

How to design the city of tomorrow

– a guide for today's decision-makers

beyond the obvious



Table of contents

Summary	3
----------------	----------

The never normal era: navigating cities’ systemic challenges	4
---	----------

Impact Leadership for future-proof cities	5
--	----------

Setting a shared long-term vision	6
Aligning local strengths with global trends – Jämsä, Finland	7
Challenge, imagine and act for urban transformation – Vantaa, Finland	8
Preparing for uncertainties through foresight – Tampere, Finland	9

Embedding a systemic approach to value co-creation	10
Turning waste into a resource – Saga, Japan	11
From an old industrial neighbourhood to a blooming community – Kera, Finland	12

Measuring what matters: impact targets and data	13
Innokaupungit – strengthening ecosystem impact	14
Public procurement – maximising societal impact through ex-ante evaluation	15

Designing services for real impact	16
Energy transition as a catalyst for regional vitality – Magallanes, Chile	17
Steering ferry procurement towards the future – ELY Centre, Southwest Finland	18

Driving and leading citywide change	19
Impact as a tool for leadership – Espoo, Finland	20
Integrating sustainability into decision-making – Kauniainen, Finland	21
The Management Flight Simulator for city leaders	22

Way forward	23
--------------------	-----------





Summary

Cities are experiencing rapid change, making it increasingly challenging to plan for the future. Many municipalities face sustainability and economic pressures alongside a growing need to invest in industrial renewal and improved services. This urgency demands a shift in how decisions are made.

Traditional approaches tend to be reactive, fragmented and prioritise short-term outcomes over long-term societal value. However, with the right tools and approaches, cities can better understand and lead impact across societal, environmental and economic dimensions. This enables a shift from reactive governance to proactive, strategic leadership focused on building future-proof cities.

For instance, in Magallanes, Chile, decision-makers and local ecosystem actors worked with VTT to explore green hydrogen as a driver for regional renewal. Ambitious goals for the sustainable growth and people's wellbeing were set, making the rationale behind decisions clear and aligned with a sustainable society. This Impact Leadership approach supported the region to renew itself by encouraging open, evidence-based dialogue and transparent decision-making grounded in measurable indicators.

Similarly, in Jämsä, a small industrial Finnish city, the closure of a major paper mill led the city to broaden its one-sided economy using foresight tools. Through collaboration with VTT and local stakeholders, Jämsä enhanced its understanding of its strengths and business potential and improved its capacity to pilot new technologies.

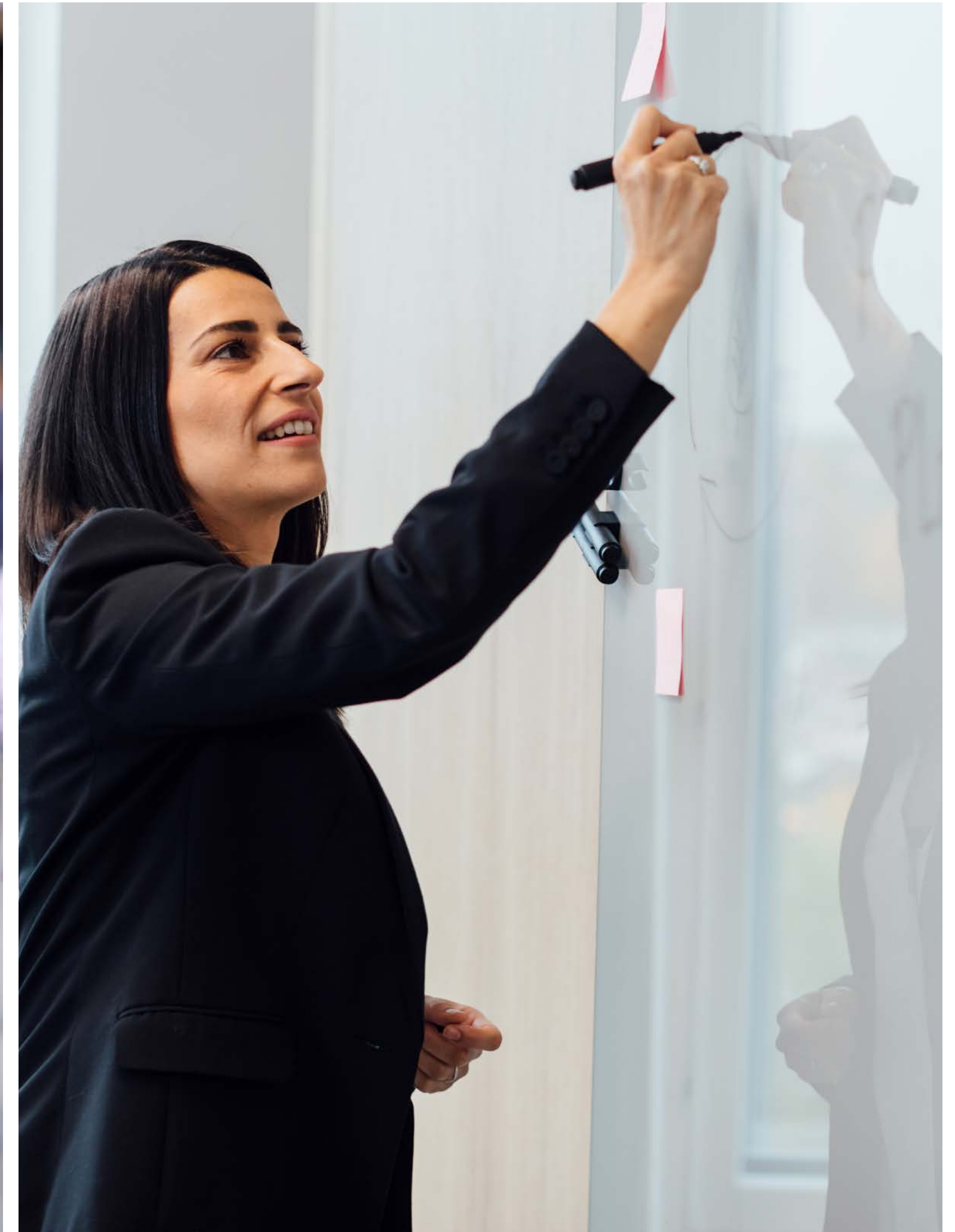
This guide demonstrates how cities have applied VTT's unique Impact Leadership approach to align strategic goals to drive impact. You will discover how the approach enables city leaders to make informed decisions that accelerate sustainable industrial renewal and enhance people's wellbeing.

The never normal era: navigating cities' systemic challenges

Cities today are contending with an ever more complex and interconnected set of challenges. Urbanisation, demographic shifts, climate change, economic transformation and rising demands for services all contribute to a landscape where actions in one area can have far-reaching effects elsewhere. This interconnectedness means that working in silos is no longer sufficient.

Actions are needed faster than ever before. To respond effectively, city leaders need approaches that embrace complexity. This calls for a move away from reactive governance towards proactive, impact-driven strategies. It also requires a fresh perspective: seeing cities as ecosystems, where public sector bodies, businesses, researchers and citizens work together to build resilience and create value through innovative solutions.

