



Proposal to Kvarken Council

FLINC: Financing Large-scale Infrastructure - Nordic Connector

Reference RFQ in Hilma:

<https://www.hankintailmoitukset.fi/sv/public/procurement/109289/notice/158050/overview>

PBI Research Institute Oy Ab

Kim Wikström, Senior Partner, Chairman of Board
Anders Jungar, Manager, Strategy Consulting

June 2025

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Introduction

- We thank you for the opportunity to offer our expert services to support the Kvarken Council and its partners in the ambitious analysis and planning of the Nordic Connector. We see that aspects related to security of supply, defense, socio-economic including Wider Economic Impacts and environmental topics are particularly central in creating a sustainable and bankable investment. The strong collaboration between the regions and the two countries and how it can be elevated to a new level is crucial in the planned investment.

Our core competencies and characteristics:

- Practical experience combined with theoretical knowledge to assess various types of delivery and financing models for large-scale infrastructure investments based on alternative financing as public-private partnerships (PPPs). PBI has been involved in the Nordic Connector/Kvarken Fixed Link project since 2022, when PBI was commissioned to assess business proposal from international investors and contractors. Other cross-border infrastructure projects include the Aurora Botnia ferry, where PBI was involved in evaluating the financial feasibility and larger economic impacts of the ferry and related port infrastructure investments. PBI has also been instrumental in developing green maritime corridors between Nordic countries and Estonia, involving investments into electrification, new ships and other port infrastructure (see references).
- Strong networks and experience in collaborating and negotiating with national authorities in both Finland and Sweden, cities and municipalities, institutional and private infrastructure investors, lenders, contractors and industrial companies in the energy and transport sectors as well as ports.
- A collaborative network with world-leading partners regarding methods to develop sustainable infrastructure investments with the highest possible social benefit and productivity.
- Full independence from infrastructure investors, lenders and contractors.

Our team for the assignment

(ref. RFQ 'kvalificeringskrav', points 1, 1.1, 1.2, 1.4, 9)

Role in project	Name	Main responsibility
Project Manager (SWE: Utsedd ansvarsperson)	Anders Jungar	Primary contact person towards the Kvarken Council. PBI project manager for assignment.
Project Owner at PBI, Advisor	Kim Wikström	Risk evaluation and logic for connecting Wider Economic Impacts to financing model. Participate in business case analysis and financing model evaluations. Substitute for Jungar as PM (in case needed).
Senior financial analyst	Jonas Spohr	Review of financial analysis and modelling, evaluation of alternative financing models.
Financial analyst	Emil Holmberg	Financial analysis and modeling. Data collection and benchmarking analysis of other transport infrastructure megaprojects.
Senior advisor	Jan-Erik Stenman	Support in evaluating alternative financing models and dialogue with private investors.

PBI's team has reserved sufficient time to carry out the assignment and is available for the full contract period as per Kvarken Council's request, i.e. from date of signed contract to 31.12.2026. PBI is ready to start the assignment immediately after contract signing. Other PBI personnel will be involved, as needed, to secure successful delivery of the assignment.

Brief description of our resources for the assignment (1/2).

See Appendix for full CVs.

(ref. RFQ 'kvalificeringskrav' points 1, 1.1, 1.2, 1.4, 4, 6)

Dr. Kim Wikström is a professor of Industrial Engineering and Management at Åbo Akademi University and the founder, chairman of Board, and senior partner of PBI Research Institute Oy Ab. Wikström is an internationally recognized researcher and consultant in alternative delivery and financing models for infrastructure and industrial projects including cross-border projects. He has served as a guest professor at institutions such as Stanford University (2013–2018). Wikström holds several board positions and has consulted both private and public actors in demanding expert assignments, where he has also been able to utilize a broad international research network. Through client assignments and his own research, Wikström has significantly advanced the development of theoretical and practical models in infrastructure projects. Collaboration with the Finnish Ministry of Transport and Communications, industrial companies, construction firms, and infrastructure investors is an important part of the development of infrastructure projects. Wikström acts as an advisor for infrastructure projects, particularly in PPP projects and during the early phases of investments.

MSc (Eng) Anders Jungar is a senior consultant at PBI and member of the company's management team. Jungar's area of expertise lies in alternative delivery and financing models, as well as associated business models for capital-intensive infrastructure investments. Jungar has served as PBI's project manager for several client assignments in infrastructure projects for both public and private sector clients, including the analysis of business proposal in 2022 for the Kvarken Fixed Link. Through these assignments, Jungar has built a broad network with organizations such as the Ministry of Transport and Communications, the Finnish Transport Infrastructure Agency (Väylävirasto), Sweden's Trafikverket, cities, private infrastructure investors and lenders, as well as infrastructure construction companies. Jungar has also been the project manager for several client assignments related to sustainable business development and practices (P2X, electrification of transport, water infrastructure) and how business implications of related EU regulations (CSDR, EPR, Green Claims directive, AFIR etc)

Brief description of our resources for the assignment (2/2). See Appendix for full CVs. (ref. RFQ 'kvalificeringskrav' 1, 1.1, 1.2, 1.4, 4, 6)

Dr. Jonas Spohr is PBI's senior expert in financial analysis of infrastructure investments and a senior university lecturer in Industrial Engineering and Management at Åbo Akademi University. Spohr has extensive practical experience in the financial market, both in private project financing and in the analysis of listed companies. He actively develops models for PPP structures considering financial aspects. He has been involved in developing structures and financial models for investment alternatives in close collaboration with corporate management and institutional investors.

