2021). The model informed the development of the Regional Transportation Plan for the Greater Toronto and Hamilton Area, including assessments of rapid transit expansion, highway corridor improvements, and the integration of new commuter rail services. The results provided a structured basis for major investment decisions, ensuring that planned infrastructure aligned with projected travel demand.

Another example of the use of four-step models for potential vision-led planning can be found in Norway. Here, the Institute for Transport Economics and all the national transport agencies cooperated on developing and assessing strategies, containing a wide range of different policy instruments, for achieving a carbon neutral sector by 2050. They used both regional and national four-step transport models for passenger transport, the national freight model and a regionalised macroeconomic model in a soft-linked modelling system (Wangsness et al, 2025; Avinor et al., 2025, ITF, 2025).

The model's adaptability is also a strength: it can support short-term operational planning (e.g. reallocating roadway space or testing tolling strategies) as well as long-term infrastructure visioning (e.g. assessing whether projected growth requires major corridor expansion). However, its limitations are well recognised. Because the four-step model does not capture nuanced household or individual decision making, it is less effective at capturing emergent travel behaviours such as telecommuting, ridesharing or micro-mobility (e.g. e-bikes and scooters). For this reason, many jurisdictions are transitioning to activity-based models, which simulate travel as part of broader daily patterns, or agent-based models that treat travellers as individual agents making decisions within a simulated environment. These approaches offer more behavioural realism but require more data and computational resources. Another limitation of the four-step model — observed both across passenger and freight segments — is that it favours path dependency, encouraging planning based on available or slightly modified infrastructure, as opposed to motivating a broader system change.

For effective application, a range of competencies is required. Analysts must be proficient in quantitative modelling, statistical analysis and specialised software platforms (e.g. Cube, VISUM, or TransCAD). They must also exercise judgment in interpreting results, ensuring that policy recommendations are not driven solely by technical outputs but are integrated with broader public policy considerations. Facilitators and decision makers need to translate model findings into accessible insights, ensuring that the tool informs but does not dictate policy choices.

Table 7. Strengths, weaknesses and applications of the four-step planning model

Strengths	Weaknesses	Applications
Helps planners identify congestion points, evaluate accessibility, and test the effects of incremental changes Produces clear, diagnostic results that can anchor broader strategic discussions	Does not capture nuanced household or individual decision making, rendering it less effective at analysing emergent travel behaviours Favours path dependency, encouraging planning based on available or slightly modified infrastructure	Best suited for regional or metropolitan contexts focused on system-level patterns Supports short-term operational planning as well as long-term infrastructure visioning

Capacity analysis

Capacity analysis evaluates transport infrastructure's ability to handle existing and projected volumes of both freight and passenger traffic. It relies on engineering-based methods to determine levels of service, identify performance thresholds and assess where transport demand either approaches or exceeds designed capacity. When combined with other analytical approaches — such as travel demand modelling or scenario forecasting — capacity analysis provides a clear picture of infrastructure limits and operational constraints.

In vision-led transport planning, capacity analysis is particularly useful for diagnosing where infrastructure is strained, highlighting critical bottlenecks, underutilised assets or network vulnerabilities. It supports both short-term operational improvements (e.g. signal timing adjustments, lane reallocation or incident management strategies) and long-term investment planning (e.g. corridor expansions, new interchanges or transit upgrades). It is especially valuable at the corridor or network segment level, where detailed assessments of flow, delay and queueing are required. Capacity analysis is also essential when preparing for large-scale events, periods of rapid urban growth, or scenarios with major freight or passenger shifts. In vision-led planning, revealing capacity bottlenecks raises questions about the sources and nature of travel-demand straining infrastructure and how demand patterns could be influenced through an "avoid-shift-improve" framework.

While powerful, capacity analysis is rarely applied across systems of interconnected infrastructure. Its focus is often limited to one part of a single network (e.g. a roadway segment) rather than across all relevant urban travel networks (e.g. roadways, cycling infrastructure, urban rail and subways). Central concepts such as "level of service" (LOS) are treated within each network type (e.g. cycleway LOS, motorway LOS) and cannot easily be integrated across networks, complicating the task of gaining a holistic assessment of transport system performance.

Capacity analysis also requires specialised competencies. Practitioners need engineering knowledge, traffic simulation and modelling skills, and expertise in interpreting operational metrics. Equally important is the ability to translate technical outputs into accessible findings for policy makers, ensuring that metrics such as volume-to-capacity ratios, delay estimates and level-of-service assessments inform broader strategic and public policy decisions. Emerging tools, including microsimulation platforms and real-time data integration, are further enhancing the precision and responsiveness of capacity analysis, enabling planners to combine quantitative rigour with operational insight.

In sum, capacity analysis serves as a critical diagnostic and planning tool, bridging technical assessment and policy application. When used alongside methods like the four-step travel demand model or expert-based Delphi exercises, it ensures that vision-led planning is grounded in both quantitative infrastructure realities and informed stakeholder judgment.

Table 8. Strengths, weaknesses and applications of capacity analysis

Strengths	Weaknesses	Applications
Exposes infrastructure limits and operational constraints	Limited focus on one part of a single network, thus complicating the task of gaining a holistic view of transport system performance Resource-intensive; requires the use of parallel tools (e.g. travel demand modelling or scenario forecasting) to deliver reliable results	Suited for both short-term operational improvements and long-term investment planning Particularly valuable at the corridor or network segment level Supports large-scale events, periods of rapid urban growth, or scenarios with major freight or passenger shifts

Develop the plan

The development phase translates aspirations and diagnostic findings into coherent strategies, policies and investment pathways. It is in this phase that vision-led planning operationalises a broad set of guiding principles — including sustainability, resilience, efficiency and inclusivity — and ensures they are embedded in concrete objectives and interventions. Analytical tools support decision makers in integrating transport with land use, economic, social and environmental agendas, testing innovative approaches and evaluating trade-offs across multiple dimensions to produce strategies that are both practical and principled.

Land use–transport interaction models

Land use-transportation interaction (LUTI) models explore how patterns of where people live, work and access services both shape — and are shaped by — transport systems. These models simulate how accessibility affects land values, development patterns and household or business location decisions, while also illustrating how changes in land use generate travel demand. While extensively applied at the local and metropolitan levels, their implementation at broader spatial scales remains limited and fragmented (Xiao et al, 2025).

LUTI models have become an important tool for testing integrated policy strategies. For example, the London Land Use-Transportation Interaction (LonLUTI) model has been applied to evaluate congestion charging, transit expansion and housing policies in the Greater London Area (Allanfield Consulting, 2024). This case study illustrates how LUTI models can highlight synergies or trade-offs between transport investments, housing supply and environmental objectives.

In practice, LUTI often complements the traditional four-step model. While the four-step approach focuses on predicting travel flows (e.g. trip generation, distribution, mode choice and assignment), LUTI models extend this by feeding back the accessibility outcomes of those flows into land-use changes. This feedback loop allows practitioners to test alternative long-term development scenarios — for example, whether compact, transit-oriented growth or low-density, car-oriented development better supports policy objectives such as congestion reduction, equity or climate goals.

Because of their complexity, effective use of LUTI models requires multidisciplinary expertise spanning economics, urban planning, transport engineering and data science. Equally important is the ability to translate highly technical results — such as changes in generalised travel cost, accessibility indices, or residential location shifts — into actionable insights. Here, citizen engagement can play a pivotal role.

Relevant projects by the European Institute of Innovation and Technology Urban Mobility (EIT UM), such as its "Citizens on the Move 2025" capacity-building programme, empower city officials and public servants to meaningfully involve citizens in the planning and delivery of sustainable urban mobility solutions. The programme provides practical tools, methodologies and skills for citizen engagement, co-creation and behavioural change (EIT UM, 2026).

Table 9. Strengths, weaknesses and applications of LUTI models

Strengths	Weaknesses	Applications
Enable the testing of integrated policy strategies and alternative long-term development scenarios Highlight synergies or trade-offs between transport investments, housing supply, and environmental objectives	Resource-intensive, involving a high degree of complexity and multidisciplinary expertise	Best used in tandem with the four-step model, feeding accessibility outcomes back into land-use changes

Multi-criteria decision analysis

In the face of uncertainty, vision-led planning emphasises stress-testing policy measures against alternative possible future scenarios. This enables least-regrets consideration and identifies robust measures that perform well across different possible futures.

Multi-criteria decision analysis (MCDA) offers a structured approach for evaluating and prioritising options when decisions involve multiple, often conflicting objectives. Unlike single-metric evaluation methods that focus solely on cost, travel time or emissions, MCDA explicitly integrates diverse factors — including economic, social, environmental and technical considerations — into a coherent decision-making framework.

In vision-led transport planning, MCDA is particularly useful for balancing competing objectives. For example, a new transit corridor may improve accessibility and reduce emissions but require substantial capital investment and potentially disrupt existing communities. MCDA allows stakeholders to assign relative weights to these criteria, score alternative options, and generate a transparent ranking of policy or project choices. This structured approach ensures that decisions are not dominated by a single perspective — whether political, technical or financial — and allows minority or qualitative concerns to be included alongside quantitative metrics.

Internationally, MCDA has been applied in a variety of transport contexts. For example, the European Commission has applied PROMETHEE (Preference Ranking Organisation Method for Enrichment Evaluations) and AHP (Analytic Hierarchy Process) to prioritise regional transport infrastructure projects across Member States, integrating cost-benefit analysis with sustainability, safety and social impact criteria (Anagnostopoulos et al, 2003). In Asia, Singapore has employed MCDA to evaluate alternative urban mobility strategies, integrating factors such as congestion reduction, public acceptance and environmental performance into corridor-level planning decisions (Huoy Terh and Cao, 2018). In Latin America, cities like Bogotá and Santiago have used MCDA to compare bus rapid transit, light rail and highway expansion options, explicitly weighing environmental and equity impacts alongside traditional operational metrics (Fonseca-Soler, 2022; Mella Lira and Hickman, 2020).

MCDA is most relevant in contexts where uncertainty, multiple actors, and conflicting policy goals intersect. It complements other analytical tools: for example, outputs from four-step travel demand models, scenario modelling, or LUTI models can provide quantitative inputs (e.g. travel times, ridership, emissions), while qualitative expert judgments or stakeholder preferences inform criteria weights and scoring. This makes MCDA a bridge between technical analysis and participatory planning, supporting transparent, evidence-based decision making.

Effective use of MCDA requires expertise in decision science, stakeholder engagement and quantitative analysis, as well as skills in synthesising complex datasets into interpretable scores and rankings. Facilitators must ensure that weighting, scoring and aggregation methods are transparent, defensible and aligned with broader public policy objectives. When applied rigorously, MCDA enables planners and policy makers to navigate complex trade-offs, justify investment choices, and demonstrate that decisions are robust, balanced and socially accountable.

Table 10. Strengths, weaknesses and applications of MCDA

Strengths	Weaknesses	Applications
Enables policy makers to navigate complex trade-offs, justify investment choices, and demonstrate that decisions are robust, balanced and socially accountable	Requires adoption of parallel tools (e.g. four-step travel demand models, scenario modelling, LUTI models, etc.) to deliver reliable results Requires multidisciplinary expertise for effective application	Most relevant in contexts where uncertainty, multiple actors and conflicting policy goals intersect

Engage and refine

The engage-and-refine phase emphasises the iterative process of consultation, feedback and political alignment. At this stage, draft strategies are tested with stakeholders and communities to ensure that they reflect shared priorities and remain practically feasible. Analytical tools serve to translate technical outputs into accessible narratives, facilitate dialogue and incorporate adjustments before final adoption.

Survey and feedback analytics

Survey and feedback analytics encompass structured methods for gathering, analysing and interpreting input from stakeholders, communities and other decision makers. These tools are essential for ensuring that draft strategies reflect shared priorities, local knowledge and practical feasibility. By systematically collecting opinions, preferences and perceptions, survey and feedback analytics provide a foundation for evidence-based adjustments to plans before final adoption.