The challenges ahead are urgent and complex, but they can be solved. VTT supports leaders in navigating systemic challenges and making informed, future-proof decisions that balance environmental, economic and social sustainability.



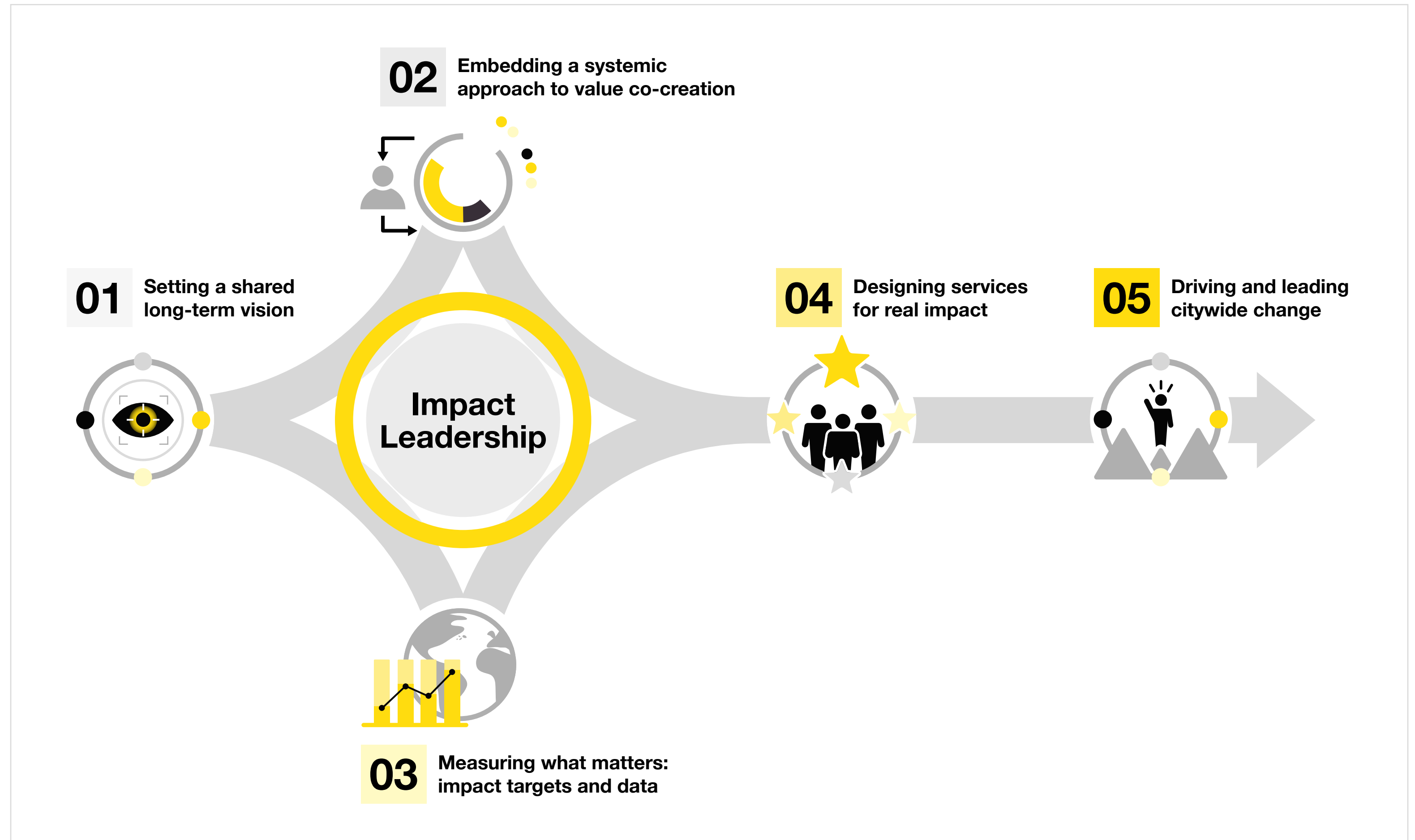
Impact Leadership for future-proof cities

Impact Leadership is VTT's strategic approach, developed to support cities in leading change within a fast-moving world. It provides a structured, evidence-based approach to decision-making, enabling city leaders to align long-term ambitions with measurable impact.

The Impact Leadership approach consists of five interconnected building blocks:

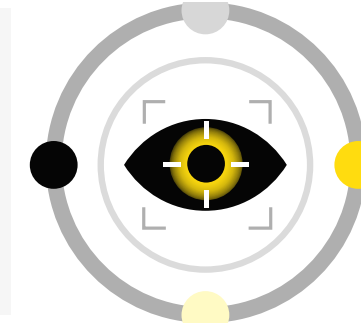
- 01 Setting a shared long-term vision
- 02 Embedding a systemic approach to value co-creation
- 03 Measuring what matters: impact targets and data
- 04 Designing services for real impact
- 05 Driving and leading citywide change

In the following sections, you will be introduced to the five building blocks of the Impact Leadership approach. Through real-world case studies, you will see how cities can combine these methods to best suit their context, using the most relevant elements to create sustainable value for their communities.





01

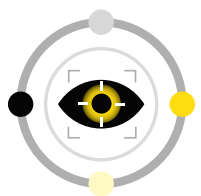


Setting a shared long-term vision

A clear, shared vision for a sustainable future sets the direction for a city's development and helps ensure that individual actions contribute to a bigger purpose. Without a common long-term perspective, efforts across departments and stakeholders risk becoming fragmented or short-sighted.

Setting a shared long-term vision ensures that actions are aligned, and progress is measured across economic, environmental and societal dimensions. This helps city leaders make consistent, future-oriented choices even amid uncertainty and change.

VTT supports cities in this process by helping stakeholders co-create an ambitious yet realistic vision. This ensures that strategic decisions are grounded in evidence, shared understanding and long-term impact.



01 Setting a shared long-term vision

Aligning local strengths with global trends – Jämsä, Finland

Jämsä is a Finnish small industrial city whose economy was heavily dependent on the paper industry. The closure of the Kaipola paper mill in 2020 resulted in the loss of 450 jobs and significant ripple effects throughout the local industrial community. The city faced the urgent challenge of renewing its industrial base and strengthening its innovation capacity.

VTT and local stakeholders applied foresight and ecosystem leadership to guide Jämsä’s renewal with concrete proposals for implementation.

The process brought together insights from foresight work, stakeholder collaboration and strategic analysis to identify strengths and challenges, connect local and regional actors and co-create practical roadmaps for two key development areas: circular economy in Kaipola, Jämsä, and new aviation in Halli, Jämsä.

The project also introduced a tailored ecosystem governance model and proposed a formation of an advisory board to support ongoing collaboration and learning.

The Future Radar enabled open communication and future-oriented discussion among current and potential actors in Jämsä, identifying key drivers and trends such as skills and education, mobility, multi-locality, tourism and the use of natural resources.