MSc (Financing) Emil Holmberg is an analyst at PBI with extensive expertise as a former financial advisor, specializing in financial planning and investment analysis.

Master of Law Jan-Erik Stenman is a senior advisor at PBI with over 30 years of experience in financing, particularly in Corporate Finance, Project Finance, M&A, risk management, and investment operations. He is a former CEO of Veritas Pension Insurance and previously served as Head of Finance for Nokia in North and South America, as well as holding several financial positions at Nokia and within the banking sector.

PBI has the financial, technical, and professional qualifications to carry out the assignment. (Ref. RFQ 'kvalificeringskrav' point 1.3)

- PBI Research Institute Oy Ab (VAT number 1718767-6) was founded in 2001 and has a solid financial foundation. PBI's annual turnover during 2021–2024 has consistently been over €1 million. Turnover in 2024 was €1,7 million.
- PBI's main owner, the PBI Foundation (VAT number 1719400-8), has a solid financial position and the necessary economic resources to support PBI as needed, ensuring that assignments can be carried out as planned.
- PBI's project organization is based in Turku and Helsinki. The experts can participate in physical meetings both within and outside Finland's borders as per Kvarken Council's request. PBI also has a large network of international experts on infrastructure financing. These experts can be engaged in e.g. workshops to assess financing models for the Nordic Connector.

Experience in advising the public sector in connection with privately financed infrastructure (Ref. RFQ 'kvalificeringskrav' points 2 and 3, Qualitative assessment criteria 1, 2)

We have extensive experience in advising both public and private parties. Examples of infrastructure projects where we have acted as advisors, **resulting in transactions**:

- **Aurora Botnia:** Included a private partner in the form of 'vendor financing' via Wärtsilä. The financing of the vessel is also based on a loan from the EIB (European Investment Bank). PBI's contractual partner was the Kvarken Council.
- **TT-Line Company Pty. Ltd.: Two new passenger ferries.** The ferries are delivered by Rauma Marine Constructions.
- 380MW investment program for Metaenergia: A total of six gas-powered balancing power plants from **Wärtsilä** to support the integration of renewable energy into Italy's energy market.

See Appendix for further references involving consulting the public sector (e.g. Ministry of Transport and Communication in Finland, Finnish Transport Infrastructure Agency, Ministry of Finance, Ministry of the Environment, Port authority).

PBI has in-depth knowledge about national and international financing models for transport infrastructure (Ref. RFQ 'kvalificeringskrav' points 2 and 3)

PBI possesses in-depth knowledge of the various financing models used today in Finland, the Nordics, and internationally. PBI has worked with both financiers and project owners/clients from both private and public sectors.

Since 2008, PBI has participated internationally and nationally in developing new financing and delivery models for infrastructure, including new types of incentives and role distributions between public and private actors. This work has been done in close collaboration with Finland's Ministry of Transport and Communications, Finnish Transport Infrastructure Agency (Väylävirasto) as well as Trafikverket in Sweden. Internationally, PBI has conducted research and has collaborated together with leading universities such as Stanford University, University College London and Royal Institute of Technology in Stockholm (KTH) in developing financing structures and models for large-scale cross-border infrastructure.

Our core competence is in various alternative models, especially PPP models and their suitability in a Nordic context considering e.g. the risk profile of investments, investment size (CapEx) and capabilities of both the public and private sector. Our international network of investors and experts serves as a strong foundation for creating the best possible financing structures, considering the specific characteristics of individual investments and their expected societal benefits. Key aspects in the analysis of financing structures include opportunities for user fees as well as capitalizing on Wider Economic Impacts (WEI) to enable the investment. We have conducted several studies of cross-border infrastructure investments.

Examples of PBI's reference projects (Ref. RFQ 'kvalificeringskrav' 4, 5, 6, 7 and Qualitative assessment criteria 2, 3, 4, 6) (See Appendix for details)

Reference	Scope of PBI's work	Financial modelling?	Evaluation of financing models?
Kvarken Fixed Link/Nordic Connector	<ul style="list-style-type: none"> Evaluation of business proposals from international investors and contractors. Work included arranging hearings with actors, discussions with infrastructure investors, EIB, NIB, offshore wind developers and major infrastructure contractors. 	No	Yes
Port in Finland (confidential)	<ul style="list-style-type: none"> PBI as financial advisor to port's CEO Financing structure and detailed financial modelling for +100 MEUR port investments. Supporting client in discussions and contract negotiations with private infrastructure investor, lenders and offtaker. Developing regional and port capabilities to enable the construction and maintenance of large-scale offshore wind investments in the Baltic Sea, especially in the Bothnian Sea. 	Yes	Yes
E18 Raisio center road project	<ul style="list-style-type: none"> Value for Money (VfM) analysis for evaluating suitability of availability-based PPP model for the investment (CapEx 235 MEUR). Analysis done in close collaboration with the Finnish Transport Infrastructure Agency (FTIA), involved detailed financial modelling and risk quantification. Summary report. Full VfM-analysis is confidential and only shared with FTIA. 	Yes	Yes
Aurora Botnia ferry	<ul style="list-style-type: none"> Alternative financing- and delivery models for the new ferry. Impact analysis. Detailed cash flow analysis for the new ferry to assess debt carrying capacity. Reference project fulfils RFQ qualitative assessment criteria 6, 7 	Yes	Yes
Parainen-Nauvo fixed link	<ul style="list-style-type: none"> Cost Benefit Analysis (CBA) Detailed financial modelling to assess alternative delivery and financing models based on PPP. Estimation of revenue potential from user fees and how to connect property value increase to financing structure. Market dialogue to assess feasibility of PPP3 model. Analysis of optimal ownership structure (private-public) for SPV, benchmarking large Nordic PPP projects. All public reports available at https://vayla.fi/parainen-nauvo-kiintea-yhteys 	Yes	Yes