These tools are highly versatile. They can be used to evaluate public acceptance of proposed investments, understand equity and accessibility concerns, or gather professional expertise from actors such as municipal planners, transit operators, or freight carriers. Surveys can either be structured (e.g. multiple-choice or Likert-scale questions) or open-ended, while feedback platforms can include interactive workshops, online mapping tools or participatory apps that allow users to comment on spatial or scenario-based outputs.

Internationally, survey and feedback analytics are widely used in urban and transport planning. For example:

- In Singapore, online and in-person surveys were integrated into the Land Transport Master Plan consultation process to gather resident preferences on transit priorities, cycling infrastructure and car-ownership policies (Singapore Land Transport Authority, 2025).
- In London, Transport for London (TfL) combines web-based surveys with participatory workshops and interactive dashboards to gauge stakeholder reactions to proposed congestion pricing or bus network redesigns (TfL, 2025).
- In Bogotá, Colombia, community surveys and mobile feedback platforms have been used to refine Bus Rapid Transit (BRT) and pedestrian network plans, ensuring that investments address both mobility and social equity (Global Infrastructure Hub, 2024).

From an analytical perspective, survey and feedback tools often employ data visualisation, statistical analysis, and geospatial analytics to translate raw responses into actionable insights. For instance, responses can be aggregated to produce heat maps of areas of concern, priority rankings of investment options, or scenario preference distributions, which can then be fed into decision-support tools like MCDA or scenario modelling platforms.

Effective use of survey and feedback analytics requires a combination of technical, communication and facilitation skills. Planners must design clear and unbiased instruments, ensure representative and inclusive participation, and interpret responses rigorously while maintaining transparency. Equally important is the ability to close the feedback loop, demonstrating to stakeholders how their input has shaped the plan, which enhances trust, legitimacy and political alignment.

In sum, survey and feedback analytics serve as a bridge between technical analysis and community engagement, enabling planners to refine strategies iteratively while grounding decisions in both quantitative evidence and the values, preferences and experiences of those affected.

Table 11. Strengths, weaknesses and applications of survey and feedback analytics

Strengths	Weaknesses	Applications
Ensure that draft strategies reflect shared priorities, local knowledge and practical feasibility before final adoption Highly versatile	Reliance on clear design, unbiased instruments and inclusive representation to deliver reliable results	Best suited for the engage-and-refine phase of vision-led transport planning

Participatory modelling and collaborative simulation tools

Participatory modelling and collaborative simulation tools are designed to actively involve actors, communities and decision-makers in exploring, testing and refining transport strategies. Unlike traditional modelling approaches, which produce outputs primarily for technical analysis, participatory methods integrate actors directly into the modelling process, fostering shared understanding, dialogue and consensus-building.

These tools are particularly valuable for translating technical outputs into actionable insights at the engage-and-refine phase. Participants can manipulate assumptions, explore alternative scenarios, and immediately observe the effects of different policies or investments. This interactive approach helps illuminate trade-offs — such as the balance between transit investment and roadway expansion, or the impacts of land-use densification on accessibility and congestion — while ensuring that diverse perspectives, local knowledge and political priorities are incorporated into the final plan.

These tools combine with quantitative models (e.g. four-step travel demand models, activity-based models, LUTI models) to provide real-time feedback on potential outcomes, while qualitative insights from participants shape assumptions, priorities and scenario parameters. Analytical competencies required include systems thinking, scenario interpretation, and facilitation skills. Technical expertise in simulation software, interactive dashboards or modelling platforms is also essential for creating a responsive and engaging environment.

The strength of participatory modelling lies in its ability to bridge the gap between technical analysis and stakeholder engagement. By making assumptions, trade-offs and outcomes transparent, it enhances understanding, builds trust and supports political and community alignment. When combined with tools such as survey analytics, geographic information system (GIS) visualisation and MCDA, participatory simulation ensures that transport strategies are robust, evidence-based and socially informed. Additionally, new tools such as virtual reality, augmented reality and digital twins are being increasingly used to make visions more perceptible to the public, thereby boosting community participation and supporting informed urban planning.

Table 12. Strengths, weaknesses and applications of participatory modelling and collaborative simulation

Strengths	Weaknesses	Applications
Foster shared understanding, dialogue and consensus-building Illuminate trade-offs while ensuring that diverse perspectives, local knowledge, and political priorities are incorporated into the final plan	Rely on multidisciplinary expertise and modelling platforms for effective adoption	Best suited to the engage-and-refine phase for translating technical outputs into actionable insights

Implementation and monitoring

The final stage of vision-led transport planning is implementation and monitoring. This phase ensures that strategic intentions are translated into action through concrete projects, programmes and performance tracking. Analytical tools here support the allocation of resources, establish accountability mechanisms, and enable adaptive management as conditions evolve.

Performance-based planning and monitoring frameworks

Performance-based planning and monitoring frameworks provide a structured approach to aligning transport investments and policies with strategic vision objectives. At their core, these frameworks define key performance indicators (KPIs) — quantitative or qualitative metrics that reflect priorities such as safety, mobility, mode share, accessibility, greenhouse gas emissions, reliability, and equity. By establishing clear baselines, targets and reporting mechanisms, these frameworks allow planners and policy makers to track progress, evaluate effectiveness and adjust interventions as necessary.

In vision-led transport planning, performance-based frameworks serve multiple purposes:

- Accountability: They ensure that investments and policies deliver measurable outcomes, providing transparency for stakeholders, elected officials, and the public.

- **Adaptive management**: Monitoring KPIs enables early identification of underperforming interventions, signalling when corrective actions, policy adjustments or resource reallocations are needed.
- **Strategic alignment**: By linking operational metrics to high-level vision principles — such as sustainability, accessibility and resilience — these frameworks help maintain focus on long-term goals, even as circumstances evolve.

Many jurisdictions have adopted performance-based planning. For example:

- Although not standard practice, the Dutch Ministry of Infrastructure and Water Management conducts *ex-post* evaluations of major road and rail projects, assessing travel time savings, safety impacts, environmental outcomes and economic benefits (Government of the Netherlands, 2023).
- Transport Canada is legally obligated to submit an annual report to Parliament on the state of Canada's transport system, including various performance measures (Transport Canada, 2025).

Designing and implementing these frameworks requires multiple competencies. Practitioners need expertise in indicator selection, data collection, statistical analysis and performance evaluation. Effective communication skills are also critical: KPIs must be presented in formats that are clear, transparent and actionable. Integration with data visualisation platforms and dashboards can further enhance accessibility and usability, turning complex monitoring data into compelling insights.

Performance-based frameworks are adaptable to all scales of governance, from municipal transport plans to national mobility strategies, and are particularly valuable in contexts where accountability, evidence-based decision-making, and measurable progress are essential. When integrated with scenario modelling, LUTI analyses, MCDA and stakeholder engagement tools, these frameworks form the final link in a vision-led planning cycle, ensuring that strategies are not just well-designed but effectively implemented, monitored and continuously refined.

Table 13. Strengths, weaknesses and applications of performance-based planning and monitoring

Strengths	Weaknesses	Applications
Ensure that investments and policies deliver measurable outcomes Enable early identification of underperforming interventions, signalling when corrective actions, policy adjustments or resource reallocations are needed Help maintain focus on long-term goals even as circumstances evolve by linking operational metrics to high-level vision	Rely on multidisciplinary expertise and integration with data visualisation platforms	Adaptable to all scales of governance Particularly valuable in contexts requiring accountability, evidence-based decision-making and measurable progress

Cost-benefit analysis

Cost-benefit analysis (CBA) provides a structured framework for weighing the economic efficiencies and trade-offs of transport projects and policies within a broader strategic vision. At its core, CBA quantifies the expected costs and benefits of an intervention — including construction and operating costs, travel time savings, emissions reductions, safety improvements, and broader economic or social impacts — and expresses them in a common monetary metric to inform decision making. By establishing a systematic

comparison across alternatives, CBA helps planners and policy makers prioritise investments that deliver the greatest net value.

In vision-led transport planning, CBA serves multiple purposes:

- Efficiency assessment: It evaluates whether proposed investments provide economic value relative to their costs, helping ensure that limited resources are allocated effectively.
- Transparent decision-making: CBA provides a defensible basis for comparing projects or policy options, supporting accountability to stakeholders, funders and the public.
- Adaptive implementation: By linking expected benefits to measurable outcomes, CBA informs ongoing monitoring and allows adjustments if realised outcomes differ from projections.

Internationally, CBA is widely applied in transport planning, including within vision-led frameworks. For example, cities like Odense and Aalborg in Denmark have used CBA to evaluate light rail transit (LRT) projects. Despite some LRT projects showing limited socio-economic returns, they were selected over bus rapid transit (BRT) systems because they were better aligned with broader urban development strategies and vision-led planning objectives.

The design and application of CBA require a range of competencies. Practitioners need expertise in economic valuation, discounting, risk and sensitivity analysis, and scenario testing. Strong skills in data management, travel and land-use modelling, as well as performance monitoring are essential for producing credible inputs. Effective communication and visualisation skills are also critical, ensuring that CBA results are transparent, interpretable, and actionable.

CBA is applicable at all levels of governance, from municipal transport investments to national mobility strategies, particularly where accountability, economic efficiency, and evidence-based decision-making are priorities. When combined with performance-based monitoring, *ex-post* evaluation, scenario modelling, and multi-criteria analysis, CBA supports the implementation phase of vision-led planning by ensuring that decisions are both economically sound and aligned with strategic objectives. However, as discussed in Chapter 1, when agreement on assumptions breaks down (e.g. in situations of strong uncertainty), so too does the relevance and applicability of CBA.

Table 14. Strengths, weaknesses and applications of CBA

Strengths	Weaknesses	Applications
Provides a structured framework for evaluating the economic efficiencies and trade-offs of transport projects and policies within a broader strategic vision	Loses relevance and applicability when agreement on assumptions breaks down	Applicable at all governance levels and in many contexts, including within vision-led frameworks

Ex-post evaluation and reporting

Ex-post evaluation and reporting involve the systematic assessment of transport policies, projects and programmes after implementation, examining whether they have achieved their intended objectives and identifying any unintended consequences. This process provides a critical opportunity to learn from experience, ensuring that successes are reinforced and challenges are addressed in future planning cycles.

In vision-led transport planning, *ex-post* evaluation serves multiple purposes:

- **Accountability:** Demonstrates to stakeholders, funders and the public that investments and policies deliver value for money and align with broader strategic objectives.
- **Continuous improvement:** Generates evidence on the effectiveness of strategies, highlighting areas for refinement or course-correction in subsequent planning exercises.
- **Knowledge transfer:** Documents lessons learned (both positive and negative) that can inform methodologies, stakeholder engagement and investment decisions in future projects.

Ex-post evaluation is particularly valuable across all levels of governance, from municipal transport initiatives to national mobility strategies, wherever there is a need to verify performance, ensure transparency and maintain public trust. By comparing actual outcomes against planned targets (e.g. travel time reductions, safety improvements, mode-shift objectives, or emissions reductions) planners can identify whether interventions produced the expected benefits or whether adjustments are required in future phases.

Analytical competencies for *ex-post* evaluation are diverse. Practitioners must be skilled in program evaluation and impact assessment, as well as quantitative and qualitative analysis — including techniques such as before-and-after comparisons, counterfactual analysis and stakeholder surveys. They must also be adept at communicating findings clearly and accessibly, translating technical assessments into actionable insights for policy makers, funding agencies and the public.

Ex-post evaluation should be an integral part of robust transport planning, whether traditional or vision-led. For example, by institutionalising *ex-post* evaluation and reporting, vision-led planning closes the planning loop, linking outcomes back to strategic objectives and strengthening the evidence base for future decision making. When combined with performance-based monitoring frameworks, scenario analysis, and stakeholder engagement, *ex-post* evaluation ensures that transport systems remain adaptive, accountable and continuously improving over time.

