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Pekka Leviäkangas, Antti Talvitie, Harri Haapasalo, Maila Herrala, Pekka Pakkala, Marko Nokkala, Jussi Rönty & Kaisa Finnilä. Ownership and governance of finnish infrastructure networks [Teknisten verkostojen omistus- ja hallinnointimallit]. Espoo 2011. VTT Publications 777. 127 p. + app. 16 p.

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Executive summary

Shortage of capital to finance society's infrastructure networks (roads and streets, waterworks, ports, railways and airports) has resulted in new proposals for organizing, governing and financing these networks all over the world. Also in Finland, the State and municipal governments are seeking ways to reduce costs, improve efficiency and enhance customer orientation in public service delivery. Infrastructure networks in particular experience strong pressures to reduce their costs.

The objective of this research was to investigate and analyze the pros and cons of different ownership and governance models of infrastructure networks. The emphasis was on traditionally publicly owned streets, water and sewage networks and ports that hold the greatest development potential. National roads, railways, airports and energy networks were included in a smaller role. The main sources of information were interviews of municipal and state department executives arranged during 2009 and 2010, traditional literature reviews and financial statement analyses.

The infrastructure sector

Technical infrastructure networks are typically owned, administered and managed by the public sector as they are considered public goods and critical assets by the state and the municipalities. Although privatization movement has not advanced at the same pace in Finland as in several other countries, the public sector is beginning to adopt the business-like, entrepreneurial practices in the form of Municipality-Owned Enterprises (MOE) and Companies (MOC). The private ownership models that were observed during the course of the research were for the private road and waterworks co-operatives and (two) private ports.

Most of the municipal infrastructure networks are administered and managed through public agencies, municipality's departments or technical centres, which

are termed the client organization (excludes co-operatives). The physical works, services (e.g. design), and operations can be performed by municipality's labor force (the traditional model), the Municipality-Owned Enterprises or State-Owned Enterprises (SOE), the Municipality-Owned Companies or State-Owned Companies (SOC), private companies, or combination of these. The tasks performed by the client and supplier units vary between governance models and the level of expertise available in the municipality. If the direct labor force within the municipality has competence, the services are provided with own labor force up to its capacity. In the case where private markets do not exist within the municipality, services are procured from surrounding municipalities or directly from private market.

Most of the interviewees declared that the infrastructure networks should remain under public ownership (excluding private cooperatives), but the administrators, managers, operators and suppliers can be either public or private depending upon the circumstances and the potentially most cost effective approach. The variety of available models is broad and makes comparisons within a sector and between sectors a challenge. Different sectors are also advancing and introducing different models with different paces and motives.

Restructuring the infrastructure sector

From the sectors analyzed, waterworks, ports and energy are more active in restructuring, while streets and roads are slower and have a more cautious approach. The most probable explanation is that the current pricing and revenue collection from the use of streets and roads do not provide cash flow to "owners" or "investors", but the revenues go directly to the state treasurer. Other sectors like waterworks, ports and energy can price their services according to usage, are generally producing a positive cash flow to owners, and the benefits are uniform (waterworks, energy) or the beneficiaries can be identified explicitly (ports).

Moving from the traditional ownership structure toward other models requires a process where different types of systems, tools and competencies are developed. Restructuring should be a deliberate process, but can occur quickly especially in small to mid-sized municipalities, often in response to a crisis or an urgent need. The research team, however, refrains from asserting the conclusion that only economic or social pressures, although present, can drive the reforms. Rather, the driving forces should be better customer service, benefits and value

created to different stakeholders. It should be remembered that, when the technical part of restructuring process is completed, it may take several years before the desired objective and benefits are achieved. Restructuring can be viewed as an "investment", where the benefits have a slow start and accrue and accumulate later. It goes without saying that many uncertainties are associated with the desired outcomes.