Further examples of PBI's reference projects. (Ref. RFQ 'kvalificeringskrav' 4, 5, 6, 7 and Qualitative assessment criteria 2, 3, 4, 6) (See Appendix for details)

Reference	Scope of PBI's work	Financial modelling?	Evaluation of financing models?
<p>DECATRIP (Green maritime corridor between Turku-Stockholm)</p> <p>FUSE (Fully electric ship, Helsinki-Tallinn route)</p>	<ul style="list-style-type: none"> • DEACATRIP: PBI initiated and coordinated DECATRIP. In addition, PBI developed the business case and business model for low-emission shipping on the corridor. • FUSE: PBI initiated, secure financing and coordinated FUSE. Business model and business case assessment for fully electric RoPax ship • Reference projects fufils RFQ qualitative assessment criteria 6, 7 	Yes	No
Financing of infrastructure investment to enable large-scale production of e-fuel (P2X)	<ul style="list-style-type: none"> • Economic impact and benefits to region from local e-fuel production • Prefeasibility study on how to finance infrastructure investment to enable local e-fuel production. 	Yes	Yes
Liikennehankkeiden vaikutusten hyödyntäminen osana rahoitusta	<ul style="list-style-type: none"> • Evaluation of how property value increases could be linked to the delivery and financing models (case E18 Kotka-Koskenkylä and Raidejokeri high-speed tram), including detailed financial modelling • Analysis of the application of the Value-for-Money method. • Public report (in Finnish) 	Yes	Yes
Hailuoto fixed link / PPP	<ul style="list-style-type: none"> • Evaluate the innovation capacity and references of potential co-financiers from large PPP infrastructure projects. • Evaluate the Finnish Transport Infrastructure Agency's RFQ and the potential for innovations within the investment, as well as how PBI's client should consider this in the PPP bidding process. 	No	Partly
RMC / TT-Line RoPax ferries	<ul style="list-style-type: none"> • Develop and model the business case for both 1) the ship investment and 2) additional investments (local fuel production) to make the system investment financially viable for the Tasmanian owner (TT-Line Company Pty. Ltd.). 	Yes	No

PBI has extensive experience of advising both private and public sector actors on sustainable and ethical business practices (ref. RFQ 'kvalificeringskrav' point 6, qualitative assessment criteria 7)

PBI's vision and strategy is to create and implement knowledge for a more sustainable world. All our client assignments are in line with our company strategy. Examples of assignments:

- Freight owners, ship owners, bus operator
 - Example projects DECATRIP, FUSE, DECASUS, CAST (see Appendix for details)
 - Analysis of EU regulations for decarbonizing of transport & logistics (e.g. FuelEU maritime, ETS, ETS2, AFIR) + impact on company strategy
 - Scope 3 GHG transport emission calculation and reporting using Digital Product Passports in accordance with EU CSRD, Green Claims, ESPR, ISO 14083
- City of Turku, Turku Seudun Vesi Oy, Turun seudun vedenpuhdistamo Oy, City of Pargas, Municipality of Kimitoön
 - Strategic roadmaps, business models and investment needs to ensure sustainable water infrastructure
- Ports, infrastructure owners and financiers
 - Developing regional and port capabilities to enable the construction and maintenance of large-scale offshore wind investments in the Baltic Sea, especially in the Bothian Sea.
 - Analysis of ESG criteria for evaluating large-scale transport infrastructure

PBI has a wide network both nationally and internationally, selected examples.

(Ref. RFQ qualitative assessment criteria 2 and 5)

INTERNATIONAL

- **Infrastructure investors, lenders** (t.ex Polhem Infra, Infranode, Svenska AP fonden, Meridiam Infrastructure, EIB, NIB, Queensland Investment Corporation/Australia)
- **Authorities and intergovernmental organisations** (Sweden's Trafikverket, Norway's Vegvesenet, OECD Infrastructure), Scandria Alliance
- **Construction companies** (BAM PPP, Bechtel, Colas)
- **Oslo-Stockholm 2.55, Arlanda Express, Öresund Bridge**
- **Universities/research institutions**
 - Stanford University Global Project Center - world-leading research and competence center for infrastructure investments/PPP, governance models
 - University of London - megaprojects, innovations, and the owner's role in large infrastructure projects
 - Royal Institute of Technology, Stockholm (KTH) - infrastructure investments, PPP, governance models.
- **Memberships:** Finansieringsnätverket (Nordic network for public and private actors involved in alternative financing models for infrastructure)

NATIONAL (FINLAND)

- **Pension insurance** (KEVA, Varma, Ilmarinen, Veritas)
- **Private infrastructure investors** (OP Suomi Infra, Ahlström Capital, Taaleri, CapMan Infra)
- **Authorities:** Ministry of Transport and Communications/LVM, Ministry of Finance/VM, Finnish Transport Infrastructure Agency (Väylävirasto), Centre for Economic Development, Transport and the Environment (FI: ELY-keskukset), Fintraffic, Traficom
- **Construction company** (Destia, part of Colas, YIT)
- **Cities and municipalities** (e.g. Turku, Vaasa, Helsinki, Pietarsaari)
- **The Confederation of Finnish Construction Industries RT** (Rakennusteollisuus RT)
- **Political decisionmakers** (Members of Parliament, Ministers in the Finnish Cabinet, Members of the European Parliament)

Price and delivery schedule

PBI's fixed price is 125 000 EUR (incl. 25,5% VAT)

Fixed price includes all travelling costs throughout assignment.

