IPD models open the door to lean construction



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IPD models open the door to lean construction

JANI SAARINEN / VISON OY

The growing popularity of integrated project delivery (IPD) models in Finland has opened the door to lean construction and its application throughout the value chain in the construction industry. Currently extensive development efforts focus primarily on design and building production flow as well as a project management approach based on the situational picture, especially in case of major tramway and hospital projects.

IPD MODELS ARE GAINING GROUND

Around 90 alliance projects have already been executed or launched in Finland, plus an estimated 30-50 lighter IPD projects with an aggregate value of nearly EUR 10 billion. While these types of projects have been launched in a wide range of real estate and construction schemes, the largest in monetary terms are tramway and hospital projects, which together account for around 60% of all Finnish IPD projects. Alliance projects have shown that the model works, especially for the most complex projects, regardless of project size.



Growth in the volume of alliance projects

HOSPITAL AND TRAMWAY PROJECTS LEAD THE WAY

Major progress in Finnish construction have been made in some 15 IPD hospital projects as well as in two completed and three ongoing tramway alliances. The third tramway project of the City of Tampere, as well as the corresponding projects in Turku and Vantaa are also to be executed using the alliance concept. At the moment, Finland possesses great expertise in executing integrated hospital projects, something that is already being harnessed in the hospital project exports of the Integrated Hospital Design Alliance (IHDA).

FROM IPD PROJECTS TO LEAN CONSTRUCTION

The proliferation of IPD models together with the identification of the common interests of involved parties have paved the way for even further integration and the utilisation of the expertise and resources of the various parties. As a result of earlier integration and a shared development phase, the compliance with the budget and timetable have improved. And while the implementation of the IPD models may not yet have led to statistically significant cost savings, these projects have been able to deliver more value and generate less waste. Hence, IPD models have proven to be more than just project management models - they have enabled a more holistic approach to the entire construction process.

Projects executed using IPD models have delivered commendable improvements to the design and production flow. The Target Value Delivery (TVD) process and the reduction of design batch sizes have improved the manageability and predictability of projects. Takt production and its related logistics management systems have made it easier to manage production, thereby improving quality and cost-efficiency. Closer cooperation between project partners translates into tangible benefits in the various phases of the construction process.



IPD MODELS OPEN THE DOOR TO LEAN CONSTRUCTION



A NEW CONCEPT FOR DATA-DRIVEN MANAGEMENT AND PARTICIPATION

IPD models have contributed to the integration of project information and processes, an area where major development work is currently being carried out. This has paved the way for a new type of data-driven management. Improved data exchange and support for decision-making will further enhance project management performance.

IPD project principles motivate employees to improve their own work performance and pool together their resources to create self-developing projects. Project management is nowadays understood as creating an environment that encourages commitment to shared goals, establishing common structure, and creating favourable conditions for work and success.

IPD MODELS ADOPTED FOR NEW PROJECTS

The positive experiences gained from IPD models have encouraged their implementation in novel project environments. Kouvolan Asunnot, a housing company, has launched two property maintenance alliances covering its entire property portfolio; the City of Vaasa is implementing a multi-year cycling alliance; and energy companies have launched new projects utilising alliance models. Although some energy projects have been suspended, the alliance model has proved itself even in these situations.

Positive experiences have also been gained from the queue models piloted in residential properties, where the same alliance organisation has carried out several projects in succession. The model has speeded up process development and enabled the parties to learn from one another, while making the production flow more agile. The Housing Finance and Development Centre of Finland (ARA) has during the past few years, however, shifted its focus in relation to housing development towards developing its own competitive tendering requirements and no longer grants subsidies for these projects.

FROM INDIVIDUAL PROJECTS TO PROJECT PORTFOLIO MANAGEMENT

In Finland, we are currently moving away from the development of operating models for isolated projects towards more expansive project portfolio management. This means not only that the lessons drawn from one project are made available to all organisation partners but also that it helps standardise and streamline the processes further. With the single-project approach, the change happens too slowly.

COOPERATION AND CULTURAL CHANGE IN THE REAL ESTATE AND CONSTRUCTION SECTOR

The IPD models are not just changing the way construction projects are executed. They have also triggered a broader industry-wide change. The dialogue between contracting entities, consultants and construction companies has

clearly improved, which is reflected in more transparent competitive tendering processes and a more genuine commitment to shared objectives. The IPD models, more precisely project alliances, have served as a catalyst for improving the standard of information exchange across the sector.