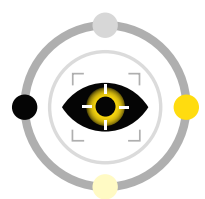
Outcomes:

- Roadmaps for circular economy and aviation
- A process for future RDI development based on the opportunities identified for Jämsä’s industrial renewal
- Actionable proposals for implementation, such as leveraging new technologies, supporting multi-local work and developing new skills and education models
- Foundations for pilots and demonstrations
- A new model for ecosystem governance and leadership

Value:

- Expanded networks and improved stakeholder engagement in relevant ecosystems
- Raised awareness of business opportunities in circular economy and aviation
- Increased business potential and conditions for pilots and demonstrations
- Enhanced capacity for piloting and demonstrating new technologies
- Alignment of local goals with national and international trends in sustainability, security and resilience





01 Setting a shared long-term vision

Challenge, imagine and act for urban transformation – Vantaa, Finland

The Smart City Vantaa initiative was established to clarify the innovation and economic policy objectives in the city of Vantaa, Finland. The aim was to develop a shared vision and a practical roadmap to support renewal, sustainable growth and wellbeing in the city. In collaboration with VTT, the project produced new insights to inform strategic choices and fostered cooperation between city officials, businesses and educational institutions.

The resulting proposal included a roadmap for advancing selected flagship initiatives, notably **Aviapolis**, a business district around Helsinki-Vantaa airport and the **Learning Campus**, a collaborative educational hub.

The Smart Vantaa project applied a structured foresight approach built on three key steps: challenge, imagine and act. The process was participatory, involving key stakeholders in the co-creation of the vision, strategic priorities and roadmap.

By involving key people throughout these sessions, the city's goals and next steps were agreed upon together, making sure the final strategy was based on common understanding and commitment.

Challenge: The team critically examined assumptions about the future, recognising that expectations shape present actions. By challenging different future scenarios, participants broadened their thinking and questioned established beliefs.

Imagine: Participants were encouraged to envision a wide range of possible futures, expanding their perspective beyond narrow or familiar paths. This helped identify which factors have shaped the present and which are likely to influence the future.

Act: The process emphasised that shaping the future requires concrete actions. Participants identified practical steps and initiatives that could enable change, both at the individual and organisational level.

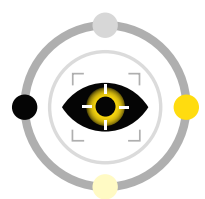


Outcomes:

- A shared vision, strategic priorities and a roadmap for innovation and economic policy
- Co-creation platforms and methods encouraging companies to participate in solving city challenges
- Joint project proposals for national and EU funding, increasing collaboration and access to resources
- Proposals for flagship initiatives, such as Aviapolis and the Learning Campus

Value:

- New knowledge to support Vantaa's strategic choices
- Clear direction for the city's long-term development and strategic work
- A city-wide impact leadership model ensuring delivery on strategic goals with clear monitoring and accountability



01 Setting a shared long-term vision

Preparing for uncertainties through foresight – Tampere, Finland

The City of Tampere, Finland, recognised the need to strengthen its ability to anticipate and respond to rapid changes and uncertainties in its environment. To support its 2030 strategy, the city aimed to embed foresight capabilities across the organisation.

In partnership with VTT, Tampere launched a comprehensive foresight training programme for city experts. The initiative included in-person training days and targeted small-group remote coaching, covering foresight as an organisational capability, key foresight methods and the role of cities as users of foresight. Practical exercises and group work enabled participants to apply new methods directly to real-world challenges such as emission scenarios for urban mobility.

”One of the key benefits was the chance for city experts who think about Tampere’s future in their work to come together. Even though their roles varied, the training fostered rich dialogue around the value of futures thinking and led to practical foresight experiments.”

Johanna Ahlgrén-Holappa, Head of Knowledge Management at the City of Tampere

Outcomes:

- Improved ability to apply foresight in daily work
- Direct application of foresight methods to ongoing projects and strategic planning
- Foresight recognised as a strategic competence area

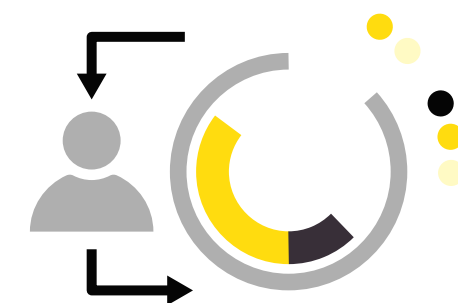
Value:

- A more systematic and inclusive approach to foresight within the city organisation
- Enhanced capability to proactively identify opportunities, prepare for uncertainties, and deliver long-term value for citizens
- Tools enabling more resilient and impactful decision-making





02



Embedding a systemic approach to value co-creation

A systemic approach acknowledges that in cities, every decision and action is connected to a broader network of influences. Rather than considering issues in isolation, it encourages leaders to take into account the interplay between factors such as market conditions, resources, skills and technologies.

This approach is essential for avoiding unintended consequences and for identifying solutions that create value across multiple areas simultaneously. By employing tools such as system dynamics modelling, cities can simulate different scenarios, identify leverage points and understand both the immediate and long-term effects of their choices.

Ultimately, a systemic approach strengthens strategic decision-making by clarifying complex dependencies and supporting more informed, resilient choices.



02 Embedding a systemic approach to value co-creation

Turning waste into a resource – Saga, Japan

The city of Saga faced the challenge of managing agricultural residues. The city was looking for ways to turn local challenges into opportunities by creating a circular economy strategy for agricultural waste.

VTT collaborated with Saga city officials and local stakeholders to apply the VTT CityTune® modelling toolkit and to explore the potential impacts of different circular economy solutions.

Outcomes:

- Holistic impact analysis for evaluating technological potential
- Systemic impact assessment for evaluating the economic and social value of the circular Saga ecosystem
- Methodologies to support municipal decision-making

Value:

- Ability to make more informed, holistic decisions about resource use and waste management
- Support for the city’s transition towards a circular economy, reducing environmental impact and creating new business opportunities





02 Embedding a systemic approach to value co-creation

From an old industrial neighbourhood to a blooming community – Kera, Finland

Kera is a district in the city of Espoo, Finland. The area, formerly an industrial neighborhood, was targeted for transformation into a vibrant and sustainable business and residential centre, aiming to create thousands of new jobs and foster a thriving community. To guide the renewal, key stakeholders were brought together to explore the area’s future and identify shared priorities.