PBI average hourly rate 199 EUR (incl. 25,5% VAT)

Delivery schedule

PBI is committed to start the work immediately after contract signing, and to deliver the final report latest 30 November 2026 as per Kvarken Council's RFQ.

After delivery of the final report, PBI is committed to present findings from the assignment until 31 Dec 2026 as per the Kvarken Council's RFQ.

Invoicing, validity of proposal and other terms

Invoicing

Invoicing is carried out in four instalments, in accordance with the progress of the work (ref. RFQ). Payment terms 21 days net from the arrival of the invoice. Late payment interest in accordance with Finnish law.

Change order

Through a change order, PBI can make alterations to an original agreement. A change order can be applied if the original scope of work outlined in this proposal changes to such an extent that it in a significant way affects the scope and/or the deliverables outlined in this proposal. The change order is always agreed with the client in written form prior to executing the change order work.

Confidentiality

All PBI personnel have binding Non-Disclosure Agreements. A specific agreement between PBI Research Institute and Kvarken Council can be drafted if requested.

PBI complies with the General Data Protection Regulation 2016/679. PBI's Register Description is available on PBI's home page (www.pbi.fi).

Validity of this proposal

This proposal is valid until 30.9.2025.

Contact information and signatures

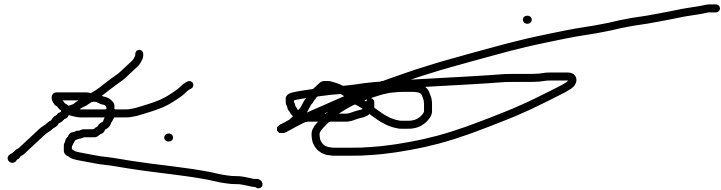
Questions regarding this proposal can be directed to:

Anders Jungar

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+358 40 77 57 918

In Turku, Finland, 23 June 2025



Kim Wikström

Senior Partner, Chairman of Board

PBI Research Institute Oy Ab



PBI references on following pages

Reference: Assessment of business proposals for Kvarken Fixed Link/Nordic Connector

Client: Kvarken Council EGTC (Kvarkenrådet)

Case: Fixed Link over the Kvarken Strait

Background and aim

The Nordic Connector is an interconnecting link for the vibrant regions in the northern Nordics. It is an initiative for a fixed connection across the Kvarken, a vision that has existed since the Kvarken Council was founded in 1972. The Kvarken Council was approached in 2022 by international investors and contractors who showed interest in designing, building and financing a fixed link over the Kvarken Strait.

The aim PBI's assignment was to assess the business proposals and based on this, create decision guidance documents that can serve as the basis for a long-term, cross-border (east-west) strategy/position for how the fixed link should be promoted in the future.

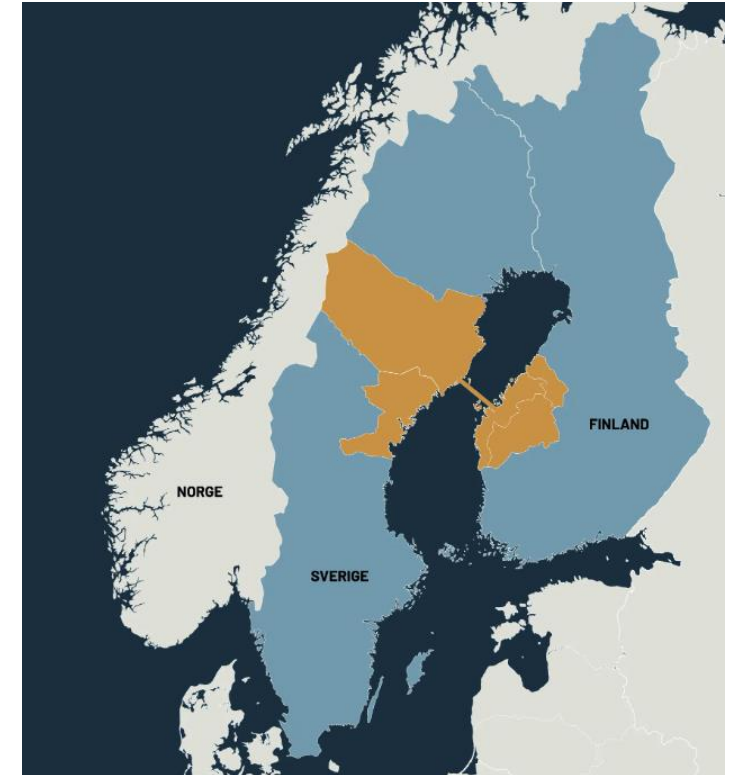
PBI's role and deliverables

- Assess business proposal from three international contractors and infrastructure investors
- PBI's work included arranging hearings and discussions with other infrastructure investors, lenders, Finnish Transport Infrastructure Agency, Sweden's Trafikverket, offshore wind developers as well as infrastructure contractors on their views on the Kvarken Fixed Link.
- Summary report with clear recommendations to political decision makers for how to pursue the Kvarken Fixed link project