Table 15. Strengths, weaknesses and applications of *ex-post* evaluation and monitoring

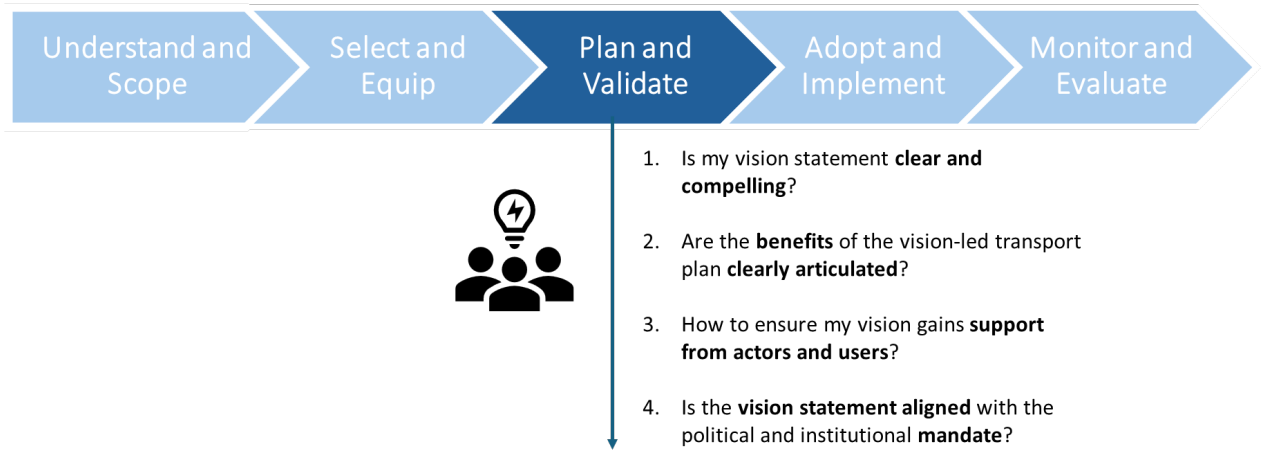
Strengths	Weaknesses	Applications
Generates evidence on the effectiveness of strategies, highlighting areas for refinement or course-correction Documents lessons learned that can inform methodologies, stakeholder engagement and future investment decisions	Relies on multidisciplinary competencies and integration with additional analytical tools	Valuable across all levels of governance

Practical guidance for public authorities

- Don’t re-invent the wheel. Conventional tools and methods, such as CBA, the four-step planning model or capacity analysis, will continue to play an important role in supporting the evaluation of investment and regulation options in vision-led planning approaches.
- Broaden your horizons with a broader set of tools. The adoption of a broader set of tools – from horizon scanning to scenario modelling, participatory modelling and collaborative simulation tools – especially during the earlier stages of the vision-led planning process will be key to account for uncertainty, consider possible futures and build consensus among stakeholders.
- Match your tools to your circumstances. Analytical tools’ application depends on context, with different approaches serving strategic visioning, problem diagnosis, consensus building or balancing priorities. To unleash their full potential, tools may need to be adopted in parallel with others (e.g. capacity analysis is best deployed alongside travel demand modelling or scenario forecasting, whereas MCDA complements outputs from four-step travel demand models, scenario modelling, LUTI models and survey analytics).
- Ensure organisational preparedness. The effective use of analytical tools oftentimes requires multidisciplinary skills, ranging from technical expertise and quantitative analysis, data science, stakeholder engagement, as well as communications and storytelling skills. The resource-intensive nature of certain analytical tools calls for careful planning to ensure relevant departments are equipped with the necessary competencies.
- Stress-test your vision and strategic objectives against different future scenarios. Failure to do so may lead to a situation where the vision and strategic objectives are not sufficiently resilient and robust in relation to different future trends.
- Seek foresight information from a broad group of stakeholders. This is key to effectively capture changes in the operating environment and future development paths while reinforcing commitment to the vision and strategic goals.

Vision-definition and policy formulation

Figure 5. 4 guiding questions to ensure the vision is clear, compelling and inclusive



Source: ITF, 2026

A vision-led approach is most relevant where transformational change is required — particularly where a marked step-change or break from current conditions is needed in the future capability of the transport system. It is especially effective where there is political will to adopt and implement change through appropriate regulation and funding. Achieving such a future depends on articulating a clear and compelling vision of the desired end state.

A vision articulates a better future and underpins the outcomes and benefits of a transport plan. As such it provides vital focus and enables buy-in, motivation and alignment among stakeholders and users. For example, future benefits are clearly expressed in the vision statement of Singapore's Land Transport Master Plan:

"We want a Singapore that is a 45-minute city with 20-minute towns in 2040. All journeys to the nearest neighbourhood centre using Walk-Cycle-Ride modes of transport will take less than 20 minutes. We will aim for nine in 10 peak-period journeys using Walk-Cycle-Ride to be completed in less than 45 minutes. We will expand our rail network, improve bus speeds and bring jobs closer to homes."

Singapore Land Transport Authority, 2025

For a transport plan to deliver transformational change, it needs to impact the way people and goods are transported. Otherwise, "transport plan" is a misnomer. At a minimum, a transport plan should target one mode of transport, be it road transport or active mobility (e.g. walking or cycling). Transport plans can affect several modes and differ significantly in geographical scope. Vision-led transport plans can range from improving walking in small neighbourhoods (city level) to national or international plans covering all surface, waterborne and air transport modes.

What is a vision statement?

The vision statement is a formal description of the future state that the transport plan aims to achieve. Box 5 outlines some of the characteristics of a good vision statement. A vision statement should describe the new services, improvements and innovative ways of working with actors and users — or any combination of these. It should be used to engage and gain commitment from as many stakeholders as possible. In this process it can sometimes be useful to think of a vision statement as a "postcard from the future." The vision statement of Austria's 2030 Mobility Masterplan provides precisely this picture of a beneficial future:

"It is January 2040, and we have reached our target. The way we live and do business will allow future generations to have a good life in an intact environment without having to depend on coal, oil, natural gas or nuclear power. Austria's transition to a sustainable, climate-neutral, safe, resilient, gender-equal, social and economically viable mobility system by 2040 was a success."

Federal Ministry Innovation, Mobility and Infrastructure of the Republic of Austria, 2021

While defining a clear vision is necessary, it is insufficient without the consistent communication to secure buy-in from stakeholders and users. If the goal is transformational change, then a compelling depiction of the future outcome is vital. A vision-led transport plan that lacks a clear underlying vision statement will risk leaving stakeholders and users confused about its intent, thereby reducing the chance of success. The vision behind Sweden's long-standing road safety goal is a showcase of clear communication:

"Vision Zero - The goal is that no one should be killed or seriously injured through a road accident."

Swedish Transport Administration —Trafikverket, 1995

Box 5. Characteristics of a good vision statement

When the transport system undergoes transformative change, not every stakeholder will necessarily see the big picture without a vision statement. A good vision statement:

- is written as a future state. This is not to be confused with an objective strategy, intention or mission, all of which could begin with the word "to." Instead, it is a snapshot of a desired future.
- targets the broadest possible audience. This means it is memorable, concise, relevant and avoids jargon.
- articulates how the desired future is better than the present.
- describes a compelling future that engages the heart as well as the head. This does not mean it uses emotional language, but it shouldn't be overly dry and factual.
- describes the current reality to justify the need for change — explaining why the transport system cannot remain as it is.
- matches the degree of transformational change with the boldness of its message. Vision statements should motivate everyone and reflect the scale of the transformational challenge.

- avoids target dates unless the vision is inherently time-dependent, such as infrastructure for hosting a major event like the Olympic Games.
- describes a desirable future in terms of benefits to key stakeholders and users, making key advantages implicit.
- describes a verifiable vision without detailed or numerical targets. Unverifiable visions breed scepticism. The vision should make clear when the desired future state has been achieved.
- is sufficiently flexible to remain relevant throughout the plan's lifetime and avoids listing excessive constraints.
- provides sufficient context and direction to enable the development of the detailed transport plan.

Source: Per Skrumsager Hansen, 2025; adapted from MSP, Managing Successful Programmes, 2011 edition.

How should benefits in a vision-led transport plan be articulated?

A vision statement typically consists of the top-ranking benefits — as perceived by the affected stakeholders and users — that the plan will deliver. Vision-led transport plans often, though not always, deliver benefits across multiple societal groups. Delivered benefits may therefore arise both within the transport system and beyond it, including across other sectors of the economy. Benefits generated outside the transport system can include attracting foreign investment to a region or reducing the climate impacts of transport operations and related activities in other sectors. As illustrated in Table 16, climate benefits are articulated in the European Union's Cities Mission, as well as in Norway's "Zero Growth" Vision, which is implemented locally through so-called Urban Growth Agreements in various cities. In recent years, global climate benefits have also been mentioned in several vision-led transport plans at the national and international levels. Besides Austria's 2030 Mobility Masterplan vision, cited above, other notable examples include Japan's Roadmap for achieving an 80% reduction in CO_2 emissions by 2050, and Germany's Strategy for the Future of Sustainable Mobility.

Table 16. Local and national examples of vision-led transport plan benefits

Vision-led transport plan	Stated benefits
European Union (EU) Cities Mission	*"The EU Cities Mission will bring together local authorities, citizens, businesses, investors, and national and regional bodies to deliver 100 climate-neutral and smart cities by 2030 and ensure that these cities act as experimentation and innovation hubs to enable all European cities to follow suit by 2050."*
Norway's "Zero Growth" Vision, implemented through Urban Growth Agreements	*"Increasing passenger transport demand caused by the rapid population growth in Norwegian urban regions shall not cause growth in passenger road traffic volumes."*
Japan Roadmap for achieving 80% CO_2 emissions reduction by 2050	*"Gone are the days when countermeasures to global warming were considered as a cost or constraint to economic growth. The world has entered a new era, offering significant opportunities for greater prosperity. Moving beyond conventional*

	thinking to take decisive action on climate change can transform industrial structures and the social economy, driving a new era of strong growth."
German Sustainable Development Strategy Update 2025	*"Mobility must be greenhouse gas-neutral, efficient and affordable. There should be diverse sustainable options for the choice of modes of transport and transport routes. Only then will mobility meet the needs of all people in both urban and rural areas, the requirements of business and industrial sectors, and the rights of future generations and guarantee freedom of choice, social and economic participation, the provision of public services and equivalent living conditions."*

A vision-led transport plan can deliver a wide range of benefits, many of which may be reflected in the vision statement. However, because transformational change centres on the transport system, benefits arising from within the transport system typically form the building blocks of the statement. These include:

- increased efficiency, sufficiency and consistency of the transport system
- fewer negative externalities from traffic flows.

Given their general nature and broad scope, these benefits would probably not be specific enough to secure buy-in from stakeholders and users. Using these terms in a vision statement risks making it inaccessible outside circles of experts such as transport planners, policy advisers and economists. Therefore, vision statements should aim to articulate more specific, tangible benefits, as shown in Table 17.

Table 17. Benefits that could serve as building blocks of a vision statement aimed at a broad audience

Benefit categories	Possible formulations for a vision statement
Efficiency, sufficiency and consistency	• Shorter rush-hour commutes in the morning and afternoon (a new ring road) • More opportunities to see loved ones (a new road bridge linking islands) • Access to fresh milk for breakfast (a new motorway section that connects to farmland) • Greater sense of community through strengthened local transport (e.g. active mobility), public transport and proximity planning • Maximised skills potential (IT cluster through spatial planning) • Access to one-stop health care (health care cluster through spatial planning)
Externalities	• Better air quality (reduced exhaust from road vehicles) • Improved sleep quality (reduced noise pollution from road traffic and aviation) • Ability to travel long distances without experiencing climate shame (electrified high-speed rail) • Safer travel (lower speed limits in city centres, rural roads and motorways)

Source: Per Skrumsager Hansen, 2026

At the city level, increasing efficiency and reducing externalities from transport are among the cornerstones of Greater Manchester's "Right Mix" Transport Strategy, part of the Greater Manchester 2040 Transport Strategy (see Box 1 in Chapter 1 for more details).