This progress, which has taken place in Finland in just over ten years, is the result of the joint efforts of dozens of contracting entities, close to one hundred different companies, universities and several universities of applied sciences. Even so, more new actors, in particular public contracting entities, industrial and other actors, as well as subcontractors, such as material and system suppliers, are needed to uphold this positive trend.



Number of IPD projects per contracting entity

- 4 -

NEW projects

KORPI ALLIANCE

The investments in the reliability of the electricity distribution network and the fault repair, maintenance, and connection work in Kajave Ltd's network area are carried out as an alliance model. The Korpi Alliance includes investment projects as well as services. The estimated budget for the project is approximately EUR 60 million. Vison has been involved in the project right from the start, assisting the client in the implementation method assessment, planning and execution of the project and its procurement, and serving as an alliance coach in the development phase.

The Kajave Korpi Alliance is one of the first power grid projects in Finland to be executed using the alliance



The Digirail project aims to upgrade and replace the existing and obsolete Finnish train control system with a new system that meets current digital requirements and complies with EU standards.

The project will proceed in phases, with a preliminary roadmap showing that the final phase will be completed in 2040. As far as the rail infrastructure is concerned, the cost of the project is estimated at EUR 1.4 billion. Moreover, train owners will face an additional cost of around EUR 250 million. The project is co-funded by the EU.

model. The alliance started its operations in the autumn of 2023.

DIGIRAIL

The alliance partners are Fintraffic, the Finnish Transport Infrastructure Agency, Traficom, VR (State Railways), the Ministry of Transport and Communications, and Helsinki Transport Service. Vison has drafted the alliance agreements for the project and is currently codeveloping together with project staff an information management and knowledge-based management framework.

KOUVOLAN ASUNNOT PROPERTY MAINTENANCE SERVICES

Kouvolan Asunnot property services are provided by two separate service alliances. The properties are divided into two different blocks, the northern block containing a total of 87 properties with 1,732 flats and the southern block containing 78 properties with 2,090 flats.

The annual target costs per block are around EUR 0.9 million for the southern block and around EUR 1.1 million for the northern block. The budget for the entire contract period is approximately EUR 12 million. The work to develop the service alliance was commenced in July 2023, and the service will be provided in the form of annual service cycles starting in October 2023.

The alliance partner in the northern block is ISS Palvelut Ltd while the partner in the southern block is Kotkan Kiinteistöpalvelut Ltd. Vison is involved in the project as an expert in alliance procurement and project management.

NAPSU COMMUNITY CENTRE

The Napsu Community Centre is an alliance project which includes the construction of a new building as well as the renovation of the Nivavaara School in Rovaniemi. The new Polar Circle Elementary School will bring together the existing Napapiiri, Nivavaara and Syväsenvaara schools under the same roof. For Rovaniemi, this is a unique construction project in terms of both scale and the method of procurement.

The project budget is approximately EUR 39 million and gross floor area around 15,000 m2. Project development was commenced in 2022 and the new school building is due for completion by the end of 2026.

The alliance partners are NCC Finland Ltd and Rovaniemi City. Serving as back-up subcontractors are Rudanko-Kankkunen Architects and Sitowise Ltd. Vison's role is that of a construction management expert.

MYLLYPOHJA COMMUNITY CENTRE

The alliance for the Myllypohja Community Centre includes the construction of the new centre as well as the renovation of the original listed section of the Myllypohja School. The project includes a wide range of facilities, such as a primary school, special education classrooms, a day-care centre, regional health centre, library, and sports facilities. The preliminary gross floor area of the project is 7,500 m2.

The development phase of the Myllypohja Community Centre alliance was launched in August 2023. The estimated budget is EUR 24.5 million. One of the objectives of the project is to achieve the RTS environmental classification and use as much wood as possible in the construction.

The contracting entity is City of Lahti, the general contractor Skanska Construction Ltd and the designers Arkkitehtipalvelu Ltd and Granlund Ltd. Vison is involved in the project as an alliance procurement and project management expert.



Vison participated in the Lean Construction Days 2023 organized by LCI Finland

IHDA Alliance to export top Finnish expertise to Central Europe



tal construction have established a joint project, Integrated Hospital Design Alliance (IHDA), with the goal to export state-of-the-art Finnish hospital design expertise to Europe.