Impact

- Kvarken Council strategic decision on how to further develop the Kvarken Fixed Link project
- Input for defining and scoping required feasibility studies

Contacts: Mathias Lindström, Director, Kvarken Council



Reference: Liikennehankkeiden vaikutusten hyödyntäminen osana hankkeiden rahoitus, LiVaRa

Client: Finnish government/Ministry of Transport and Communications (FI: Valtioneuvoston selvitys- ja tutkimustoiminta)

Cases: Raide-Jokeri high-speed tram, E18 Kotka-Koskenkylä motorway (PPP)

Background and aim

Financing transport infrastructure is a major societal challenge for the state as well as for cities and municipalities. The potential for traditional budget-based funding to finance new infrastructure projects is limited. As a result, socio-economically viable projects may not be implemented at all or may be more limited than desired, which is problematic from the point of view of achieving the goals of economic growth and sustainable development. Flexibility in financing and delivery solutions offers better opportunities to plan and implement projects on a long-term basis. This is in line with the goals of Finland's future national, 12-year transport system plan. Aim of project:

- Find ways to capture the value created in transportation projects to reallocate created value as part of project financing
- Identify delivery and financing models, evaluate their applicability in different infrastructure transportation projects
- Form guidelines for model deployment and development

PBI's role and deliverables

- Alternative delivery and financing models, applicability of models in Finnish large transport infrastructure projects
- Benchmarking international best practice
- Cash flow analysis, sensitivity analysis

Impact

- Results and recommendations from LiVaRa final report used as central input for 'Suurten ratahankkeiden rahoituksen ja investointimahdollisuuksien selvityshanke', Ministry of Finance and Ministry of Transport and Communications. Ref. <https://vm.fi/hanke?tunnus=VM079:00/2021>

The project was done together with consultancy companies Flou Oy, Kaupunkitutkimus Oy, Faltera Oy, Ympäristölakiasiantomisto Ekroos & Kiviniemi Oy

Project completed in April 2021

Contacts: Niko-Matti Ronikonmäki, Ministry of Transport and Communications

Reference: Alternative delivery and financing models for Parainen-Nauvo bridge

Client: City of Parainen, Finnish Transport Infrastructure Agency (FTIA), Regional Center for Economic Development (ELY). Case: Parainen-Nauvo bridge, CAPEX 146 M€

Background and aim

A fixed linked (bridge/tunnel) between Parainen and Nauvo in the south-western Finnish archipelago has been discussed for more than 50 years. The link would replace the existing ferry connection thereby securing better availability of, and access to, the archipelago. Over the years, several studies for different options (bridge/tunnel) had been completed, focusing mostly on technical feasibility of different options. In 2018, PBI was approached by local actors in Nauvo and the City of Parainen. The aim was to identify and analyze new alternative models for making the investment feasible both from a financing and delivery model point of view. Over the years, it had become apparent that new ideas are needed if the investment is to become reality in the future.

Analysis done by PBI

Impact assessment

- CBA, who benefits from bridge and how
- Benchmarking completed Norwegian and Finnish fixed-link projects

Alternative delivery and financing models for bridge

- Alternative models (ST/PPP), detailed cash flow analysis for each alternative
- Practical model for implementing 'Beneficiary pays' (FI: Hyötyjä maksaa) principle

Feasibility of PPP model utilizing bridge toll fees

- Market dialogue with financiers and major construction companies
- Further development of toll fee company model, role of Finnish state

Potential for real-estate/land value increase

- Estimating quantified impact on real-estate value, as a result of the bridge
- Impact of value increase on PPP3 model

Impact

- Re-activated discussions on making the investment reality
- Parainen-Nauvo bridge potential as Finland's 1st pilot case for toll fees.

Contacts: Seppo Toivonen, Senior Advisor in financing, FTIA.

Matti Vehviläinen, Director, Traffic and Infrastructure, ELY, Southwest Finland



Reference: Reference: Hailuoto causeway (PPP)

Client: Confidential (PPP consortium's main financier)

Case: Hailuoto causeway, Finland



Background and aim

The Finnish Transport Infrastructure Agency (FTIA) began preparing the project as a PPP project in 2018, but it proved impossible to put the project to competitive tender, since a complaint against the project's water permit was filed with the Vaasa Administrative Court in March 2020. The appeal against the project's water permit decision is still in process in Vaasa Administrative Court (status 6 Sep 2021).

In December 2020, the Finnish government decided that the Hailuoto causeway will not be implemented as a PPP project but instead as a budget-based project utilizing the alliance model (FI: allianssimalli).

PBI's role and deliverables

PBI supported one of the bidding consortia taking part in FTIA's PPP procurement phase during autumn 2019. More specifically, PBI consulted the consortium's main private financier.

Impact

N/A, see above

Contacts: Confidential

Reference: Sustainable Infrastructure Through Alternative Models (SUSTAM project)

Client: Business Finland (as main financer)

Cases: Several transport infrastructure projects in the Nordics

Background and aim

Globally, the largest investments will be made in infrastructure projects, particularly within the energy and transport sectors. Infrastructure is expected to form the majority of anticipated climate change adaptation costs with an average on \$150 billion to \$450 billion per year on infrastructure in 2050. New innovative ways to deliver and finance transport infrastructure are needed to meet the goals for emission reduction, which has also been highlighted by the Ministry of Transport and Communications in Finland.