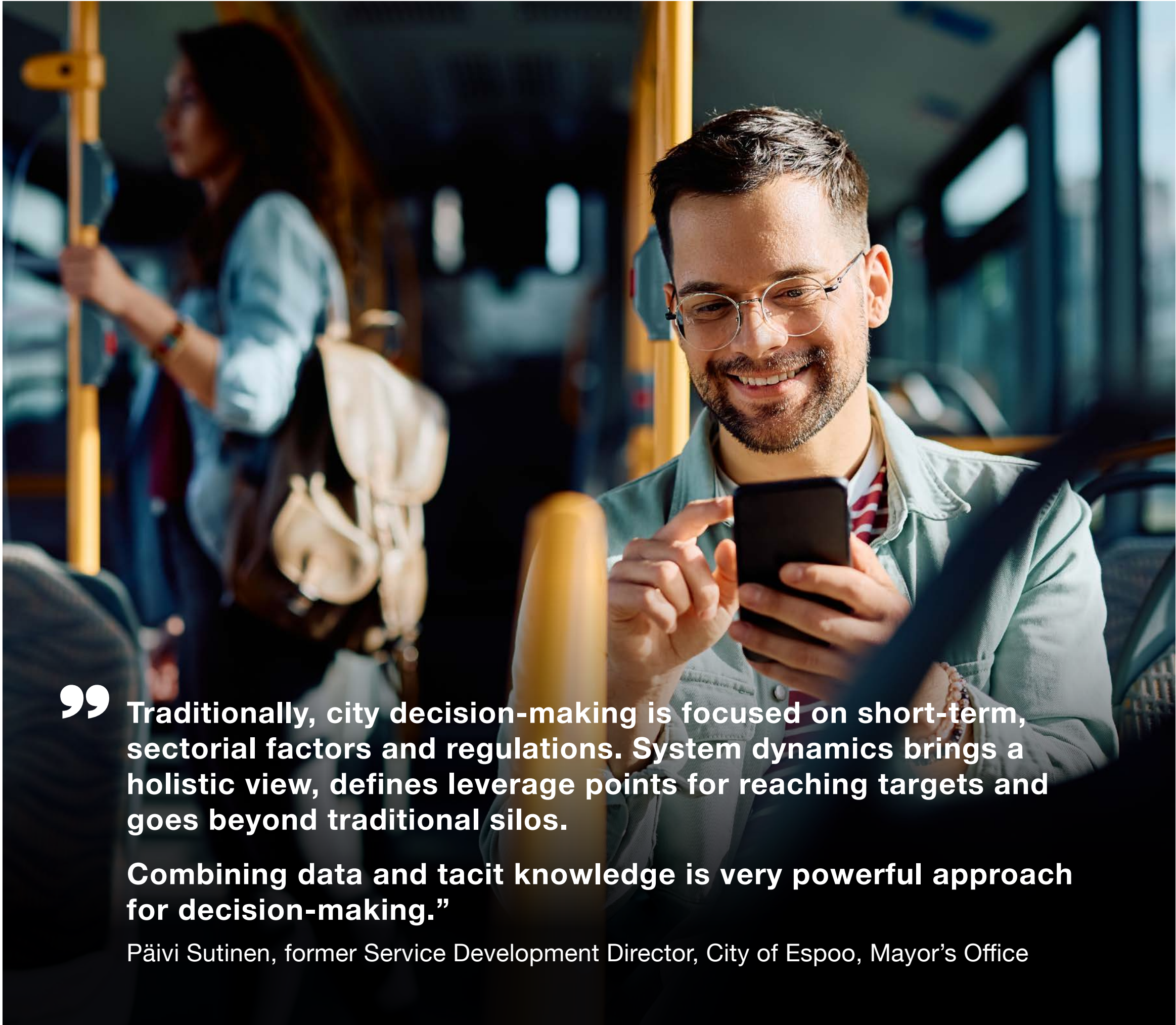
The process uncovered critical questions and provided a deep understanding of what makes the area attractive to citizens, consumers, services and companies. It clarified where development efforts should be directed to enhance the district’s overall appeal, vitality and long-term success.

Outcomes:

- A clear understanding of what could make the area attractive to inhabitants and companies; modelling showed that smooth transport arrangements were a critical success factor
- Detailed recommendations regarding public transportation based on the findings
- Open dialogue and shared understanding among stakeholders

Value:

- Informed and holistic decision-making for urban transformation
- Creation of a sustainable and appealing business and living environment
- Collaboration between the city, businesses and residents, ensuring diverse perspectives shape the district’s development

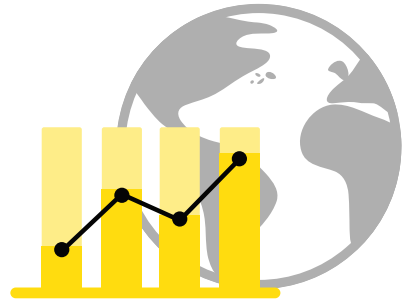


“Traditionally, city decision-making is focused on short-term, sectorial factors and regulations. System dynamics brings a holistic view, defines leverage points for reaching targets and goes beyond traditional silos.

Combining data and tacit knowledge is very powerful approach for decision-making.”

Päivi Sutinen, former Service Development Director, City of Espoo, Mayor’s Office

03



Measuring what matters: impact targets and data

Comprehensive impact indicators help cities set holistic goals and track progress across economic, environmental and social dimensions. Rather than focusing only on financial or technical outcomes, they make it possible to understand the broader value created by decisions and investments.

By combining measurable data with a systems-level perspective, the indicators enable decision-makers to see whether actions are moving in the right direction and at the right pace. They also support more transparent and well-founded decisions by revealing the factors and value choices that influence outcomes.





03 Measuring what matters: impact targets and data

Innokaupungit – strengthening ecosystem impact

Innokaupungit (InnoCities) is a network of 16 Finnish urban regions working together with the state to drive renewal and sustainable growth based on each region's unique strengths.

As Finland faces increasing pressure to reinforce regional competitiveness, the initiative promotes growth through collaboration between cities, companies and research organisations.