The alliance brings together healthcare The complementary operations experts and service designers, architects and chief designers, HVAC designers, structural engineers and project management experts. Involved in the IHDA project are leading companies within hospital design, such as Granlund, A-Insinöörit (AINS Group), Nordic Healthcare Group, AW2 Architects, and Integrated Healthcare Design, Vison Ltd, and K2S Architects. All the specialist companies have first-hand experience of multiple major hospital projects in Finland during the 2000s.



Pekka Petäjäniemi, the Chairman of the Board of LCI Finland, spoke at the Lean Construction Days in June 2023.

Finnish companies specialising in hospi- The IHDA project seeks to increase awareness of and generate interest in the technical and operational expertise perfected in Finnish hospital projects and to make it available to hospital construction and healthcare schemes in Europe

> expertise of the alliance companies supports the comprehensive design and



construction of smart, customer-oriented and operationally efficient hospitals, all the way from the first project steps to the commissioning and maintenance of the facilities.

A word from the Development Manager:

Coaching as a driver of cultural change in the Laakso Joint Hospital Project



Laakso hospital area in October 2023 / SRV

The Laakso hospital project is currently working on a delivery system, which is due for deployment upon the commencement of the construction work on the biggest sub-project, the main building.

The delivery system is a set of project design and production processes intended to ensure smooth project execution in accordance with lean construction principles. The system is based on one-day takt time and the supporting mechanisms, such as production data management and utilisation.

The delivery system and its deployment call for major developmental efforts and a lot of work has already been done. Now steps are being taken to roll out the system across the organisation. As the delivery system plays a key role in project execution, all employees of the Laakso Joint Hospital Alliance will receive delivery system training as part of their on-site induction. Training is designed to ensure that each employee understands the requirements imposed by the delivery system for their own work and that everyone possesses the same preliminary information.

"ARE YOU REALLY ASKING US?"

Coaching improves the employees' capabilities to work on the project and it has been an important part of the Laakso Joint Hospital Alliance since its inception. One of the objectives of the alliance is to ensure that the people working on the project understand the lean principles underlying the delivery system and are successfully introduced to the system. After the initial on-boarding, the coaching sessions will delve deeper into the system.

In the Laakso Joint Hospital Alliance, coaching will also cover subcontractor procurement. Subcontractors will be trained to use the system already in the procurement phase in order to help them adopt the ways of working applied in the alliance. This will ensure that the subcontractors understand the project requirements properly before submitting bids. Aside from coaching, subcontractors will be involved in development efforts. At one subcontractor coaching session it became known that potential bidders had never before been asked for their views on how their work should be carried out: "Are you really asking us?"

Hence, coaching is not only a necessary prerequisite for learning to use the delivery system, but also a vehicle for establishing a shared project culture. The Laakso Joint Hospital Alliance seeks to create an atmosphere in which everyone is valued and listened to. To achieve this goal, we need commitment and interaction, as well as appropriate processes and tools.

Sari Koskelo

Development Manager, the Laakso Joint Hospital Alliance

Alliances' overhead cost management calls for mutual trust between the contracting entity and service provider

The collaborative approach provides a forum for an open discussion on project costs. In the 2010s and 2020s, Finland has seen several collaborative hospital projects, where overheads estimation and a common understanding between the contracting entity and the contractor proved challenging. It is perceived that the determination and management of overheads are dictated by the contractor without the contracting entity being sufficiently informed of the details..

Olli Yrjänä, M.Sc.(Eng.), addressed the subject in his Master's thesis published on 13 June 2023. Yrjänä's goal was to clarify the setting and estimation of overhead costs in collaborative hospital projects and to make it easier to discuss them. Overheads refer to all those operating and general costs of the site that do not directly add value to the project, such as work supervision costs and crane rentals. However, as they account for 10 to 20 percent of the total project costs, the amounts may be substantial in large projects.

COOPERATION IS NOT ACHIEVED WITHOUT EFFORT

In traditional contracting models, cost management and its structure is created by the contractor and is specific to each individual company. The transition to a collaborative contracting model has not been problem-free, and the conventional approach tends to pose a challenge to any transparent sharing of information both within alliances and between alliance projects.