Several interviewees in the project delivered the message that, economically, tougher times are ahead, and that the reforms are likely to encounter resistance. For instance, political difficulties include resistance against price increases, resistance to market-based competition leading to job losses in the short term, and the removal of possible cross-subsidization practices. "Micro-management" by the board, experienced particularly in some MOEs and traditional models, is a result of conflicting public and private interests. In the large municipalities the taxation of asset transfers when a company is formed can be a challenge.

Ownership and governance models of infrastructure networks

A SWOT analysis was carried out separately for each infrastructure segment and ownership and governance models to identify the strengths, weaknesses, opportunities and threats. Although each infrastructure has its unique features, some similarities can be detected.

In general, the most important strengths of the infrastructure networks' ownership, governance and operation are related to the stable and secure ownership from the municipal involvement and good knowledge of day-to-day operations. Bureaucracy, lengthy decision-making and short-sighted political interests are however clear weaknesses. Combined with a lack of transparency and accountability, sustainable development and maintenance of infrastructure networks and services is endangered. This can lead to deterioration of physical condition and diminished value of the infrastructure assets.

The traditional and MOE/SOE models do not always have a clear market mandate nor managerial freedom and they often are subject to political interference. That is contrary to good, market-oriented management principles and good governance recommendations. The aim of political interference seems to confer unfunded benefits to constituency, protect labor, or assign contracts without market competition.

An unresolved issue is the tax-free status of the MOEs. This puts them in unequal and preferential position relative to the MOCs and is a market distortion

unless the entity has a clear monopoly position that is hard to alter. The taxation issue is relevant especially for ports which are operating in competitive markets. Further market distortion is caused by negotiated contracts in some road and water cases. Legal development may be warranted to ease or avoid tax liabilities in changing to company form. In large municipalities the asset transfer tax liabilities can present a problem.

The traditional and MOE forms of organization often have overlapping supervision by many boards or committees that makes decision-making slow and bureaucratic. Consideration should be given to the elimination of politically mandated boards altogether. In the public context, it is emphasized that the corporate framework requires that there is a broadly-constituted board that would represent both professional and citizen interest to oversee the privately or publicly owned company or companies.

A general weakness in most infrastructure sectors is the lack of asset data and management systems as well asthe lack of awareness of asset condition and the costs of sustainable operations. As a result, a common perception is that there is a maintenance backlog that needs to be rectified; otherwise the costs of rehabilitation will be unnecessarily high when the breakdowns occur. Improved asset management and cost awareness are crucial issues and requires changes in the concept, a change in the way of thinking about management, governance, and stewardship of the infrastructure networks.

The SWOTs show that there is potential to incorporate business practices into the ownership model of MOEs and MOCs, but that varies from sector to sector and market context. This research finds arguments for the adoption of the (true) Client-Supplier model in service provision. The model is embedded in the MOC/SOC form of corporatization, and at the same undertakes measures to develop and strengthen markets and free entry to markets by companies to ensure competition. Both the Client-Supplier and MOC/SOC forms of organization have several variants, which combine manager and supplier roles and even administrator and manager roles and depend on local political and market context.

Financial analyses of infrastructure networks

In addition to the SWOT analyses, a financial analysis of infrastructure networks was conducted. The goal was to study the financial viability of infrastructure networks' ownership and governance (O&G) models from owners, investors and society’s viewpoint.

According to the research results, it appears that the ownership model in itself is not a guarantee for financial performance. One interesting finding is, however, that the MOEs seem to outperform MOC in almost all sectors and all measured performance indicators. A caveat is that the MOEs may receive hidden subsidies in addition to the known tax advantages. A provisional conclusion from the financial analysis is that the energy sector is the best performing industry, followed by ports and waterworks, keeping in mind that the results are far from a unified picture of a given industry.

None of the sectors is particularly dependent on the market fluctuations. The cash flows to the owners of infrastructure and utilities are non-correlative to the market returns and hence carry a small volatility risk. This is occurring, as expected, in all cases irrespective of ownership model. Hence the utilities in general appear as very good investments both on the public and private side. If we consider the possibilities to involve the private sector in ownership of the infrastructure networks in the future, the current returns are attractive to investors, given that the industries are practically market risk neutral. This calls for mechanisms where investors are able to directly invest in such utilities and have access to stable cash flow. Special investment vehicles, such as project companies or infrastructure funds might bring additional possibilities to the prospective investors, yet resulting in extra transaction costs.