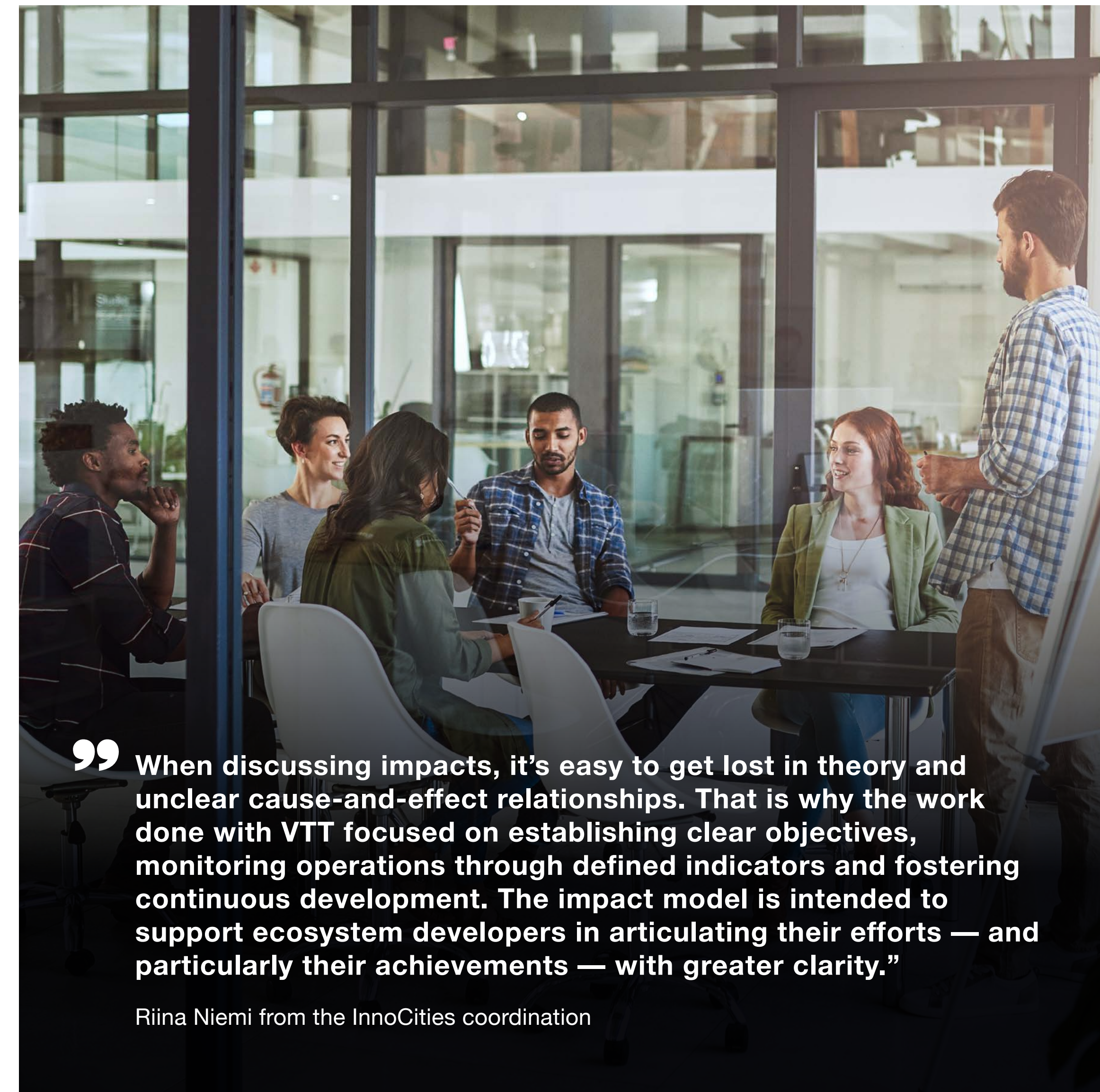
Working with VTT, the network supported cities and their ecosystems in setting holistic goals and metrics to accelerate renewal. The aim was to strengthen collaboration, accelerate the emergence of new growth-oriented businesses, inspire the creation of new services and enhance wellbeing in local communities.

Outcomes:

- Comprehensive impact targets to accelerate growth and renewal
- **Impact pathways** highlighting the unique effects of each ecosystem
- **The Future Radar** tool supporting the use of foresight information in creating growth

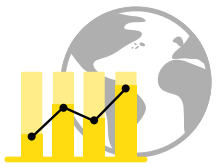
Value:

- Identification of unique pathways mapping resources, actions and milestones for long-term objectives
- Proactive planning and growth through the integration of foresight information into decision-making



” When discussing impacts, it’s easy to get lost in theory and unclear cause-and-effect relationships. That is why the work done with VTT focused on establishing clear objectives, monitoring operations through defined indicators and fostering continuous development. The impact model is intended to support ecosystem developers in articulating their efforts — and particularly their achievements — with greater clarity.”

Riina Niemi from the InnoCities coordination



03 Measuring what matters: impact targets and data

Public procurement – maximising societal impact through ex-ante evaluation

Public organisations are increasingly expected to ensure that procurement decisions deliver measurable societal impact and align with strategic objectives. Traditional procurement often lacks systematic ex-ante – that is, evaluation conducted before decisions are made to anticipate potential impacts. This can result in missed opportunities for value creation and innovation.

VTT developed a practical guidebook and a four-phase process for ex-ante assessment of public procurement:

1. **Recognising the need for an ex-ante assessment.** Identifying when and why a pre-evaluation is necessary, especially for significant or statutory procurements.
2. **Defining objectives.** Setting clear, strategic impact objectives and identifying the impacts to be monitored.
3. **Developing indicators.** Creating measurable indicators and data collection methods to assess achievement of objectives, ensuring data quality and relevance.
4. **Tendering process and procurement documents.** Integrating objectives, indicators and monitoring methods into procurement documents and the tendering process. Impact targets are included as quality criteria (e.g., environmental friendliness, energy efficiency, technical quality), enabling objective comparison of suppliers and solutions.

Value:

- More strategic, impact-driven procurement decisions
- Demonstrating and maximising societal value from public spending
- Innovation and sustainability supported through measurable objectives





04



Designing services for real impact

Designing for real impact means bringing together diverse actors to co-develop solutions and services on shared platforms and testbeds.

By fostering cooperation and experimentation in real environments, this approach helps turn ideas into scalable solutions that deliver tangible benefits for people, businesses and communities.

Whether in sustainable energy, healthcare or other sectors, these collaborative environments enable the creation of future-resilient and broadly beneficial innovations that address real-world needs.



04 Designing services for real impact

Energy transition as a catalyst for regional vitality – Magallanes, Chile

Magallanes, in southern Chile, is undergoing a just energy transition. The region aims to become a hub for new energy solutions, with a particular focus on green hydrogen. NEMa (Technological Hub for the Development of New Energies in Magallanes) was established to support this effort and catalyse regional vitality.

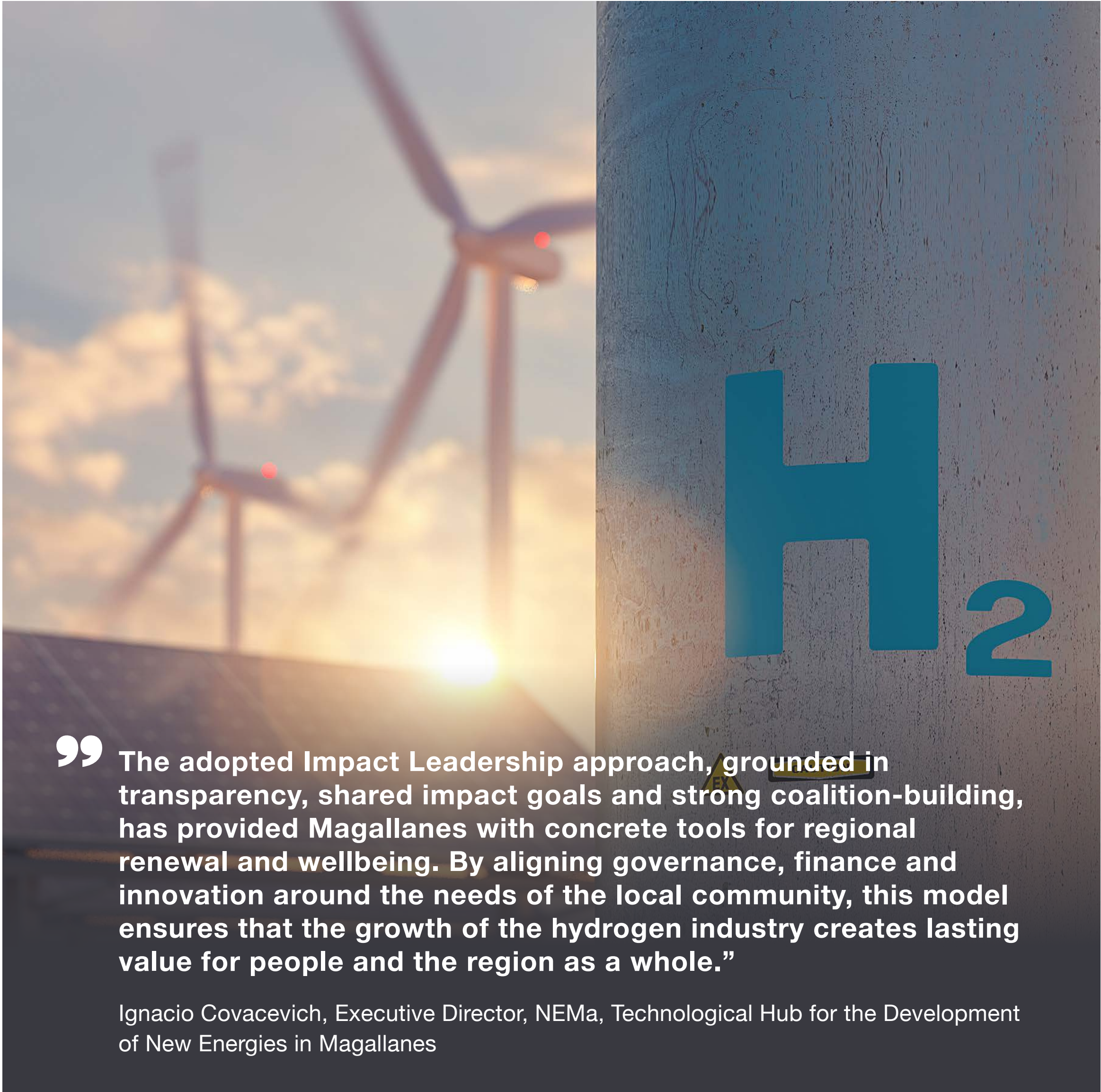
In collaboration with Chilean partners in Punta Arenas and Santiago, VTT helped shape NEMa’s strategic objectives to drive sustainable growth in the hydrogen industry. The work strengthened local capabilities and fostered collaboration across academia, industry, government and civil society, ensuring that industrial development creates lasting value for the region, companies and people.