The goal of SUSTAM is to support the creation and growth of use of alternative delivery and financing models (especially PPPs) for sustainable large-scale transport infrastructure and thereby, accelerate the green transition in the Nordics. SUSTAM also supports the systemic change required by building capabilities on both private and public side for successful use of alternative financing models.

PBI's role and deliverables

- Initiator, owner and full responsibility for SUSTAM end2end
- Process and national criteria for FTIA and Ministry of Transport and Communications for selecting transport infrastructure project suitable for availability-based PPPs. Process and criteria developed through several workshops with the Finnish Transport Infrastructure Agency, Ministry of Transport and Communications, Ministry of Finance, Ministry of the Environment.
- Proof of Concept for AI-based model for identification of infrastructure projects suitable for alternative models

Impact

- Project ended spring 2025. Results communicated to relevant Finnish Ministries and FTIA
- Utilization of SUSTAM results dependent also on outcome from ongoing regulatory drafting by Ministry of Transport and Communication and the Ministry of Finance, see <https://valtioneuvosto.fi/en/projects-and-legislation/project?tunnus=LVM013:00/2024>

Contacts upon request

Reference: Developing Capability to Secure Sustainable Infrastructure (DECASUS project)

Client: TT-Säätiö (as financier)

Case: Finnish transport infrastructure (case E18 Raison keskusta, Raidejokeri high-speed tram, Helsinki)

Background and aim

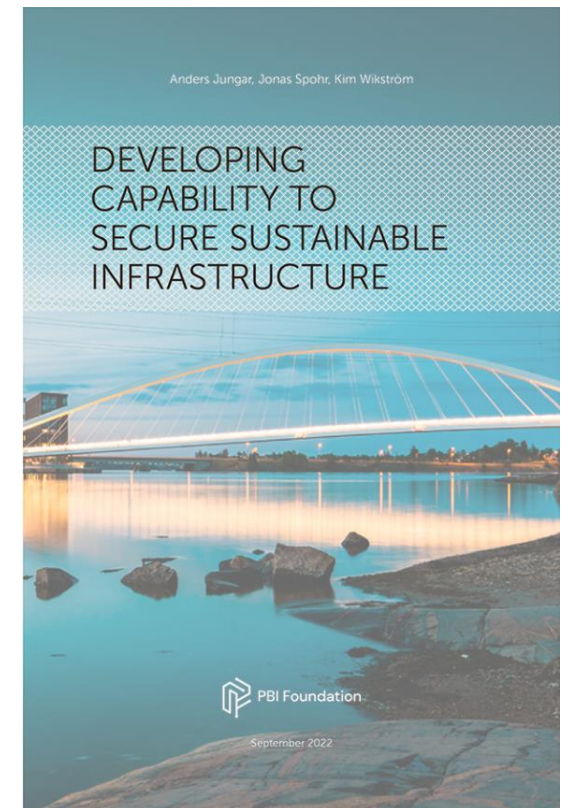
Infrastructure investments are important to keep Finland as a forerunner in the global race towards a more sustainable society. Finland must overcome the thresholds of constrained state budgets and find ways to engage the best possible expertise to maximize the societal value of investments. Current traditional models to procure and finance infrastructure may not be sufficient.

Aim of DECASUS was to a) Analyse procurement processes for large-scale infrastructure in countries with long tradition of alternative models (PPP) and b) Identify capabilities needed from private and public sector to successfully use alternative models.

PBI's role and deliverables

- Initiator, owner and full responsibility for DECASUS end2end
- Value for Money analysis for E18 Raison keskusta in close collaboration with FTIA, Regional development center of Southwestern Finland, Fintraffic.
- Final launch seminar in Helsinki for infrastructure investors, pension insurance companies, construction companies, Finnish Transport Infrastructure Agency, Ministry of Transport and Communications
- [Final public report](#)

Contacts upon request



Reference: Collaborative for new way of financing and delivering large-scale infrastructure

Client: KEVA, Ilmarinen, OP, Business Finland, Ministry of Transport and Communications

Cases: confidential (several large Finnish infrastructure investment cases)

Background and aim

Many investments are stalked by cost overruns, time delays and impact not meeting expectations. Simultaneously, many countries including Finland and Sweden, have constrained public finances to make the needed large-scale infrastructure investments. There is a need, also in Nordic countries, for new ways of financing and delivering large-scale infrastructure that bring life-cycle value on a systemic level, as infrastructure becomes more complex and intelligent through digitalization. The Collaborative, and idea initiated by PBI, is a solution to this need. Aim of the Collaborative is to focus on energy, built environment and logistics investments in Finland and other Nordic countries.