"The 'Right Mix' transport vision involves creating a better transport system for Greater Manchester, so that we can reduce cars' share of trips to no more than 50%, with the remaining 50% made by public transport, walking and cycling."

Transport for Greater Manchester, 2021

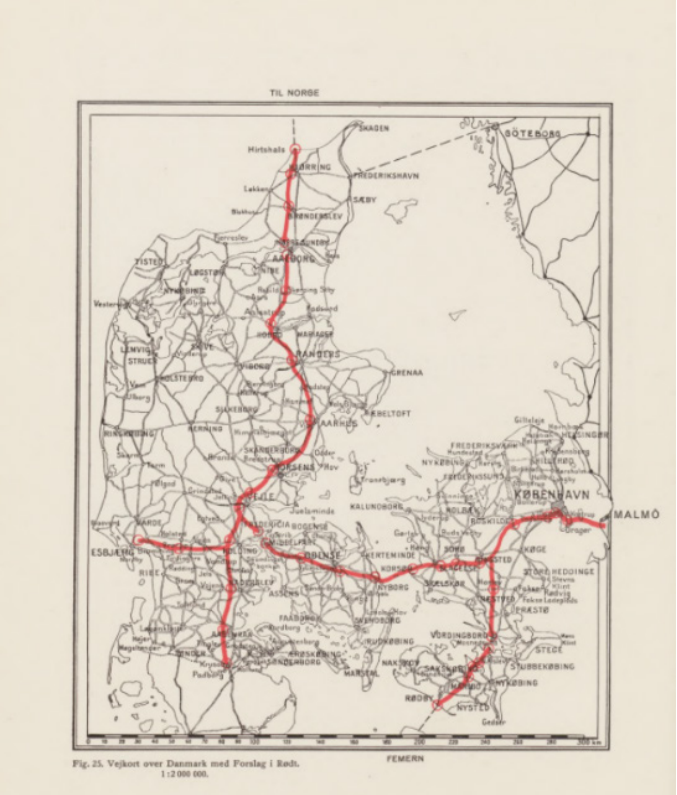
Mi Teleférico in La Paz, Bolivia, provides another city-level example of a vision-led transport plan that showcases an innovative infrastructure solution to address unique geographical challenges, improve connectivity and foster social inclusion. To alleviate transit congestion in the narrow streets of La Paz, a cable car connecting the district of La Ceja in El Alto and La Florida in La Paz was first proposed in the 1970s (though it did not become operational until 2014). For residents, the system has significantly improved mobility, providing quicker access to the airport and a major market, Feria 16 de Julio. A 2017 study by the Inter-American Development Bank (IDB) estimated that the first three Mi Teleférico lines reduced average travel times in La Paz and El Alto by 22%. A 2018 IDB study estimated average travel times had been reduced by 70 minutes, with El Alto residents saving 95 minutes of travel time (Martinez et al., 2018; Mann, 2022).

Copenhagen's cycling vision adopted in 2012 is another worthy, city-level example:

"Copenhagen must become the world's best bicycle city. A bicycle-friendly city is a city with more space, less noise, cleaner air, healthier citizens and a better economy. It's a city that is a nicer place to be in and where individuals have a higher quality of life. Where accessibility is high and there is a short route from thought to action if one wants to head out into nature, participate in cultural or sports activities or buy locally. Bicycle traffic is therefore not a singular goal but rather an effective tool to use when creating a liveable city with space for diversity and development."

The City of Copenhagen, 2012

Figure 6. Denmark's "Great H" motorway vision



Source: Vejdirektoratet, 1994.

Another slightly older, national-level example from Denmark is known as the "Great H." The idea to connect the country's sprawling geography was originally proposed in the mid-20th century by a group of contractors, who envisioned a network of three motorway corridors and bridges (see Figure 6). Together, they intersected to form the letter H, giving the vision its name. Though it began in 1943, the project was not completed until 1994.

Developing and maintaining the vision statement

The vision statement should be quickly developed and refined once a political mandate has been granted (read more about the political mandate in Chapter 1). The vision statement should guide the plan throughout its lifecycle, serving as a primary tool for maintaining ongoing strategic alignment. Crafting a clear, compelling and inclusive vision statement requires dedicated time and resources from a range of stakeholders. Typically, the appointed plan owner would convene a group of managers, experts, and representatives from affected stakeholders and user groups to develop potential vision statement options in line with the political mandate. Once agreed, the initial version of the vision statement would be incorporated into the transport plan brief.

Since it is often drafted early in the planning process — before the plan's requirements are fully defined — there is a risk that the plan may rest on a weak vision statement. A weak statement, in turn, can limit the plan's ability to guide a comprehensive transport plan. For this reason, the development of the vision statement should be treated as an iterative process.

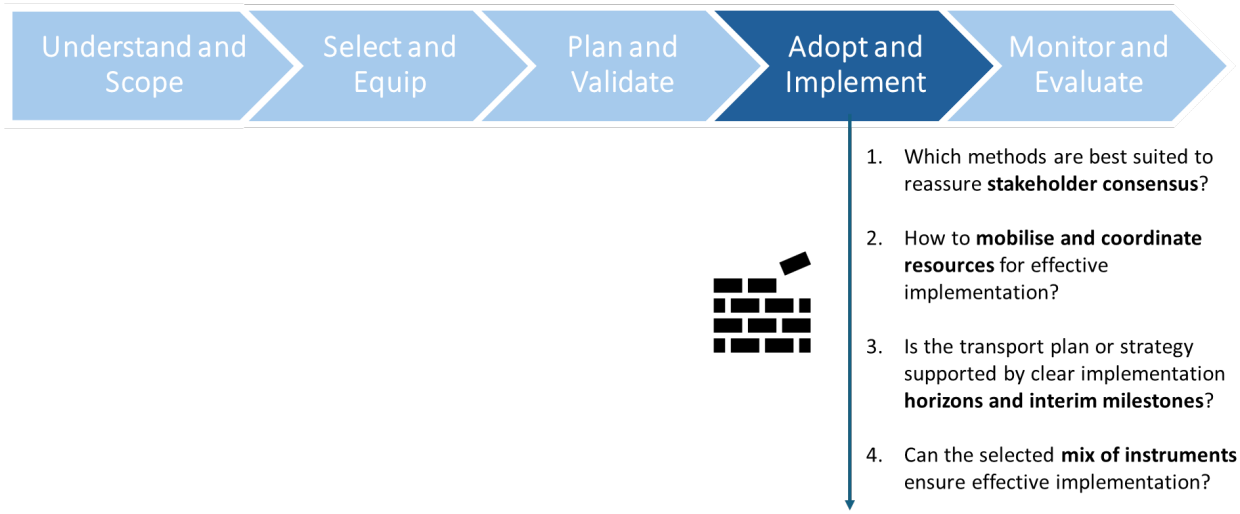
The statement should be regarded as a stable and enduring foundation for a vision-led transport plan. Refinements to its wording or the incorporation of emerging threats or opportunities may be appropriate. However, if the vision statement requires substantial revision, there is a risk of confusing stakeholders and users. Major changes may signal that the transport plan is no longer aligned with societal aspirations and that a fundamentally different plan is required.

Practical guidance for public authorities

- Be clear, compelling and inclusive in your vision statement. This "postcard from the future" should describe the new services, improvements and innovative ways of working with actors and users. It should be drafted in a clear, compelling and inclusive manner to ensure engagement and commitment from as many actors and users as possible.
- Formulate tangible benefits that speak to your target audience. Ensure the expected benefits within the vision statement are specific and formulated in an accessible manner to secure buy-in from stakeholders. Consider benefits stemming from within the transport system as well as from other sectors of the economy. Draw inspiration from local examples such as the EU Cities Mission and national examples such Japan's Roadmap for achieving 80% CO_2 emission reductions by 2050.
- Secure buy-in through clear and consistent communication. To secure commitment and buy-in from actors and users, the vision needs to be clearly and consistently communicated. Draw inspiration from existing best practices, such as Sweden's long-standing road safety goal.
- Cross-check the vision's alignment with the existing mandate. Develop and refine your vision soon after a political mandate has been granted. The vision statement needs to exist throughout the life of the plan and serve as one of the main tools for ensuring the ongoing strategic alignment.
- Ensure organisational preparedness. Drafting an effective vision statement will necessitate the dedication of time and resources from various actors. The appointed owner of the plan would typically assemble a group of managers, experts, and representatives of affected actors and user groups and begin outlining the vision statement options based on the political mandate.
- Consider the need for iteration. While the vison statement is a constant and stable foundation for the vision-led transport plan, improvements to its wording may be necessary to reflect changes in the operating context.

Policy adoption and implementation

Figure 7. 4 guiding questions to ensure that the vision-led transport plan is effectively translated into tangible interventions within institutional, infrastructural and social contexts



Source: ITF, 2026

Once a vision has been articulated and translated into a structured policy framework, the next critical phase is its adoption and implementation. This chapter explores how vision-led transport policies are operationalised — transcending the stage of conceptual planning to become tangible interventions within institutional, infrastructural and social contexts.

In this context, "policy adoption" should not be understood merely as the formal ratification of legislative or regulatory texts. Rather, it entails a reaffirmation of shared purpose and continued alignment among actors — including public authorities, private actors and citizens — especially as the policy moves toward real-world execution. Even when a common vision has been established, implementation often requires a renewed consensus and a shared commitment to overcome political, legal, financial and spatial constraints.

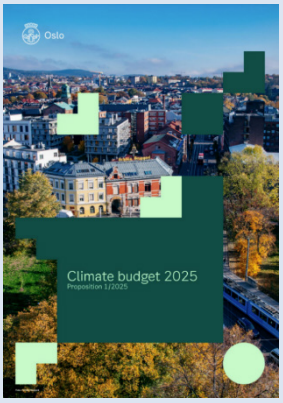
Similarly, "implementation" refers to more than just initiating change — it encompasses the execution of a coordinated sequence of actions aligned with the vision's intended goals. This includes institutional restructuring, financial investment, allocation of technical and spatial resources, infrastructure deployment, and day-to-day operational management. It is not a singular moment, but a dynamic and adaptive process that unfolds over time. In this sense, the adoption and implementation phase may be likened to the construction phase in architecture: where the blueprint (vision) is translated into material form, through the careful selection of methods, coordination of actors, and continuous supervision on the ground.

Reassuring consensus through collaborative governance and stakeholder alignment

Collaborative governance is vital for aligning stakeholders and implementing visionary transport policies effectively. This consensus-oriented process brings public agencies and non-state actors together for formal, deliberative decision making (Ansell and Gash, 2008). Collaborative governance emerged to address the shortcomings of top-down or adversarial approaches that often fail during implementation. By fostering trust and participation, collaborative governance builds the commitment needed to translate plans into practice. Boxes 6 and 7 below illustrate successful case studies in Oslo (Norway) and Amsterdam (Netherlands), where collaborative governance has been embedded in institutional mechanisms to build and reassure consensus. Reassuring consensus refers to a strategic approach of ensuring all stakeholders are aligned and supportive of the decision making process.

Box 6. Translating collaborative governance into concrete institutional mechanisms in Oslo, Norway

The city of Oslo illustrates how collaborative governance can be translated into concrete institutional mechanisms that keep an ambitious zero-emission vision on track. A central innovation has been the **integration of a climate budget** within the city's annual financial budget. Each transport measure — whether bus electrification, port decarbonisation or construction-site standards — is assigned to a responsible agency, linked to quantified emission reductions, and reviewed quarterly by the city council. This budgetary device provides accountability across departments and reassures actors that commitments are not just rhetorical but monitored against transparent indicators.