Outcomes:

- A prioritised portfolio of technologies and innovation pathways suited to local conditions
- Comprehensive impact targets and indicators for the region and NEMa to drive the change and accelerate renewal
- Concrete, detailed and actionable roadmap to guide the Magallanes Technology Center’s activities through portfolio of R&D projects

Value:

- Ensuring that the growth of the hydrogen industry benefits the local community
- Strengthened regional renewal and wellbeing by aligning coalitions, governance and finance around shared impact goals
- Greater transparency and focus in development efforts



” The adopted Impact Leadership approach, grounded in transparency, shared impact goals and strong coalition-building, has provided Magallanes with concrete tools for regional renewal and wellbeing. By aligning governance, finance and innovation around the needs of the local community, this model ensures that the growth of the hydrogen industry creates lasting value for people and the region as a whole.”

Ignacio Covacevich, Executive Director, NEMa, Technological Hub for the Development of New Energies in Magallanes



04 Designing services for real impact

Steering ferry procurement towards the future – ELY Centre, Southwest Finland

The Centre for Economic Development, Transport and the Environment of Southwest Finland (ELY Centre) needed to develop strategic guidelines for the procurement of ferry services in Finland's archipelago. The initiative was driven by evolving user needs, changes in legislation, national climate targets and increasingly strict maritime emission requirements.

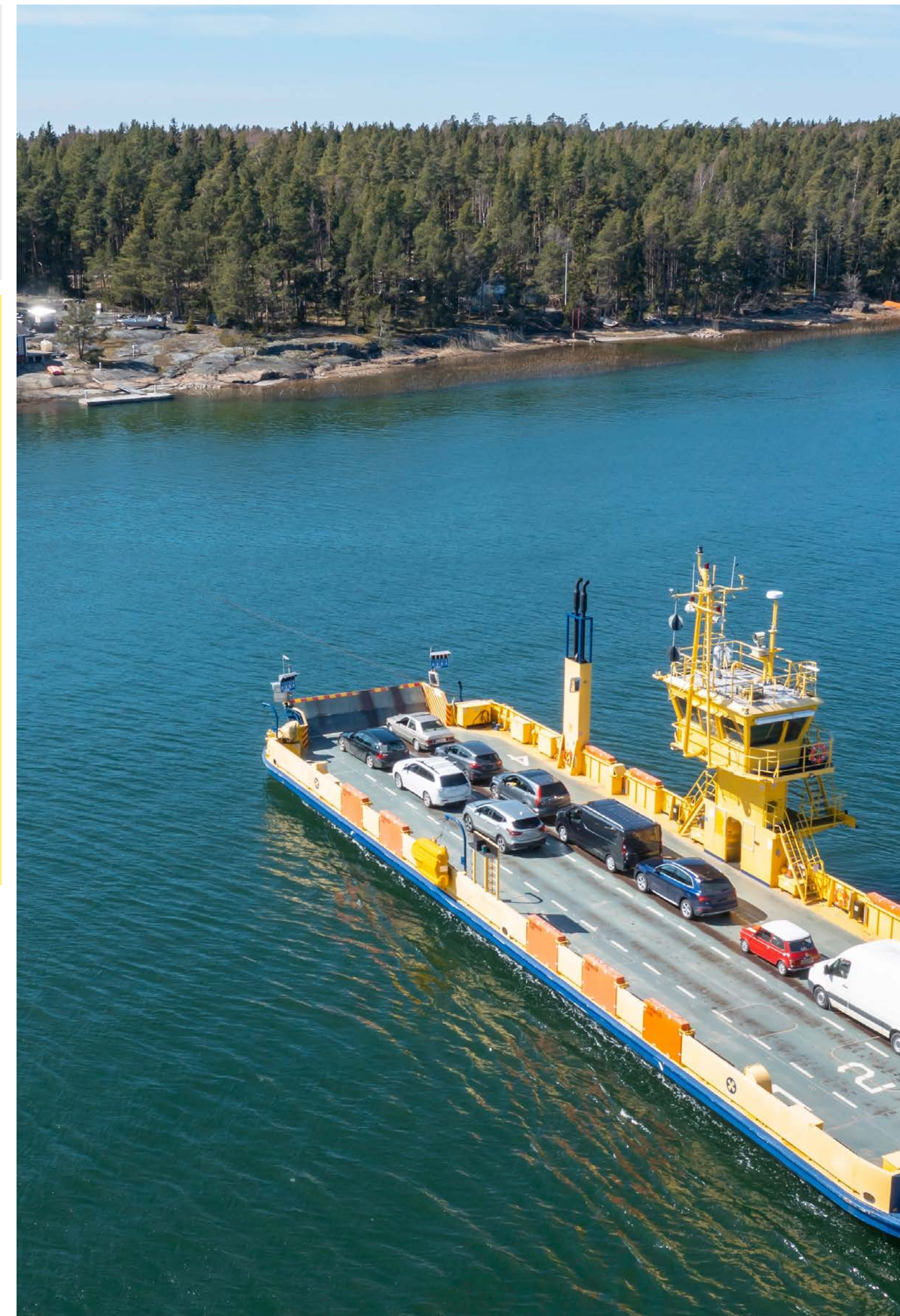
VTT supported ELY Centre by mapping changes in the operating environment affecting procurement strategy choices, service needs, corresponding technological opportunities and available funding options. As a result, alternative procurement models and criteria were developed for the tendering of low-emission ferry services.