PBI's role and deliverables

- Initiating the idea, engaging key actors (Finnish pension funds, other private investors, Ministry of Transport and Communications etc). Included numerous discussions with Finnish pension funds.
- Developing the new business model for a collaborative structure involving Finnish pension funds, large construction and technology companies
- Draft contract for Collaborative's way of working

Impact

- Ongoing discussions with Ministry of Communications on how lessons learned from collaborative development work so far can be applied in e.g. Finland's high-speed train projects (Suomi rata, Tunnin juna, Itärata)

Contacts: PBI can provide on request

DECATRIP (Decarbonizing Transport Corridors)

Client: Rauma Marine Constructions (consortium lead), Kempower, Viking Line
Case: Green Maritime Corridor, Turku-Stockholm

Background and aim

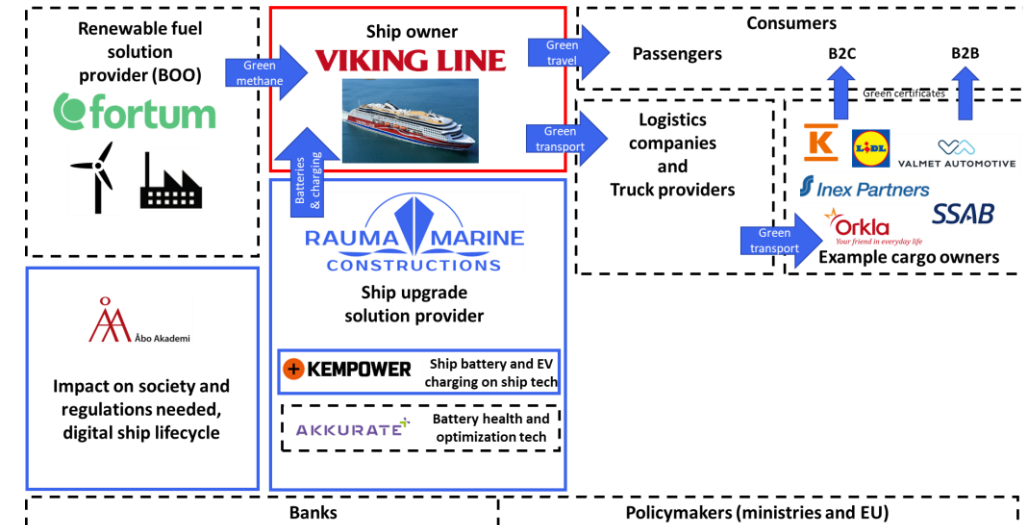
- Develop ship and infrastructure investments to enable green shipping corridor between Turku and Stockholm.
- Proof of concept and feasibility for decarbonizing the ship owner Viking Line's ships Grace and Glory through retrofit solutions

PBI's role and deliverables

- Coordinator of 1,5-year project funded by Business Finland.
- Business case and model for low-emission shipping
- Value proposition development and market potential evaluation

Impact

- **Green Maritime Corridor in practice – Turku-Stockholm**
- Business model for low-emission shipping
- Battery retrofit solutions to reduce fuel consumption and emissions by load balancing
- Solutions for charging electric cars and trucks during the journey while balancing engine load
- Software models for integrating batteries and EV charging
- Method for evaluating impact on society from reducing emissions in shipping
- Economic feasibility and market potential



DECATRIP awarded Engineering Action of the Year 2024

- Vuoden insinööriteko 2024



Rauma Marine Constructions

14 september 2024 · 🌐

Rauma Marine Constructionsin (RMC), Viking Linen, Åbo Akademin ja Kempowerin yhteinen Decatrip-hanke voitti vuoden insinööritekopalkinnon perjantaina 13.9. järjestetyssä Insinööriliiton insinööri-gaalassa. 🏆👏

Hanke mahdollistaa yhden maailman ensimmäisistä vihreistä meriliikennekäytävistä. RMC tutki hankkeessa, miten jo liikenteessä olevia laivoja voitaisiin muuttaa ympäristöystävällisemmäksi. Yhtiöllä on nyt valmius modernisoida laivoja niin, että niiden ympäristöystävällisyys paranee.

Hankkeen tavoitteena oli kehittää yksi maailman ensimmäisistä vihreistä käytävistä (green corridor) Turun ja Tukholman väliselle meriliikennereitille.

#insinööriteko

#greencorridor Visa mindre



Mari Hovi • 2nd

Head of Department, Machinery Areas Outfitting (i.e. Production of Machi...

4mo • Edited • 🌐

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Tänään minulla oli suuri kunnia saada vastaanottaa RMC:n puolesta tämä palkinto, vuoden insinööriteko! 🏆 Kiitos kaikki te mahtavat työkaverit RMC:llä ja kiitos kaikki Decatrip projektin yhteistyökumppanit Viking Line, PBI Research Institute, Åbo Akademi, Fortum ja Kempower. Palkinnon vastaanottaminen oli ainutlaatuinen kokemus! 🥰

Rauma Marine Constructions Oy

Show translation



FUSE (FUture Shipping Electrified)

Client: Rauma Marine Constructions (consortium lead)
Case: fully electric RoPax ship concept.

- The FUSE project aims at developing a fully electric RoPax ship concept.
- FUSE partners: Rauma Marine Constructions (lead), Viking Line, Aalto University, Åbo Akademi University and Carinafaour. The project also involves the Port of Helsinki, Fortum Spring, DNV, Helen Electricity Network and Wärtsilä.
- PBI initiated, developed and secured NextGeneration EU funding for FUSE. PBI is coordinating the project and developing the business case and business models for fully electric shipping. The FUSE project runs between fall 2023 and spring 2025.



Reference: Enabling transition to carbon neutral fuels in shipping

Client: Rauma Marine Constructions (ship building company)

Case: Shipping, Renewable fuels

Background and aim

The marine industry facing a need to significantly lower carbon emissions. Technologies for enabling carbon neutral ship already exist but are not packaged to a comprehensive value proposition for the customer (ship owners & operators).