Consensus is also reinforced through **public procurement**, which Oslo has used as a cascading instrument. The municipality has amended all its contracts — from waste collection to office supplies — to require zero-emission vehicle deliveries. By standardising tenders and offering suppliers a predictable transition period, the city reduces uncertainty and ensures that the burden of change is shared equitably. Suppliers accept these rules because they are universal and accompanied by clear verification procedures and training materials.

At the regulatory level, Oslo has implemented **sector-specific frameworks co-designed with operators**. For example, as of November 2024, all taxis must be zero-emission, a measure negotiated through workshops with taxi companies and drivers and backed by dedicated charging infrastructure. For the taxi sector, acceptance of this mandate was not just a matter of compliance but the result of a negotiated consensus. Drivers and dispatchers were given a predictable transition period, supported by dedicated charging facilities and financial incentives. Through a series of workshops, they co-shaped the rollout, ensuring that operational concerns — such as charging locations and shift patterns — were addressed. This process reassured the industry that the costs and risks of transition would be shared, while offering long-term benefits in operating costs and social reputation. Similarly, the public transport authority, Ruter, has embedded zero-emission requirements in bus concessions, aligning depot upgrades, smart charging, and monitoring systems with operator input. These achievements have not come about without friction, however, and the city has faced significant challenges linked to public perception, cybersecurity issues and costs.

Finally, Oslo has advanced **collaborative change in traditionally hard-to-abate areas**. Its policy on zero-emission construction sites began with carefully scoped pilot projects, accompanied by vendor days where contractors and equipment suppliers could voice concerns and identify gaps. Lessons from these pilots were codified into standardised clauses in municipal tenders, giving industry a manageable pathway to compliance. In the Port of Oslo, a 10-point action plan was co-written by the Climate Agency, Business Development Department and Port Authority, with standing user forums for shipping lines and terminal operators. These mechanisms institutionalise dialogue and create credibility that long-term infrastructure investments — such as shore-power systems — will be sequenced to meet industry needs.

Taken together, these mechanisms — climate budgeting, procurement requirements, co-designed regulations, pilot-to-tender pipelines and user forums — show how Oslo has operationalised "reassuring consensus." The city demonstrates that vision-led transport policy requires not only ambitious targets but also practical tools that distribute responsibilities, minimise uncertainty, and embed mutual learning across sectors.

Source: City Government of Oslo (2025), Climate Budget 2025

Box 7. Embedding collaborative governance: Amsterdam's Green Deal Zero Emission City Logistics (ZES)

The Amsterdam Metropolitan Region demonstrates how a visionary commitment to zero-emission city logistics can be embedded in collaborative mechanisms that reassure stakeholders and sustain momentum. At the heart of this process is the **Green Deal Zero Emission City Logistics (ZES),** a multi-party agreement signed by municipalities, logistics firms, retailers, vehicle manufacturers and knowledge institutes. Rather than acting solely through top-down regulation, the Green Deal functions as a "learning contract," establishing a joint platform for experimentation, data-sharing and feedback loops, that institutionalise trust and mutual adjustment.

One mechanism is the phased rollout of Zero Emission Zones (ZEZ), which since January 2025 have restricted conventional vans, trucks, taxis and mopeds within the A10 ring road and city centre. Crucially, the design of the ZEZ was negotiated with sector associations, and the city published **clear transition ladders** — specifying which vehicle classes must comply by which dates, and which temporary exemptions (such as wheelchair transport or special-purpose vehicles) would be granted. This transparency provides predictability for small and medium-sized enterprises (SMEs), allowing them to align fleet renewal cycles with regulatory milestones. For many operators, the combination of clarity, phased deadlines, and well-communicated exemptions reassured them that compliance would be achievable without major disruptions.

Consensus is further reinforced by **financial and infrastructure support**, co-designed with affected industries. Subsidies for electric vans, charging infrastructure rollouts and sector-specific guidance documents were developed in dialogue with carriers, retailers and service providers. Each industry segment — construction, facility services, e-commerce and retail — received tailored "playbooks" clarifying vehicle eligibility, curb access rules and delivery time windows. For logistics companies and SMEs, these measures lowered the financial risk of fleet renewal and signalled that the municipality was willing to share responsibility for the transition. Retailers and shippers also perceived reputational benefits: participation in the Green Deal allowed them to demonstrate environmental leadership and strengthen customer trust, adding an incentive beyond regulatory compliance.

The **Living Labs mechanism** is another institutional innovation: logistics firms, shippers, and technology providers participate in real-world pilots — such as cargo-bike micro hubs or shared loading bays — whose findings are directly fed into the city's Implementation Agenda 2023-2026. By publishing public trackers of lessons learned and their regulatory consequences, the municipality demonstrates that stakeholder input shapes actual rules, not just consultation documents. This co-creation process eased resistance because companies saw their operational constraints reflected in final regulations and were encouraged to view the transition not just as a regulatory burden, but as an opportunity to test new business models.

Finally, the Green Deal ZES ensures **multi-level governance alignment**: while national policy set the overall ZEZ framework, Amsterdam adapted the rules to local conditions, adding targeted help desks and grant schemes. This interplay reassures actors that local regulations are not arbitrary, but part of a coherent national trajectory, supported by both financial and political capital.

Taken together, these mechanisms — Green Deal agreements, staged regulatory ladders, financial incentives, sector playbooks, living labs, and national-local alignment — illustrate how Amsterdam has embedded collaborative governance into the machinery of policy implementation. They show that "reassuring consensus" is not a static agreement but a continuous process of dialogue, adaptation and shared responsibility, enabling a bold vision for zero-emission logistics to become credible and actionable.

Source: City of Amsterdam (no date), Low and zero emission zone

The concept rests on three interactive components: principled engagement, shared motivation and the capacity for joint action. These dynamics cultivate understanding, trust and long-term commitment through social learning and conflict resolution — making stakeholder alignment central to vision-led planning (Emerson et al., 2012). Leadership, shared purpose and clear governance mechanisms are equally critical in cross-sector collaboration (Bryson et al., 2015). Achieving and sustaining consensus in networked environments is difficult but essential: without it, institutional fragmentation undermines complex policy domains like transport.

Finally, it should be noted that consensus is not just desirable, but necessary for legitimacy and long-term success. Here, the idea of "collaborative rationality" places inclusive dialogue and mutual learning at the heart of planning. Policies co-created through deliberative processes, in turn, are more resilient and more readily implemented. In this light, stakeholder alignment functions as reassurance: it strengthens commitment and mitigates resistance throughout the policy cycle (Innes and Booher, 2010). Thus, consensus-building not only initiates policy but also sustains stakeholder support as implementation begins, ensuring visionary goals can be realised.

Reassuring consensus in practice requires implementation-focused methods, such as the consortium approaches of Gothenburg's "ElectriCity" project or the stakeholder mapping and participation design of London's Crossrail (ElectriCity, n.d.; London City Hall, 2021). Annex B of this report outlines some representative approaches. Given varying scales and stakeholder diversity, alternative and potentially more innovative methods may also be appropriate. Table 18 below summarises some practical considerations and lessons.

Table 18. Practical considerations and lessons for reassuring consensus

Practical considerations	Lessons for application
Timing of establishment and phased introduction	While it is ideal to set up a consortium or council at the early planning stage, attempting to construct the entire framework at once can generate excessive complexity. A more practical approach is to begin with a core member group and expand participation in phases through a "staged introduction."
Clear governance and rule design	Each mechanism (e.g. consortium, open dialogue and participatory communication platforms) should establish decision-making procedures, methods of consensus-building, allocation of responsibilities, financial contributions, and rules for resolving internal disputes in advance. If the consensus process itself lacks transparency, trust can be quickly undermined.
Ensuring neutrality and facilitation capacity	In situations where conflicts between actors are foreseeable, introducing a neutral facilitator — such as an independent expert, academic or professional mediator — can improve both the quality of deliberation and the credibility of outcomes.
Mechanisms for social learning and mutual understanding	Between stakeholders with different values and perspectives, it is vital to provide "pre-consensus educational opportunities" such as workshops, scenario dialogues, vision-sharing sessions and site visits. This practice corresponds to the concept of "collaborative rationality" grounded in mutual learning (Innes and Booher, 2012).
Designing benefit-sharing and "win-win" structures	Creating participation incentives that offer direct benefits is essential — for example, revenue-sharing from modal integration for transport operators, tangible neighbourhood improvements for residents, or local economic revitalisation through public-private partnerships. If consensus is pursued only by demanding "sacrifice," sustainability will be weak.
Monitoring, review cycles and adaptability	Through councils or monitoring committees, mechanisms for regular review and course-correction should be institutionalised. Establishing a pathway to revise the vision when divergences from reality emerge is key to making the initial consensus sustainable over time.

Resource mobilisation and coordination

Ambitious transport policies demand more than political will and stakeholder alignment — they require mobilising and coordinating financial, spatial, technological and institutional resources. Coordination transcends administrative efficiency, unlocking policy capacity and aligning diverse efforts toward shared goals.

Modern public management often requires hybrid approaches that balance specialisation with cross-cutting integration. In transport planning, this translates into institutional arrangements — such as interministerial committees or regional planning bodies — that jointly manage finance, spatial development and technology deployment. Effective mobilisation depends less on resources than on the intent with which they are coordinated (Bouckaert et al., 2010)

In this context, the concept of "policy capacity"— defined as the analytical, operational and political skills and resources needed to execute policy functions — is also particularly relevant (Wu et al., 2015). Operational capacity involves coordinating human, financial and technological inputs across all levels of government. Capacity, meanwhile, cannot be separated from institutional context: resources and coordination are interdependent. In transport, even the most visionary plans fail if cities lack the budget, skilled personnel or institutional support to deliver them.

Finally, coordination is a process of policy integration, aligning goals, instruments and actions across domains and levels of government (Candel and Biesbroek, 2016). Integration requires both vertical coordination (national, regional, and local) and horizontal coordination (transport, land use, environment, finance). This is not a one-off event but an ongoing effort involving joint decision making, information sharing and adaptive governance. For urban mobility, this means that resource mobilisation must be continuous and cross-sectoral. Taken together, resource mobilisation and coordination are central pillars of strategic transport policy: without them, visions cannot move from aspiration to sustained practice. Box 8 illustrates some practical examples of resource mobilisation and coordination practices from Europe and Asia.

Box 8. Practical examples of resource mobilisation and coordination

Financial mobilisation: Switzerland's Financing of Rail Infrastructure Fund

One illustrative case of financial mobilisation is Switzerland's Financing of Rail Infrastructure Fund (Swiss Federal Office of Transport, 2025). Unlike single-year budget allocations, FABI (Finanzierung und Ausbau der Bahninfrastruktur) establishes a permanent, multi-annual fund dedicated to railway expansion and maintenance. Approved by national referendum in 2014, it consolidates resources from federal revenues complemented with earmarked tax-based and infrastructure use contributions (e.g. fuel taxes and public transport surcharges) into a ringfenced budget line. This institutional innovation assures stakeholders that long-term rail projects (e.g. tunnels, high-capacity lines and station upgrades) will not be jeopardised by short-term fiscal cycles. For policy makers, FABI underlines the importance of embedding transport finance in stable, multi-year frameworks that safeguard long-term infrastructure delivery and provide confidence for all stakeholders.

Financial mobilisation: Azerbaijan's Public Transport-Targeted Budget Fund

Another relevant case study of financial resource mobilisation is found in Azerbaijan. A public transport-targeted budget fund was established by presidential decree in 2025 to ensure the sustainability and continuity of regular road passenger transport as well as the quality and safety of services provided to passengers. The fund generates revenues from a portion of the road tax for each litre of gasoline, diesel fuel and liquefied gas, as well as from the fees paid for vehicles entering the paid traffic zones established in the administrative territory of Baku.