Outcomes:

- Information to support strategic choices
- Assessment of companies' and stakeholders' perspectives
- Evaluation of alternative procurement models and criteria

Value:

- Actionable recommendations for procurement models, contract terms and environmental criteria to support informed decision-making
- Evaluation of the suitability and impact of new technologies for ferry operations to identify future opportunities and risks
- Clarification of methods to set and measure environmental targets in procurement to support climate and emissions goals
- Mapping of national and EU funding opportunities for innovative public procurement and vessel investments to facilitate access to external resources



05



Driving and leading citywide change

Effective change requires both direction and action. Building on a shared understanding of priorities, organisations and communities can identify the concrete actions needed to move from strategy to implementation.

Short- and long-term planning provides a structured roadmap, ensuring that actions are sequenced, achievable and aligned with overarching goals.

This phase is essential for turning visions into actionable results and maintaining momentum throughout the change process. VTT supports cities in this work by helping define priorities, align stakeholders and translate strategic goals into actionable plans.





05 Driving and leading citywide change

Impact as a tool for leadership – Espoo, Finland

In 2019, the City of Espoo in Finland partnered with VTT to ensure that urban development reflected the diverse needs of its community. The work was already underway, but the pandemic further pushed Espoo to rethink how to best serve its residents. Espoo began adopting a systems-thinking approach, broadening its focus beyond traditional economic indicators towards a more citizen-centred perspective. Through this process, it became evident that the city required wider goals and indicators, as well as new forms of data, to better support informed decision-making.

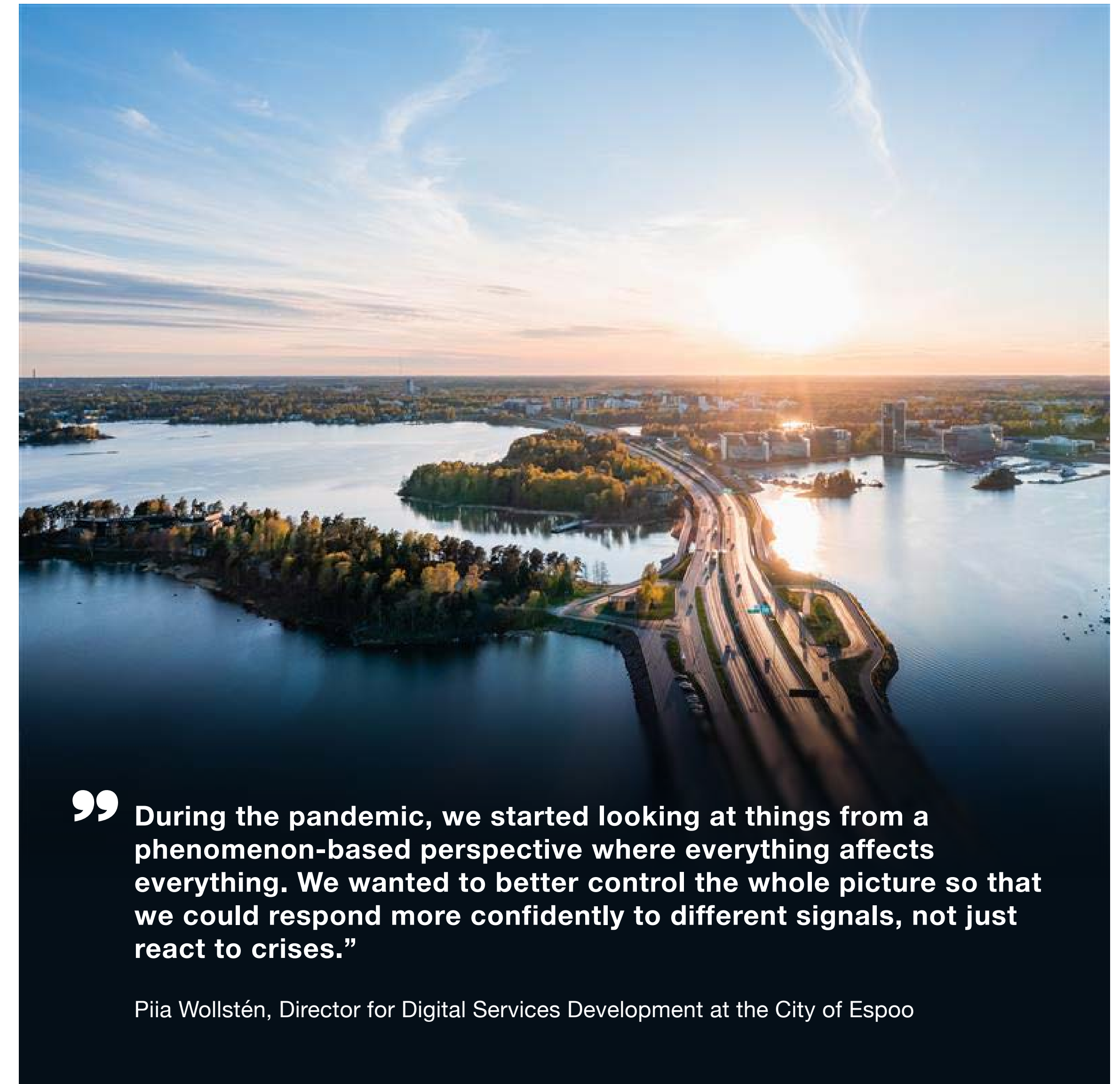
Impact leadership was brought to the core of Espoo's strategy, embedding an impact-oriented mindset into its development work. Strategic-level development was extended across the city to support the advancement of various services, including immigration, early childhood and cultural education, centralised parking and senior sports.

Outcomes:

- A new leadership model to drive impact based not solely on financial figures but on more balanced view on economy, sustainability and wellbeing
- Practical tools such as comprehensive impact frameworks, indicators and roadmaps to support city leadership development
- Impact chains clarifying how different actions contribute to broader goals

Value:

- Increased transparency in how decisions interact and contribute to overall impact
- Better alignment of strategy, objectives and actions for lasting positive change





05 Driving and leading citywide change

Integrating sustainability into decision-making – Kauniainen, Finland

City of Kauniainen in Finland aims to achieve regional carbon neutrality by 2030 and become a global model city for responsible living. The city also aims to halt the biodiversity loss by 2031 and to be nature-positive by 2050. In Kauniainen, responsibility means promoting a way of life that is ecologically, socially and economically sustainable.

Integrating sustainability into all decisions is a challenging goal that requires ongoing commitment. At its core, this means considering different perspectives in every decision-making situation. To achieve this, Kauniainen partnered with VTT to apply an evaluation framework designed to surface key questions and bring together a diverse group of stakeholders and experts for collective reflection on all perspectives.

As a result, a practical decision-making tool was developed to help city leaders systematically address the essential elements of responsible decision-making, including goals, actions, impacts, indicators and monitoring as well as vision and context.