Although alliance partners commit to cooperative ways of working by signing an alliance agreement, a lot remains to be done to achieve full compliance with the principles of a collaborative approach, such as the transparent exchange of information and openness. Due to the practices inherited from past projects, many contractors apply the open book method at a highly general level without providing hardly any details of the overheads, because there has previously never been a need to do so. As a result, the contracting entity is often unable to learn about the underlying reasons for the costs, except when specifically asking for disclosure. Moreover, the estimation of overheads is relatively



crude and based on previous benchmarks, leaving little room for any detailed analysis.

In order to facilitate inter-alliance comparison of overheads and the setting of project-specific overheads, the way in which overheads are structured and presented should be harmonised. In practice, this could be achieved, by creating a standard structure for use in the commercial model designed for collaborative projects.

TOWARDS A HARMONISED COST STRUCTURE

The comparison of data between projects can be facilitated by standardising the cost structure. A harmonised structure should provide for a standardised allocation system, breakdown of costs in the various project phases as well as for the accurate recording of changes in scope.

In the individual project phases, overhead management should be viewed in terms of the task to be carried out in each phase. The recognition of overheads linked to the project timetable discloses the amounts of overheads and monthly forecasts to the project partners, which will increase mutual trust. The management of overheads specifically to each project phase is discussed in more detail in connection with the overhead management model.

The biggest challenges to achieving transparency and openness in projects were related to communication barriers and a lack of integration within alliances. To merge the various organisations of the alliance into a single team, it is necessary to involve the service providers early on. Such early involvement reduces project overheads by allowing the project participants to harness the professional knowledge of the service providers in determining the costs of design solutions.

Check out more details of Olli's diploma thesis <u>here</u> >



M.Sc. Olli Yrjänä

The inevitable transition of the construction industry



LARS ALBÄCK / VISON OY

The next big goals for the construction sector are to improve productivity, promote the green transition and increase customer value throughout the project life cycle. These targets have been set by the Real Estate and Construction Forum (KIRA Forum), a body that promotes cooperation in the sector. KI-**RA's Growth Programme seeks to develop** the entire industry in the face of its biggest challenges.

Concrete development efforts in this area are being carried out in the context of the contracting entities' IPT4 projects and suppliers' RAIN3 projects. One area addressed in both programmes is data-driven management, which refers to timely and quality-informed decision-making. Successive development projects have already generated positive results, which shows that the development efforts are on the right track. However, further progress in achieving the objectives of the KIRA Growth Programme will require an increasing amount of data-driven management integration, which will be the next big leap for all those engaged in this line of business.

IMPROVING PRODUCTIVITY THROUGH COHESION

Measures that improve productivity are often in practice related to reducing lead times, improving quality, decreasing waste and cutting costs. The best outcome is achieved when the measures are selected and implemented based on up-to-date information - a digital situational picture.

The digital situational picture contains all the information relevant to construction project management, such as real-time information on risks, schedules, resources, material flows and quality issues - in other words, all the information needed to improve productivity. Once all the information is available in the digital situational picture, the time that would otherwise be spent searching and compiling the data can be devoted to managing the project.

"With access to a reliable situation picture, those responsible for managing the project no longer need to make assumptions. At worst, construction engineers may need to make 100 phone calls a day, and so most of their working hours are spent on the phone, trying to compile a satisfactory situational picture. By harnessing the digital situational picture, it is possible to reduce wastage substantially," says Lars Albäck, an expert in data-driven management.

The situational picture also improves productivity by creating favourable conditions for takt production throughout the project's life cycle. Also, the digital situational picture ensures real cooperation. When this information is readily available to all parties, it is possible to ensure that the plans for the different parts of the project do not conflict with one another.

"Data-driven management may improve efficiency in a construction project by up to 30%, which reduces lead times considerably and offers more than 30% savings in resources," says Albäck.

ENABLING THE GREEN TRANSITION

The KIRA Growth Programme's secondary objective promotion of the green transition - is also best achieved through data-driven management. As with all aspects of any project, emissions need to be managed based on up-to-date factual information. This provides a realistic idea of the emissions resulting from the choice of materials, on-site power sources, the various work stages, waste management and the type of energy used.

With accurate real-time information, emissions can be optimised throughout the project life cycle. Optimisation allows the operators to focus on specific aspects of the green transition where improvements are most sorely needed during the project. The green choices made during project execution are important, because the choices made in the design and construction phase will affect the emissions from site maintenance operations well into the future.