Spatial Coordination: France's State-Region planning contracts

One illustrative case of spatial coordination is France's system of contrats de plan État-Région, or state-region planning contracts (Collectivités Locales, 2020). These multi-year agreements align national infrastructure budgets with regional development priorities, covering projects across several sectors including, but not limited to transport and mobility investments, urban transit upgrades and intermodal hubs (Ministry of Ecological Transition of France, 2023; European Investment Bank, 2012; L'Institut Paris Region, 2024; Regional Prefectures of France, 2022). What makes the mechanism spatial in nature is the explicit integration of transport investments within land-use and territorial development strategies (Préfecture de région Bourgogne-Franche-Comté, 2021). For example, the construction of a new high-speed rail station is often linked to surrounding urban redevelopment or logistics hub planning, ensuring that infrastructure spending generates wider spatial benefits (Territoires Renne, n. d.; Eurorennes, n. d.; Bordeaux Euroatlantique, 2025).

Through contractual arrangements, financial resources are not only pooled but also allocated and prioritised through joint agreements: the contracts provide a framework in which regions and the State agree on investment priorities and the distribution of funding across territories (Collectivités Locales, 2020; Préfecture de région Grand Est, 2024). Horizontal coordination is embedded, as transport projects are combined with investments in environment, industry and education, linking mobility improvements to broader spatial planning outcomes. Vertically, the contracts provide a platform where national transport strategies are reconciled with regional land-use visions, reducing fragmentation between levels of government (OECD, 2017; Ministry of Ecological Transition of France, 2023; Préfecture de région Bourgogne-Franche-Comté, 2021). For policy makers, the French approach demonstrates how contractual instruments can embed spatial coordination into resource allocation, ensuring that transport investments are both territorially balanced and aligned with broader urban and regional development goals.

Technological and institutional integration: Singapore's Land Transport Authority

Another illustrative case is Singapore's Land Transport Authority (LTA) (Government of Singapore, 1995). Established as a single agency responsible for roads, public transport and new mobility technologies, the LTA integrates financial, human and technological resources within a consolidated institutional setting under the oversight of the Ministry of Transport. This structure enables coordinated investment in smart traffic management, electronic road pricing and automated vehicle trials, supported by collaborative arrangements with public firms and research institutions. Singapore's example demonstrates how consolidating institutional

responsibility can strengthen operational capacity and ensure that technological innovations are scaled in a coherent and sustainable way.

Institutionalised data governance: Barcelona's Municipal Data Office

Barcelona has shown how data governance can serve as a backbone for vision-led transport and urban planning. Through its Municipal Data Office (Oficina Municipal de Dades, OMD), the city has institutionalised the management of technological and analytical resources that underpin evidence-based mobility and spatial transformation. The OMD oversees data governance, quality and interoperability across departments, coordinating platforms such as City OS and Sentilo, which integrate real-time data on traffic flows, air quality, energy use and public-space occupancy.

This architecture enables the city to monitor and evaluate flagship initiatives like the Superblocks programme, for which available studies and municipal reports indicate reduced car traffic, improved air quality and expanded pedestrian space. The systematic use of such data contributes to closing the loop between long-term urban visions and day-to-day management, allowing planners to track progress, adjust interventions and sustain public trust through transparent reporting.

By embedding data management capacity within the municipal structure, Barcelona transforms technology into an institutional resource. The OMD not only mobilises technical assets but also coordinates human and organisational capabilities, ensuring that transport and urban policies are aligned across sectors and supported by continuous feedback from real-world conditions. In this way, data governance becomes an operational mechanism for vision-led transport planning, translating strategic ambitions — such as reducing car dependency and reclaiming public space — into more adaptive, measurable and accountable practice.

Setting strategic planning and implementation timelines

A crucial element of strategic transport policy is the temporal framing of action — ensuring that ambitious goals are anchored in realistic, sequenced implementation plans. Without clear horizons and interim milestones, long-term strategies risk drifting or stalling. The governance literature offers a strong foundation for embedding time as a structuring device in policy design and delivery.

Visions must be matched with time-bound frameworks (Bryson, 2018). In other words, while long-term objectives must be defined sometimes decades in advance, near- and mid-term goals can be set by working backwards from a target date. This method, known as "backcasting," ensures that near-term choices remain aligned with long-term objectives. For transport planning, this means breaking down a carbon-neutral 2040 vision into specific milestones — for 2025, 2030 and beyond — to ensure investments and decisions support the goals.

Furthermore, strategic planning should incorporate performance monitoring with measurable, time-bound targets and accountability mechanisms. For example, transport agencies can commit to deploying electric bus fleets within three years or implementing congestion pricing within five years, with each milestone linked to broader long-term goals. This reinforces the principle that implementation is inseparable from planning (Poister, 2010).

Sustaining long-term commitments in democratic systems is inherently challenging, however, as short-term incentives often prevail. This is where mechanisms such as multi-year budgeting, parliamentary support groups, independent planning bodies and bipartisan agreements can help safeguard policy durability across election cycles. In transport, they can secure the continuity of infrastructure or decarbonisation projects that typically span decades (Jacobs, 2011).

While long-range scenarios in transport — such as 2050 Net Zero visions — are common, they often lack clear pathways. This underscores the importance of scenario planning and backcasting to define the actions required in the short and medium term. In turn, setting interim targets and ensuring regular monitoring are essential to enabling adaptive management (Banister and Hickman, 2013).

Effective transport strategies must be firmly grounded in time. Vision alone is insufficient; it must be supported by structured, time-framed pathways that guide implementation, measure progress and institutionalise a long-term focus.

Implementation through policy instruments, institutional reform and infrastructure delivery

Visionary goals and strategic planning have little value unless they are translated into concrete action. Implementation requires the careful selection of policy instruments, institutional reform where necessary, and effective frontline delivery. The literature on implementation and public administration highlights both the opportunities and the vulnerabilities inherent in this stage.

Policy success depends on the design and coherence of policy instruments. No single instrument is sufficient on its own; authorities must deploy a coordinated mix of tools (e.g. regulations, incentives, awareness campaigns and infrastructure) that function in concert. Poorly designed or weakly aligned combinations risk duplication, conflict and reduced effectiveness (Capano and Howlett, 2020).

A study of Oakland, California, demonstrates that even straightforward policies may fail amid bureaucratic complexity, procedural bottlenecks and weak coordination (Pressman and Wildavsky, 1984). Streamlined processes and empowered delivery bodies, such as one-stop agencies, prevent costly delays — lessons that are highly relevant to large transport projects. Where policy ambiguity and stakeholder conflict are low, the success of implementation outcomes hinges on administrative capacity: adequate funding, technical expertise and efficient procedures. Even amid consensus and clarity, effective delivery requires sufficient resources (Matland, 1995). Finally, Lipsky (2010) reminds us that policies are realised through the discretionary actions of frontline workers (operators, station staff, maintenance crews) whose decisions shape public experience. Implementation strategies must therefore include training, support and performance management.

Effective implementation demands more than planning and vision: it requires well-designed tools, supportive institutions and empowered people on the ground. Realising transport goals depends on thoughtful instrument selection, administrative reform and attention to the people and processes that bring policy to life.

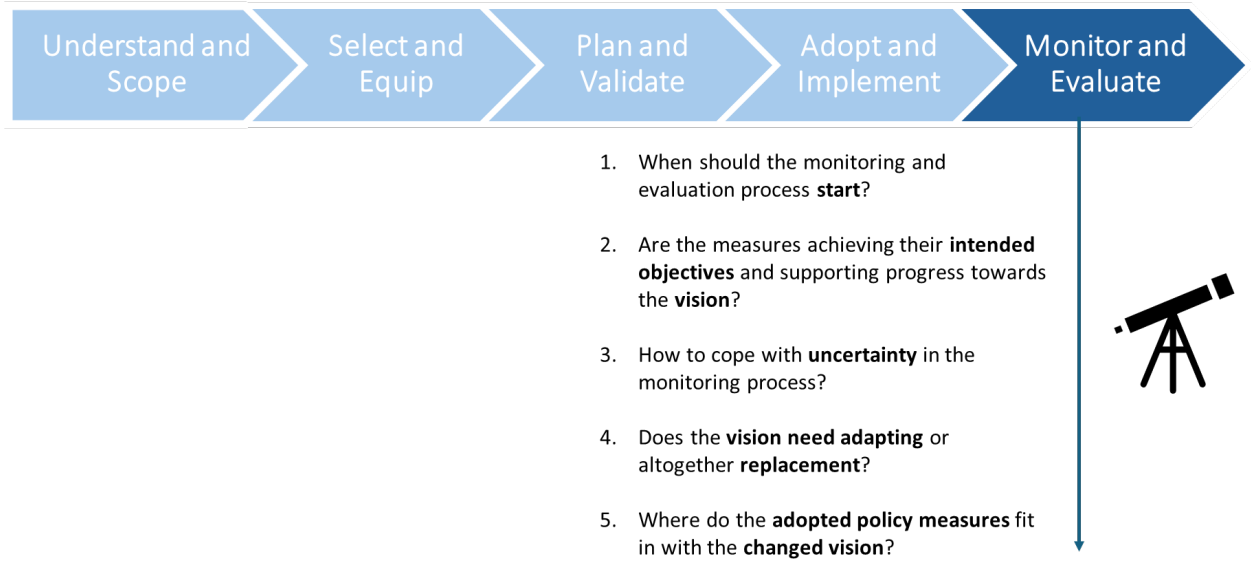
Practical guidance for public authorities

- Lay the ground for implementation through collaborative governance mechanisms. Engage with non-state actors in formal, deliberative decision making to foster trust, strengthen commitment and mitigate resistance throughout the policy cycle.
- Mobilise and coordinate resources both vertically and horizontally. The implementation of ambitious transport policies depends not only on political will and stakeholder alignment, but also on the mobilisation and coordination of financial, spatial, technological and institutional resources.
- Anchor your goals in realistic, sequenced implementation plans. Without clear horizons and interim milestones, long-term strategies risk drifting or stalling. Complement long-term objectives with near- and mid-term steps. Adopt a "backcasting" method to ensure that immediate choices remain consistent with long-term aspirations.
- Ensure your policies persevere across electoral cycles. Mechanisms such as multi-year budgeting, independent planning bodies and bipartisan agreements can serve as important means to safeguard policy durability across electoral cycles. In transport, these can secure the continuity of infrastructure projects that span decades.
- There is no 'one-solution-that-fits-all'. Implementation requires careful selection of policy instruments, institutional reform and effective frontline delivery. Success depends on the design and coherence of policy instruments, including regulations, incentives, awareness campaigns and infrastructure.

Ex-durante and *ex-post* monitoring and evaluation of vision-led planning

After adopting and implementing policy measures, two questions arise: Do they achieve their intended objectives? Is the vision still valid? This chapter explores the process of *ex-durante* (ongoing) and *ex-post* (retrospective) monitoring and evaluation in vision-led transport planning, offering practical guidance rather than an exhaustive list of tools.

Figure 8. 5 guiding questions to ensure your vision-led transport plan achieves its intended objectives through monitoring and evaluation



Source: ITF, 2026

Tracking progress

Monitoring and evaluation remain just as crucial under vision-led transport planning — if not more so. Because vision-led planning focuses on achieving a desired future, continuous monitoring of progress towards the vision is essential to ensure alignment of actions with outcomes. Without it, identifying when and how policy measures need adjustment becomes impossible. Systematic monitoring keeps implementation on track while allowing timely course corrections where necessary.