Outcomes:

- Clarified future vision and defined context and boundaries for decisions
- Objectives set in line with the vision through broad stakeholder collaboration
- Identification of concrete actions to advance the objectives
- Assessment of the impacts of decisions and actions from a comprehensive sustainability perspective
- Clear metrics to monitor and guide effects over time

Value:

- Improved transparency and inclusiveness in municipal decision-making
- More sustainable and well-founded choices
- Shared understanding and commitment among stakeholders
- A practical tool for ongoing evaluation and adjustment of decisions



05 Driving and leading citywide change

The Management Flight Simulator for city leaders

Historically, city decisions have often prioritised immediate, sector-specific concerns and regulatory requirements. By applying system dynamics, leaders can adopt a more comprehensive perspective, identifying key points of influence to achieve objectives and overcoming the limitations of working in isolated silos.

The Management flight simulator illustrates how modelling can support cities in making timely and well-informed decisions. By simulating different scenarios, city leaders are able to see the likely outcomes of various choices and identify which solutions are most effective in achieving their goals. This approach helps to clarify the interactions between decisions and their overall impact.

VTT partnered with the city of Espoo, Finland, to find an innovative approach to the COVID pandemic. With the help of the management flight simulator, VTT and Espoo mapped the potential impacts of policy actions under different future scenarios.

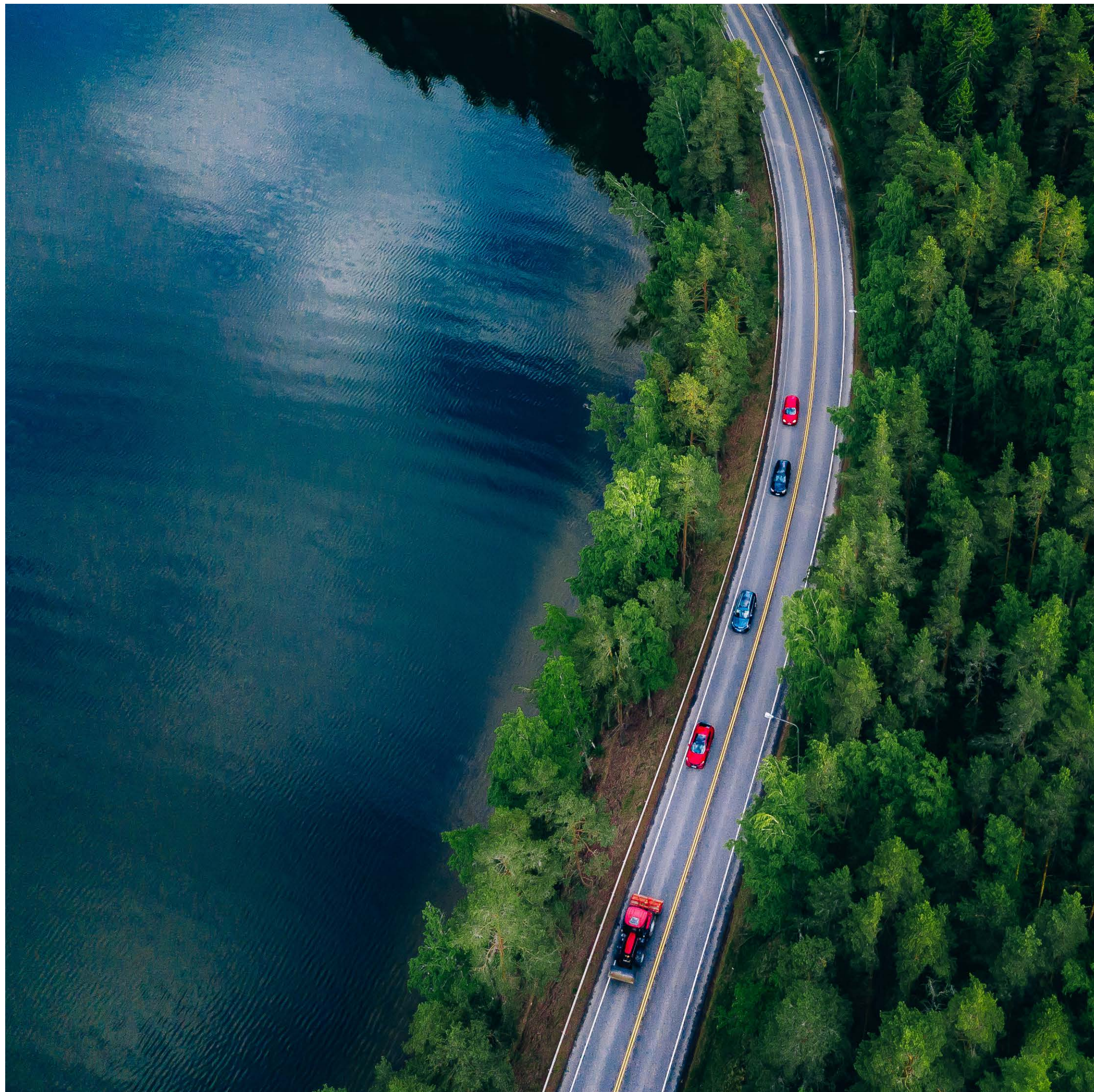


Outcomes:

- A management tool integrating data and allowing leaders to test different decisions before acting
- Modelling of the complex urban system and linkages between its key elements

Value:

- Time and money saved in responding to new phases of the crisis
- Mitigation of harmful effects of the virus on citizens and businesses



Way forward

Impact Leadership helps cities grow sustainably by bringing scattered efforts together into an impact-driven plan. It unites public leaders, businesses, researchers and communities to co-create resilient, future-proof solutions. By focusing economic, environmental and social value together, the approach helps cities move from reactive decisions to strategic, evidence-based leadership aligned with long-term wellbeing.

While the approach has already demonstrated its impact in strategic renewal, industrial transformation and ecosystem development, its principles are equally powerful in other domains. For instance, it can be applied to:

- **Healthcare service processes:** Bringing together healthcare providers, municipalities and citizens to redesign care pathways for better outcomes and efficiency.
- **Large-scale energy solutions:** Aligning city governments, energy companies and technology partners to plan and implement sustainable energy investments.
- **Strategic investments:** Supporting transparent, evidence-based decision-making for major public investments, ensuring that choices maximise societal value and long-term sustainability.

Ultimately, the way forward is about fostering a culture of collaboration and continuous learning where cities, regions and their partners work together to anticipate challenges, seize opportunities and create lasting value for all.

How can we support you in designing the city of tomorrow, today?

Contact us:

Antti Kojola
Solution Sales Lead,
Foresight and Data Economy
antti.kojola@vtt.fi

Editors:

Kirsi Hyytinen
Research Team Leader,
Future-proof Society
kirsi.hyytinen@vtt.fi

Kalle Kantola
Vice President,
Foresight and Data Economy
kalle.kantola@vtt.fi

Johanna Leväsluoto
Senior Scientist,
Future-proof Society
johanna.levasluoto@vtt.fi

Peter Ylén
Lead,
System Dynamics
peter.ylen@vtt.fi



beyond the obvious

VTT is a visionary research, development and innovation partner for companies and society, and one of the leading technical research organisations in Europe.
We promise to always think beyond the obvious.

www.vttresearch.com