When sufficient information is available on the emissions caused by the materials, it is possible to recycle used buildings and materials ecologically.

"If we know exactly, say, the types and dimensions of used windows and doors, as well as their energy efficiency ratings, old buildings can be recycled in a smart way and a profitable aftermarket can be created. This will reduce the need to produce new materials," says Albäck.

CREATING CUSTOMER VALUE THROUGH QUALITY CONTROL

The choices made in the various phases of the life cycle of a building project all contribute to the attainment of the KIRA Growth Programme's third objective, increasing customer value. Customer value is created, for example, by improving the quality of the final product, staying within the budget, reducing lead times and achieving the objectives set for the project. Minimising quality problems during the project execution phase means fewer repairs, which in turn increases customer value.

"Data-driven management may improve efficiency in a construction project by up to 30%

Data-driven management helps ensure that the project

does not run out of money and is completed on time. It

reduces the number of decisions based on incomplete

information, thereby decreasing risks. The repositories

for the data generated by information-based manage-

ment makes the distribution of project-related informa-

tion more transparent. The data is no longer converted

into documents that are stored in a project bank; instead,

the information can be harnessed throughout the proj-

ect life cycle for a wide range of purposes and systems. "In the future, we hope to be able to collect feedback and data on the finished building and its maintenance directly from customers, which would make it possible to gather information directly from real-life operations to support construction management planning. There should be much more cooperation between construction and maintenance," says Albäck.

DISPERSED DATA. ITS INTERMITTENT CIRCULATION AND TRUST ISSUES HINDER DATA-DRIVEN MANAGEMENT

If data-driven management is the solution to all the industry's problems, why isn't it already being applied more widely? As it is, there is no lack of data in the construction sector, but its systematic use for management purposes is hampered by the fact that it is dispersed across the industry residing in isolated systems that do not communicate with one another. Moreover, the quality of data varies greatly, and there are major problems with the flow of data at various phases of the project life cycle and between partners. Information does not pass smoothly enough from construction to maintenance and vice versa.

Ideally, if the data would be communicated in a harmonised format, it would be independent of the supplier or system, and it could be used for any useful purpose. In practice, this would mean that the information would be available regardless of the project and the parties involved. For example, this could enable the communication between design software and a digital twin in the production phase. Standardised situational pictures and takt production models would also contribute to the free flow of data.

People in the industry know what should be done next and why it makes sense. More than anything else, we would need an industry-wide understanding to put in place shared and replicable models that generate the trust required to make data-driven management work.

Integration of a building service contractor

The foundation stone of all alliance projects is mutual trust. Trust is created and maintained by working together, cultivating We-thinking and promoting transparency between the partners, with nothing hidden - everything for the good of the project. This is the view that has gained ground in the construction industry over the years. My personal experience tells me that this is true.

In the past, building service contractors have been left outside alliance projects. They are captives to their contractual and financial silos, which makes for poor or no integration at any level. At the same time, early integration imposes stringent requirements on building services engineering, especially in the project development phase, which is when the financial benefits offered by early integration should be won. While I sympathise with this view, things do not always work out this way, and communicating this to the various parties has been a big challenge so far.

Alliance projects are not quick spurts but rather like the marathon, where you have to pace yourself to save your strength because the medals are won in the final - not the first – 10 km stretch. Continuous improvement is an integral part of this journey. The small steps taken along the way to improve performance add up to a big leap. From the standpoint of building service contractors, alliance models and early integration contribute to continuous improvement. Construction management organisations tend to consider early integration just another cost item, because the financial benefit will not materialise until later during construction. Also, it is easy to forget the points raised in the first paragraph: 'We' mentality and mutual trust and what useful purpose they could serve in a project. It's one thing to be integrated right at the beginning, and quite another to join halfway through the project.

My personal experiences from early integration are highly positive. We have been able to bring to the projects something that others didn't know or had misperceived. Other actors, such as design engineers or those supervising building service contractors' performance, lack the cost awareness regarding materials or labour costs that we contractors have. We work with material prices on a daily basis and know the relevant collective agreements inside out. We know which systems are time-consuming and difficult to build, and we are able to provide workload and timetable estimates for various work phases or areas even if the input data were grossly incomplete.