A monitoring and evaluation framework is typically established in the early planning stages. Responsible departments and organisations must establish the monitoring and evaluation framework before implementation, including clear roles, responsibilities and an agreed baseline ("point zero"). Without these elements, it is impossible to measure progress towards the vision effectively. However, frameworks as well as their key assumptions and data sources should be periodically revisited once monitoring begins, to ensure they reflect the latest insights.

When measuring progress toward a vision, there is a risk of overfocussing on quantitative objectives. Where quantification is not possible, qualitative alternatives become essential. For instance, stakeholder

surveys can pose the question: *Does everyone involved feel that the aspirations as reflected in the vision are being delivered?* Qualitative approaches are particularly valuable when effects are uncertain or span multiple economic and societal dimensions, such as when monitoring transitions or evaluating investments in innovation (KiM, 2025). The Dutch National Government's integrated approach to accessibility policy (rather than a narrow focus on mobility) demonstrates how traditional indicators like travel time and travel time loss can be replaced or supplemented with broader indicators that allow decision makers to assess progress against over-arching economic and social participation goals. This is discussed in further depth in Box 9.

Box 9. From mobility measures to an accessibility vision: Dutch Ministry of Infrastructure and Water Management

The Netherlands is working on a more integrated approach. The Ministry of Infrastructure and Water Management (IenW) is increasingly focused on accessibility rather than mobility, substituting or supplementing indicators such as travel time, travel time loss and journey reliability with ones that take a broader approach. In 2021, IenW's Integrated Mobility Analysis (IMA) introduced an accessibility indicator that considers the range of destinations, their spatial proximity, and the ease of reaching them. The IMA maps out possible future changes to accessibility indicators but stops short of evaluating their effectiveness in meeting policy goals.

The Framework Memorandum, *Mobility Vision 2050,* sets out an overarching ambition rather than specific policy objectives. It brings together partial visions of various aspects of mobility, including car travel, public transport, cycling and goods transport, the 2020-2050 civil aviation policy memorandum, and the role of sustainable energy in mobility. The Framework Memorandum is an umbrella document for the partial visions and defines a strategic course for future policy. It includes the following policy priorities for 2050:

- Integrating objectives to safeguard access to critical socio-economic functions across the Netherlands.
- Leveraging the strengths of all transport modes to achieve accessibility efficiently and effectively providing the right mobility in the right place at the right time.
- Ensuring the future mobility system complies with public frameworks for sustainability, safety and a healthy living environment.
- Developing area-specific approaches in close consultation with administrative partners and mobility system users.

The accessibility vision is still evolving, with only abstract targets and ambitions in place. Defining a more concrete accessibility objective could provide clearer direction and help achieve socially desirable outcomes. A specific target would also make it easier to balance overarching goals — such as economic growth and social participation — against sustainability and road safety, which already have more concrete benchmarks. Moreover, a well-defined, SMART (specific, measurable, achievable, relevant and time-bound) target enhances accountability.

Source: Netherlands Ministry of Infrastructure and Water Management (2024), Mobility Vision 2050 Framework Memorandum; KiM (2023), *Op weg naar bereikbaarheidsdoelen in mobiliteitsbeleid*.

If backcasting is applied in the early stages of vision development, it can also be a valuable tool for tracking progress toward the vision. By drawing a roadmap from the desired future back to the present, backcasting helps to establish a clear delivery plan and identify any gaps or implementation challenges. For instance, if the delivery plan does not include policies that deliver on climate targets, it becomes important to determine whether adjustments are needed to either the plan or the vision itself (Lyons et al, 2025). Developing a roadmap and delivery plan is therefore essential to ensure implementation remains aligned with the vision. Additionally, defining "tipping points" — critical thresholds that signal the need for course correction — can help maintain progress toward the defined goals.

Monitoring can take place at both national and local levels of vision delivery, as illustrated by the examples listed in Box 10. Regardless of the monitoring scale, all cases highlight the importance of having a framework in place before implementation. Smaller, more localised projects may, however, operate with a lighter evaluation framework.

Box 10. National and local examples of monitoring frameworks

New Zealand's Ministry of Transport (MoT)

According to New Zealand's vision, "a transport system that improves wellbeing and liveability … needs to encourage five core outcomes: inclusive access, healthy and safe people, environmental sustainability, resilience and security, and economic prosperity" (MoT, 2020). Based on research and stakeholder consultations, 37 underlying transport indicators have been formulated and organised under these outcomes (MoT, 2022). The Ministry of Transport (MoT) adopts a transport-neutral approach, meaning that all modes are considered and evaluated equally in decision making (MoT, 2020). Consequently, the indicators apply to all (relevant) transport modes: walking, cycling, road, rail, maritime and aviation. By actively collecting data and monitoring these indicators, the Ministry can assess the extent to which each mode (as well as broader transport policy) contributes to the core outcomes (Biscaro et al., 2023).

With this framework in place, both *ex-durante* and *ex-post* monitoring have a strong foundation. However, the framework does not specify the exact interventions the government will pursue to achieve the outcomes. Its primary purpose is to support collaboration across the transport sector, provide a basis for assessing policy effectiveness, and ensure that all modes of transport are considered in planning, investment and regulatory decisions. As of August 2025, the official website displayed indicator outcomes for 2020-2021, with future updates expected to reflect new data, sector developments and other relevant factors.

The United Kingdom's travel plan for local investments

A travel plan is a long-term strategy for managing travel to and from a development site. It aims to promote sustainable modes of transport and reduce reliance on single-occupancy car use. A well-structured travel plan typically includes objectives, measures, targets, monitoring and review plans, as well as management structures. Travel plans are not just tools for planning — they are crucial for monitoring, enforcement, and ensuring the long-term success of a vision-led approach (DfT, 2009). The steps in a travel plan show the importance of monitoring and evaluation during and after execution of the plan. The defined steps are as follows:

1. Monitoring progress toward the vision. Travel plans establish baseline data and regular performance indicators (e.g. mode share targets, CO_2 emissions), allowing stakeholders to track progress and identify gaps.

2. Providing transparency and feedback loops. Through reporting requirements, travel plans create a feedback mechanism for continuous improvement, enabling early interventions when targets are not met.

3. Enabling enforcement mechanisms. Planning authorities can make travel plans enforceable through planning conditions or legal agreements, with penalties or mitigation measures if commitments are not met.

4. Sustaining behavioural change over time. By embedding monitoring and enforcement, travel plans help ensure that sustainable travel behaviours are maintained as the development matures and new residents or users move in.

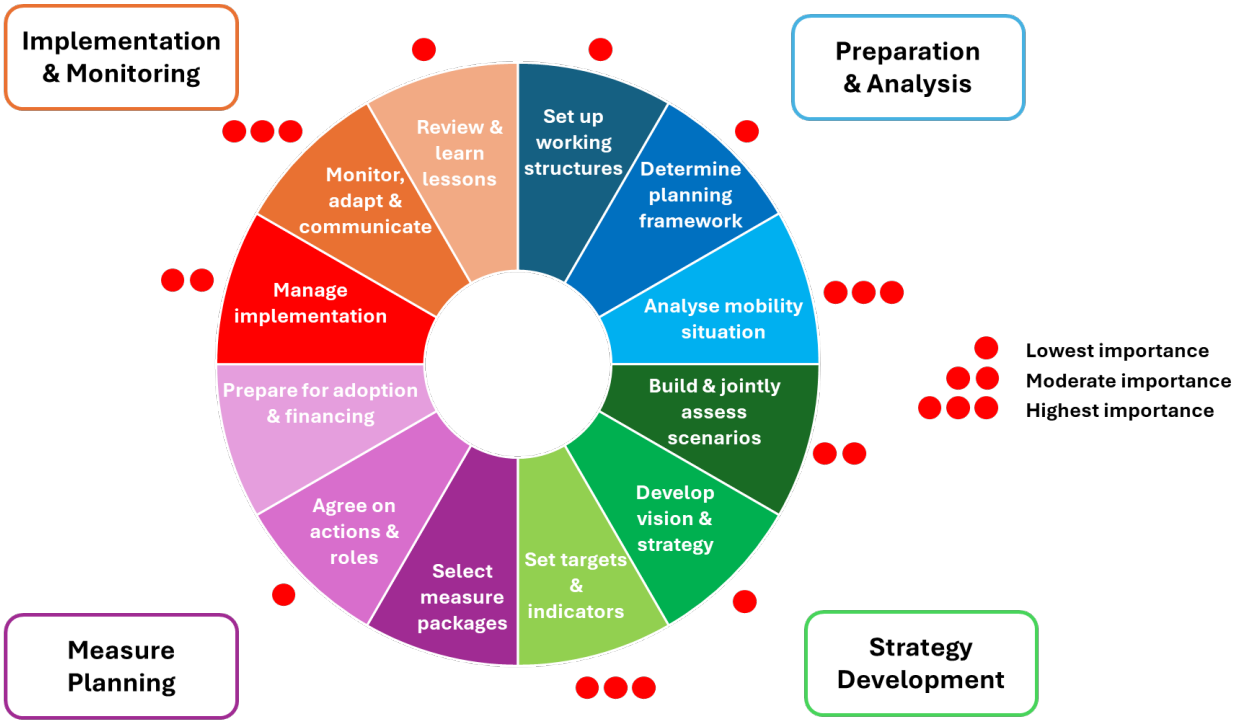
5. Informing future transport planning and strategy. Longitudinal data from travel plans can inform wider area-based transport strategies, helping to refine local policy and improve integration between developments.

Sustainable urban mobility planning in the Baltic Sea region

Sustainable urban mobility plans (SUMPs) require the publication of information on the evolution of urban mobility. This involves defining a limited set of indicators covering sustainability, safety and accessibility. These indicators enable urban nodes to monitor SUMP implementation, provide feedback to cities and stakeholders, and track progress toward established priorities (EU, 2025).

Evaluation of sustainable urban mobility planning and management is a systematic process for assessing the efficiency, effectiveness and impacts of policies, strategies and actions within urban mobility management (University of Gdansk, 2024). Building on previous studies and regional guidelines from cities around the Baltic Sea, an evaluation framework was developed, producing a comprehensive set of indicators applicable to all SUMPs. The report emphasises that monitoring and evaluation should be embedded from the earliest stages of a mobility plan's development and maintained throughout drafting, implementation and beyond. This continuous approach is illustrated by the red dots in Figure 9.

Figure 9. SUMP monitoring and evaluation at different phases



Source: ITF, adapted from University of Gdansk (2024); Rupprecht Consult (2019).

Monitoring and evaluation of specific policy measures

The evaluation process in vision-led transport planning differs in several key respects from traditional approaches. It places a greater emphasis on achieving the vision's goals, aligning with transitions, and incorporating "adaptive programming" to enable course corrections when needed. It also explicitly addresses uncertainty as an integral part of the planning process. These distinguishing features arise from the nature of vision development itself. While evaluating individual policy measures remains important, the differences between vision-led and traditional evaluation approaches become relatively minor once specific measures are defined. In addition to assessing vision delivery, other forms of *ex-post* and *ex-durante* monitoring and evaluation are also relevant, namely:

- Evaluation of the process: Was the policy measure delivered on time, on budget and with the required quality?
- Evaluation of efficiency: Did the policy measure deliver the projected costs and societal benefits (i.e. its projected societal cost-benefit ratio)?

In terms of assessing a measure's efficiency (i.e. the welfare impacts relative to the costs) and its implementation, there are no significant differences between vision-led and conventional approaches. Across the evaluation framework — *ex-ante, ex-post* and *ex-durante* — some elements may not strictly follow the "decide-and-provide" model yet still employ techniques typically associated with traditional planning models.

Taking action amid uncertainty: the need for adaptive programming

Uncertainty is not a steady-state phenomenon. Lyons and Marsden (2021) highlight the importance of ongoing monitoring and review of policies and investments: "As the world continues to evolve (in some ways potentially profoundly and rapidly) the knowledge we have about trends and views about the nature of future uncertainty will also change. A candidate policy or investment may presently be judged to strike a good balance between risk and yield; yet this may change. As such, there is an important role for ongoing monitoring and review of policies and investments."