PBI's role and deliverables

- Engage all relevant stakeholders (fuel supplier, yard, ship owner/operator, energy company, local industries and other off-takers, regulators etc)
- Evaluate business case for green synthetic natural gas (LSNG), based on green H₂ + CO₂ capture
- Business case modelling from “well to wake” for renewable fuel
- Business model development, impact on Client's business model

Impact

- Rauma Marine Constructions and TT-Line Pty Ltd (TT-Line, a Tasmanian state-owned company) finalized an agreement for the construction of two car and passenger ferries at Rauma shipyard. The construction of TT-Line's vessels will begin in spring 2022. The two new roll on/roll off vessels will feature up to \$100 million of Tasmanian local content.
- Completely new value proposition for Client with major impact on Client's business model



Reference: 380 MW investment program for balancing power – Wärtsilä Smart Power Generation (SPG)

Client: Wärtsilä

Case: Metaenergia Produzione Srl (Italian utility company)

Background and aim

In Italy, the renewable energy segment has rapidly expanded in the past few years, with continuous growth to be expected as the country plans to triple its solar and double its wind energy production by 2030. To enable upcoming capacity retirements of legacy fossil fuel power plants, and to balance the intermittent nature of the renewables, the national transmission system operator Terna has introduced a capacity market, which is to commence operation in 2022. The capacity market requires flexible power generation solutions, such as Wärtsilä's SPG.

PBI's role and deliverables

- Pre-feasibility studies, business case and market modelling especially in early stages of the investment
- Support Wärtsilä's front-line sales, participating in meetings to present business case to Wärtsilä's customer

Impact

- In July 2021, Wärtsilä announced a major order from Italian utility Metaenergia Produzione Srl for 6 power plants (380MW) to support integration of renewables to Italy's energy market. For Wärtsilä, this is the largest single-frame contract to date.

Reference: Competitive Advantage from Sustainable Transport (CAST) *The World's first Digital Product Passport pilot on Scope 3 transport emission reporting*

Clients: SSAB Europe (steel manufacturer), Orkla Finland (consumer goods)
Case: Scope3 transport emission reporting using Digital Product Passport (DPP)

Background and aim

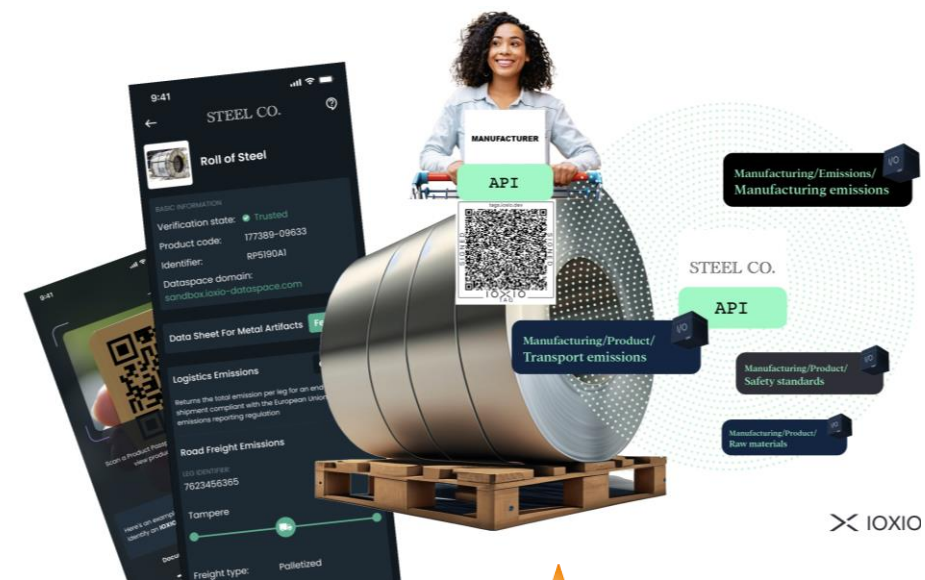
- EU regulatory tsunami (CSRD, ESPR, Green Claims).
- Develop Digital Product Passport (DPP) prototype for actual GHG transport emission reporting
- Analyse EU regulatory landscape and apply ISO 14083 standard for emission reporting using DPP
- Identify competitive advantage cargo owners and their customers from low emission transport

PBI's role and deliverables

- Project initiator and Project Management
- EU regulatory landscape analysis
- Analyze impact on SSAB's and Orkla's business models, potential for competitive advantage from green transport of products

Impact

- Successful Proof of Concept for reporting of actual emissions from individual shipments and individual product using Digital Product Passports in accordance with Countemissions EU and ISO 14083.



Other relevant PBI references

Client: Port in Finland (confidential)

Industry: Logistics

PBI's role

- Financial advisor to the port
- Advice in planning the investment model, feasibility evaluation and financier engagement, including discussions with e.g. NIB
- Support port in contract negotiations with private infrastructure investor and port's main customer

PBI deliverables

- Business case (value propositions) development for relevant stakeholders
- Initiating discussion with private investor and stakeholders
- Project financing structure; creating and reviewing necessary documents
- Risk identification
- Financial modelling of port investments, business case analysis

Contacts upon request

Client: City of Pietarsaari, Municipality of Luoto. Industry: Infrastructure for e-fuel production (P2X)

PBI's role

- Estimate the economic impact from local large-scale e-fuel production at Alholmen
- Identify and analyse alternative financing models for infrastructure investments enabling local e-fuel production

PBI deliverables

- Economic impact of local e-fuel production, used by client for strategic decision making
- Alternative financing models for infrastructure investments for local e-fuel production