Also, to use takt production to cut down on lead times, it is important to consult building service contractors for planning the timetable for takt production at an early stage, because numerous studies have shown that building service contractors are the stumbling blocks in determining takt production timetables. However, it is not the building service contractors that are to be blamed: the fault lies with engineering solutions that do not support takt production. Quite often, takt timetables are drawn up somewhere else and building service contractors have no say in the design of solutions that would support production. Everything comes ready-made. Hence, early integration is a necessary prerequisite for the efficient takt production. Also, it makes it possible to prepare a realistic timetable for takt production, design building service solutions that support takt production and, most importantly, allows people to get to know one another. After all, it's people who make the buildings.

One wonders whether we building service contractors can afford to remain outside early integration, a mere stumbling block to takt production? Or can contracting entities, designers and construction managers afford to exclude building service contractors from alliance projects?

Tomi Alanen Technical Director, Amplit

KPIs enabling success

ew requirements imposed on the construction sector. uch as regulations on low-carbon construction and the circular economy, will affect project objectives. If the new challenges can be translated into Key Performance Areas (KPA), we will be able to quickly go from theory to action. KPAs refer to specific areas of performance, such as timetable management or quality assurance, that play a role in attaining the established objectives.

With construction projects, the successful selection of KPA-specific indicators is complicated by the fact that shared objectives are not integrated and adopted by all the project partners. In the absence of an active and open debate, KPAs remain distant goals instead of actively governing the day-to-day activities of the project.

KPAs and the problem of concreteness

When the KPAs are established, the first step is to identify, compile and prioritise the objectives of the project in the design phase. In IPD projects, the objectives set by the contracting entity team are complemented by those of the stakeholders to ensure customer value with due regard to other objectives. After this, KPAs are defined for each of the objectives which are analysed in detail to translate them into tangible and measurable values. The objectives are defined in detail and prioritised in order to guarantee that the objectives are understood by all in the same way.

1. Identifying the objectives 2. Prioritising the objectives	Objectives
3. Choosing a suitable key performance area based on the objective's priority	КРА
4. Setting the indicators for the key performance area 5. Indicator dashboard	Indicators
6. Simulating the incentive mechanism	Simulation

From objectives to key performance indicators

Key Performance Indicators (KPI) are then set for the individual performance areas to make it possible to monitor the attainment of the objectives throughout the project life cycle. The purpose of defining the indicators is to support the design and execution with tools and processes that propel the project towards achieving its objectives and optimising its overall performance. This

Objectives are just objectives until they are translated into on-site methods and ways of working. Integration starts with the establishment of objectives for the project development phase, which should involve as wide a group of people as possible. When objectives are shared and perceived not only as general but also as personal objectives, it is easier to commit to them. The indicators will be integrated into the incentive schemes to serve as management tools to create a framework for success. Once the incentive schemes are incorporated into the KPIs, success in key performance areas will be rewarded with performance bonuses, whereas failure to attain the objectives will be subject to performance penalties. Personal incentives are also needed in addition to col-

lective rewards. The various project partners will use a range of performance score cards in which the KPI objectives must be entered. People's personal performance targets may not conflict with the overall project objectives. The KPI objectives and how they are measured will be addressed in the course of daily activities through open,



is also the point of time at which to think about the practical implications of the objectives for one's own work performance, the design solutions or on-site execution.

Appropriate KPIs guide the project in the right direction

Experiences gained from recent collaborative projects suggest that it is advisable to establish annual objectives and indicators for each performance area instead of defining unchangeable objectives for the entire duration of the project. This permits a quicker response to potential problems and misjudgements occurring during the project's life cycle. What is more, as the indicators are set and reviewed on an annual basis, this ensures that important matters are addressed regularly throughout the project.

Reaching objectives is based on the level of commitment

transparent and inclusive communications. Attitudes towards the objectives and indicators can be influenced by the tone of the discussions and the way in which people are given feedback on the attainment of the KPI goals.