Vision-led transport planning emphasises adjusting policy measures to achieve set visions despite uncertainties — an approach known as "adaptive programming." This involves defining tipping points that indicate when plans need reassessment.

What is adaptive programming?

Adaptive programming is about dealing intelligently and constructively with uncertainties and opportunities by recognising and then incorporating them into decision making. This approach anticipates uncertainty by identifying tipping points and defining development paths for each phase of implementation. In practical terms, adaptive programming involves identifying when decisions need to be made, when and how to adjust them in response to events, and preparing for any future adjustments when necessary. Adaptive programming is typically applied to projects and programmes involving long-term investments in built infrastructure (e.g. transport, water systems) and spatial planning, with the intention of making decision making more resilient to change. The Netherlands Institute for Transport Policy Analysis (KiM) makes the case for adaptive programming in Dutch infrastructure planning, as

illustrated in Figure 10. Flexible regulations and procedures, particularly relating to procurement, are key to enabling adaptive programming.

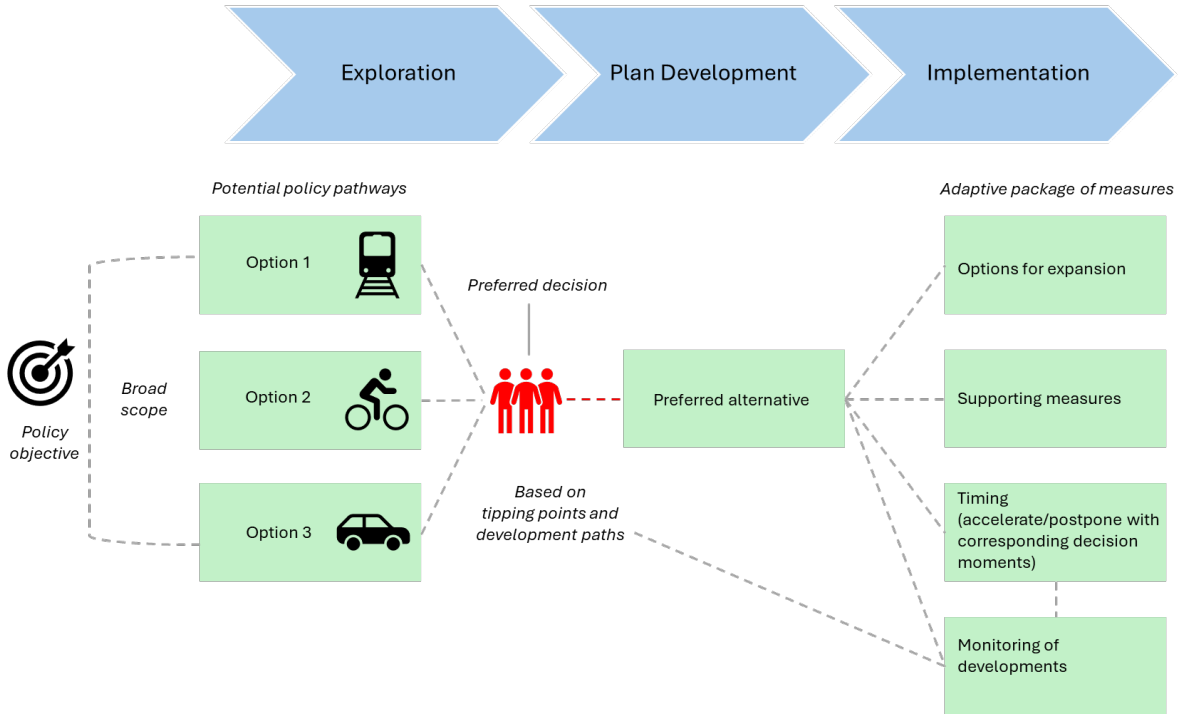
When to use adaptive programming

Adaptive programming delivers its greatest value in conditions of high uncertainty. This is particularly true for uncertainties over which one has little or no control, such as future developments in the global economy. Adaptive programming revolves around anticipating uncontrollable (exogenous) uncertainties that significantly influence decision making — so called "core uncertainties." It is appropriate when such uncertainties exist or when implementation is planned for the long term, typically over a horizon of 10 years or more (KiM, 2017).

When to adjust to the unforeseen

Based on the established long-term vision and the challenges, potential solutions can be devised in the form of programmes, projects and policy measures. KiM uses the concept of development paths, linking long-term challenges and ambitions to short-, medium-, and long-term measures that are mapped out over time.

Figure 10. Illustration of adaptive programming based on The Netherlands' Multi-Year Programme for Infrastructure, Spatial Planning and Transport (MIRT)



Source: ITF, adapted from KiM (2017)

The next step is to determine tipping points — boundaries or turning points that indicate when a decision must be made or an agreed-upon adjustment implemented. These can take three forms:

- A physical limitation (e.g. reaching an environmental limit)
- A chosen policy limit (e.g. after a certain number of houses have been built)
- A scenario limit (e.g. achievement of the energy transition or the transition to self-driving cars)

As part of developing policies that contribute to a vision, it is essential to determine not only when measures should be implemented, but also their form once tipping points are reached. This points back to the importance of monitoring and evaluation in vision-led planning. Under traditional approaches, evaluation is primarily used for accountability — assessing whether measures were implemented as intended — or to draw lessons for future interventions. In contrast, within a vision-led framework, *ex-durante* and *ex-post* monitoring serve an additional purpose: they enable the adaptation of measures when the expected effects are delayed or fail to materialise.

This approach to adaptive programming assumes the long-term vision remains constant. However, visions may also need adjustment over time to reflect geopolitical developments, unforeseen technological innovations, changes in political priorities following elections, or other shifts. Therefore, in addition to defining the tipping points, regularly reviewing the vision's viability is good practice. If the vision changes significantly, it may be necessary to restart the vision-led planning process. At the core of such a process should be an inclusive discussion with all relevant stakeholders addressing questions such as: Does the vision need adapting? Is an entirely different vision needed? How do existing policies align with the changed vision?

Practical guidance for public authorities

- Prepare for monitoring and evaluation before project implementation. Departments responsible for the vision should set out the practical arrangements for executing the monitoring and evaluation framework before project implementation begins.
- Clearly assign roles and responsibilities. In the absence of a structured framework – along with clearly defined roles and responsibilities for the execution of the monitoring and evaluation process and an agreed baseline ("point zero") – it becomes impossible to measure progress towards the vision effectively.
- Avoid overfocusing on quantitative measurement aspects. Where quantitative measurement is not possible, qualitative alternatives need to be considered. These are particularly valuable where limited knowledge exists about potential effects or where impacts are likely to extend across multiple dimensions of the economy.
- Account for uncertainty through adaptive programming. Constructively address uncertainties and opportunities by recognising them and transparently incorporating them into the decision-making process. Define tipping points to maintain progress towards the defined goals.
- Monitor your vision. Visions may change. Take time to reassess them on a regular basis and go back to the drawing board, if necessary. Facilitate the review process by defining these logical reassessment points upfront.

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Annex B. Methods for reassuring consensus

Approach	Case or application	How consensus was built	Success factors and outcomes	Risks and challenges
Consortium-based partnership (public sector, academia, industry, municipalities)	Gothenburg "ElectriCity" project (Sweden)	Local public transport authorities (including Västtrafik), the City of Gothenburg, Chalmers University of Technology, vehicle manufacturers, transport operators, and other industry partners collaborated to demonstrate electric bus technologies and operational concepts. The partnership initially focused on a pilot deployment on a single test line (Route 55).	A formal partnership structure enabled the coordination of technical development, operations, and service design among participating actors. Agreement-based coordination on charging infrastructure, operations, and route planning. Insights from the pilot contributed to subsequent procurement processes and the wider deployment of electric buses in Gothenburg.	The project required ongoing coordination among actors with different institutional roles, investment responsibilities and time horizons. As the partnership expanded, managing organisational complexity and aligning interests became increasingly important.
Councils and monitoring committees (transparent progress review and coordination)	Madrid Nuevo Norte (Spain)	A large-scale urban redevelopment and transport project involving multiple public administrations (City of Madrid, Spanish state-owned railway infrastructure manager ADIF, etc.) and private developers. Coordination has been formalised through successive planning approvals and framework agreements, including the establishment of a monitoring commission.	Framework agreements on key transport and urban infrastructure (suburban rail and metro connections) provided credibility and alignment of transport investments with redevelopment plans. The project's "symbolic value" strengthened legitimacy and citizen support.	Long duration exposes the project to political and financial shifts. Committees risk becoming formalistic and losing adaptive capacity.
Freight Quality Partnerships (FQPs) for urban logistics	Bologna (Italy), SULPiTER	The Metropolitan City of Bologna established a "Freight Board" (an FQP-like mechanism) including logistics providers, retailers and business associations. Regular meetings were held to discuss and adjust objectives, methods and measures.	Reduced silo effects by coordinating across municipal and metropolitan levels. Ensured direct participation of private stakeholders, raising policy acceptance.	Conflicting interests among logistics operators. FQPs alone may not cover broader transport and land-use domains.
Open dialogue and participatory communication platforms	Los Angeles "Vision Zero" and Oslo mobility policies	Workshops, online portals, public hearings and dialogue sessions gathered citizen input and integrated concerns into policy design, aiming to support legitimacy.	Built citizen understanding and supported gradual acceptance of restrictive policies. Visible accountability contributed to trust and credibility.	Risks of one-way communication. Inevitable trade-offs mean not all input can be reflected, requiring strong feedback and accountability mechanisms.

Legal frameworks, ordinances, and Memorandums of Understanding (MOUs) to institutionalise consensus	Barcelona "Superblocks (Superilles)" policy	Implementation of traffic-calmed superblocks has been advanced through municipal planning and traffic-management instruments (e.g., phased interventions), alongside consultation with residents and local business.	Reduced vulnerability to political shifts and leadership changes. Residents and businesses could verify the rules in advance, improving trust.	Over-formalisation reduces flexibility. Strong enforcement at the start can trigger resistance. Effective compliance mechanisms are needed.
Actor mapping and participation design	Crossrail (London)	At project inception, a significant stakeholder mapping exercise was carried out to identify key stakeholders. Key groups (residents, borough councils, rail operators, business associations) were identified, and tailored forms of engagement were designed. Community meetings and specialised working groups were used to address impacts such as noise and traffic restrictions.	Prevented later opposition by ensuring no key stakeholder was overlooked. Designed staged participation, clarifying who should be engaged, when, and how. Built legitimacy by co-developing mitigation measures for construction impacts.	Incomplete mapping risks alienating excluded actors. Misjudging influence or interests can derail later negotiations.

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International Transport Forum

Vision-led Transport Planning

A guide for policy makers

“Vision-led” or “decide-and-provide” approaches to transport planning are driven by tangible, alternative visions of a desired future state. Unlike traditional forecast-based planning, vision-led transport planning begins with a shared, clearly articulated aspiration for the future of society, and the role transportation systems play within it. Vision-led approaches are best suited where planning aims to foster transformative change over longer time horizons — especially when facing deep uncertainty.

While conventional planning tools and methods remain important for evaluating investment and regulation options, a wider set of tools — from horizon scanning to scenario modelling and collaborative simulation – will typically need to be employed especially during the early stages of the vision-led planning process. These tools account for uncertainty, explore multiple possible futures, and build shared understanding among diverse stakeholders.

Taking a vision-neutral approach, this report sets out to provide practical guidance for policy makers and planners seeking to undertake vision-led transport planning. Concretely, it examines where such as approach works best, the key steps involved, and which tools and competencies it requires. In doing so, it investigates the challenges countries face in developing and implementing their visions at the national and local government levels and identifies actionable best practice in vision-led transport planning.

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