ALLIAI	NCE PROJECTS 2011-2023	CLIENT	MILJ. €
1.	Lielahti-Kokemäki railway renovation	Finnish Transport Infrastructure Agency	80,1
2.	Vuolukiventie 1b renovation	University of Helsinki	18,0
3.	Tampere Tunnel	Finnish Transport Infrastructure Agency and City of Tampere	192,2
4	Headquarters of Finnish Institute for Health and Welfare	Senate Properties	18.0
5.	Apartment house Retkeilijänkatu 3-7. Helsinki	Fira Ov	9.1
6.	lärvenpää Hospital	Kiinteistö Ov lärvenpään Tervevstalo	51.0
7.	Lahti Travel Centre	City of Lahti	19.2
8.	Pakila street network maintenance contract	City of Helsinki	8.0
9.	Naantali Power Plant	Turun Seudun Energiatuotanto	50.0
10.	loensuu Courthouse and Police Station	Senate Properties	31.0
11.	VTT Centre for Nuclear Safety	Senate Properties	30,0
12.	Renovation of lyrkkälä apartment block, Turku	KOy lyrkkälänpolku	23,3
13.	Apartment house Gunillankallio 10, Helsinki	The Seafarers' Pension Fund	13,0
14.	Kempele Health Centre expansion	Kempele Municipality	14,0
15.	Helsinki Airport pavement maintenance contract	Finavia	20,0
16.	Tampere Tramway	City of Tampere	266,0
17.	Oulu Children's and Women's Hospital	The Northern Ostrobothnia Hospital	265,0
	•	District	
18.	Kainuu Central Hospital	Kainuu Social Welfare and Health Care	153,0
	·	Joint Authority	
19.	Apron extension at Helsinki Airport	Finavia	100,0
20.	Hanaholmen Culture Center renovation	Senate Properties	30,0
21.	Hiukkavaara Community Centre	City of Oulu	20,0
22.	Kotka Police Station	Senate Properties	20,0
23.	Harppuunakortteli apartment block, Turku	The Seafarers' Pension Fund	120,0
24.	Renovation of highway 6	Finnish Transport Infrastructure Agency	76,0
25.	Äänekoski-Jyväskylä railway renovation	Finnish Transport Infrastructure Agency	74,6
26.	Syvälahti School	City of Turku	23,7
27.	Helsinki Think Corner renovation	University of Helsinki	25,0
28.	Pitkäkangas School renovation	City of Oulu	10,0
29.	Pohjankartano School renovation	City of Oulu	10,0
30.	Central Jakomäki redevelopment	City of Helsinki	42,0
31.	Tesoma social and healthcare service contract	City of Tampere	150,0
32.	Apartment house Raitinkartano, Espoo	The Seafarers' Pension Fund	52,1
33.	Yli-Maaria School	City of Turku	22,0
34.	Suomenlinna Tunnel	Suomenlinna Administrative Board	7,0
35.	Railway network maintenance contract KP2	Finnish Transport Infrastructure Agency	4,8
36.	Kinnari School	City of Järvenpää	32,0
37.	Helsinki Jokeri Light Rail	Cities of Helsinki and Espoo	508,5
38.	Hämeenlinna Central Hospital	KHSHP	321,0
39.	Helsinki Airport terminal expansion	Finavia	300,0
40.	Lahti Southern Ring Road	Finnish Transport Infrastructure Agency	258,0
41.	Kuopio University Hospital	Kuopio University Hospital	164,0
42.	Vaasa Central Hospital H building	Vaasa Central Hospital	141,0
43.	Keravanjoki School	City of Kerava	36,0
44.	Rajatorppa and Hämeenkylä Schools	City of Vantaa	32,5
45.	Road information system ICT alliance	Finnish Transport Infrastructure Agency	8,0
46.	Uudenmaankatu office building renovation, Helsinki	KOy Helsingin Uudenmaankatu 16-20	8,0
47.	Tikkurila Church	Vantaa parish union	44,0
48.	Espoo Monikko	City of Espoo	46,0
49.	Apartment house renovation contract, Helsinki	HOAS	25,0
50.	Lohja Education Centre (Laurentiustalo)	City of Lohja	22,3
51.	Infrastructure cost management ICT service alliance	Finnish Transport Infrastructure Agency	8,0
		and Cities of Helsinki, Espoo, Jyväskylä, Tampere, Turku and Vantaa	
52	Street lightning and traffic lights contract	City of loensuu	80
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ALLIANCE PROJECTS2011-2023

53. 54.	Lapland Central Hospital expansion University of Helsinki main building renovation
55.	Apartment house Kulttuurimajakka, Espoo
56.	Ylivieska Church
57.	Pakilanpuisto Schools and Day Care Center
58.	Operator services of Tampere Tramway
59.	Oulu Future Hospital B building
60.	Railway network maintenance contract KP1
61.	Tammela Stadion
62.	Turku street network maintenance contract
63.	Tapiola Church renovation
64.	Helsinki Crown Bridges Light Rail
65.	Hippos student housing block, Tampere
66.	Helsinki Finnish-Russian School
67.	Jätkäsaari football hall, Helsinki
68.	Helsinki Kalasatama Light Rail
69.	City Hall renovation
70.	Oulu Hospital C building
71.	National theater renovation
72.	Merikampus of Vaasa
73.	Jorvi hospital
74.	SUPO-house
75.	Turku Concert Hall
76.	Laakso hospital
77.	Successive renovations -project
78.	Track and signalling system maintenance alliance
79.	National museum expansion
80.	Vantaa prison new building
81.	Vantaa heat storage
82.	Hailuoto fixed link
83.	Kouvolan Asunnot appartments renovation
84.	Kokkola Sports Park Alliance
85.	Martinlaakso Biopower plant
86.	Kupittaa Partnership Project
87.	Vaasa cycling alliance
88.	Sea Water System Project Alliance
89.	Napsu Community Centre
90.	Kirjansalmi and Hessundisalmi bridges
91.	Residential Real Estate Property Service Alliances (2)
92.	Korpi alliance
93.	Koskela depot
94.	Pirkkala-Linnainmaa Tramway, Tampere
	TOTAL

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CLIENT	MILJ. €	
Lapland Hospital District	118,0	
University of Helsinki	28,0	
The Seafarers' Pension Fund	15,0	
Ylivieska parish	10,0	
City of Helsinki	53,0	
City of Tampere	90,0	
The Northern Ostrobothnia	375,0	
Hospital District		
Finnish Transport Infrastructure Agency	130,0	
City of Tampere	60,0	
City of Turku	33,0	
Espoo Parish Union	13,0	
City of Helsinki and Helsinki City Transport	370,0	
TUAS	118,6	
Senate Properties	25,0	
PPJ FOOLDAII Club	3,7	
City of Labri	300,0	
City of Lanu	500.0	
District	500,0	
Finnish National Theater	61.4	
University of Vaasa	14.0	
The Hospital District of Helsinki and	225.0	
Uusimaa	223,0	
Senate Properties	130,0	
City of Turku	62,2	
The Hospital District of Helsinki and	838,0	
Uusimaa and city of Helsinki		
Asuntosäätiö (residential property owner)	10,0	
Finnish Transport Infrastructure Agency	25,0	
Senate Properties	55,0	
Senate Properties	56,0	
Vantaan Energia	108,8	
Finnish Transport Infrastructure Agency	96,0	
Kouvola Housing Ltd	10,0	
Kokkola Sports park Ltd	50,0	
City of Turku	100.0	
	190,0	
Helen	706 D	
City of Rovaniemi	490,0 39.0	
Finnish Transport Infrastructure Agency	128.0	
Kouvola Housing Ltd	12.0	
Kajave	60,0	
Metropolitan Area Transport Ltd	275,0	
City of Tampere	335,0	
	9 641,9	

VISON LTD, FINLAND'S LEADING IPD EXPERT

Vison Oy is a business and construction management consultation company founded in 2012 and completely owned by its employees. The company employs a total of 30 specialists working in its offices in Helsinki and Oulu.

Vison provides services for the public and private sector related to strategy consultation, project and service procurement, management and coaching, as well as information management. The company specialises in contracting entities' strategic projects, complex projects and services, advanced purchasing and contractual arrangements, as well as lean construction and management.

Vison's mission since its establishment is to accomplish a systemic cultural change in the construction and real estate development industry in order to improve customer satisfaction, raise the standard of quality and increase productivity as well as promote cooperation between project partners. Vison is contributing to this change by being closely involved in various construction projects and coordinating major development programmes within the real estate development and building industry. Perhaps the most impressive of these is the IP project coordinated together with The Finnish Association of Building Owners and Construction Clients Rakli and RAIN3, a project set up jointly by real estate and construction companies.

Over the years, Vison has served as a consultant on some 100 complex IPD projects from railways, hospitals and churches to infrastructure maintenance and ICT projects executed using the alliance model. The aggregate value of the projects on which the company has served as a consultant amounts to EUR 9 billion.

Additional information: www.vison.fi



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