Governance trends and business opportunities

Unmistakably, worldwide, the trend in the infrastructure network governance is toward greater private sector role, although almost all the infrastructure networks are and will remain publicly owned.

In Finland, the majority of infrastructure entities that administer and manage the infrastructure services are traditional municipal departments. Even in the supply of services the traditional model is still in many cases the predominant one, although the internal service supply has reduced significantly.

But the situation is constantly changing and the trend is clear. What used to be a ring-fenced public sector activity is increasingly adopting business-entrepreneurial practices. Both the state and the cities seem to be following the international pattern toward greater private sector participation on both the client and the supplier side. On the other hand, public sector is becoming ever more aware of the revenue generating potential of their infrastructure assets. Municipalities might start to see these “cost centres” more like investments.

Restructuring is thus likely to continue, but it is driven by external forces, not internal. This may lead to questionable ownership of the process and, therefore, to outcomes that are less optimal than intended. For instance, the transition from MOE status to MOC is likely to take place in energy and ports sectors, but with some transition time. Municipal streets are in an interesting transition over the last 10 years with the restructuring of technical services in smaller cities. The larger cities on the other hand are slower and show more resistance to restructuring. The infrastructure ownership issue has barely been touched.

Some sectors, such as waterworks, are likely to be less affected by restructuring due to their different business model. Openness and transparency should be pursued and could be achieved through restructuring.

According to the results of this study, the greatest business opportunity would result from allowing open entry to market and competition in contracting. This would mean abandoning of negotiated contracts and the evolution of functional markets. The scope of business opportunities will increase in all aspects of service delivery, from management to engineering and economic studies, asset management systems, engineering and maintenance works For private finance a clearly defined revenue stream is a necessity. Against such stream it is possible to raise debt capital and enhance the returns on equity. Otherwise private financing will not be interesting for those who make money out of it, i.e. for the investors. Hence restructuring as a MOC or SOC is an important advance and would open opportunities to help the infrastructure financing.

Debt financing could be one way of correcting the repair debt faced by many infrastructures. This would of course mean broadening the ownership and allowing other investors to step in – this would be better facilitated by MOC and SOC structures.

Conclusions

The interviews conveyed a clear message about a common belief that infrastructure, its ownership, governance and service delivery, are the responsibility of the public sector, especially in the municipalities. The key to critically review this belief requires a change in the mindset. This is a difficult task and has led to processes moving ahead at different paces. The rare cases in Finland where restructuring and changes in service delivery model have taken place through internal driving forces have first faced confronting the long-standing economic rationale about public services, but ultimately resulted in a processs forcing the

stakeholders to reconsider the benefits in the form of right quality of services at a lesser cost and price to the users.

Change is often difficult to assimilate and influence, but there are good examples from both state and municipal restructuring experiences. Likewise, it is good to learn from failures too. The indications from successful changes are that the changes should be broad, comprehensive and pervasive before they are able to deliver significant benefits.

A general conclusion is that one size does not fit all. The models described in the report give the owners leeway to organize the governance framework to fit the local conditions. The objectives should include a clear delineation of roles between the owner (client) and the suppliers (public and private). The municipalities should concentrate on ownership policy, and even reconsider the ownership options and forms, and improve their procurement knowledge and give clear mandate to the supplier organization, enhancement of the professionalism and business-oriented attitude of the board, and freedom for supplier organization to manage the entity. This approach would create markets for the private suppliers and improve the current ones.

Other requirements for good governance are at least: well-defined regulations; improved transparency and public disclosure; open entry for qualified firms to enter the market; competition for contracts; elimination of negotiated contracts with direct labor; use of procurement method that best meets the objectives of the assignment; and adoption of a pricing schedule that will provide a fair return on the investments, including their maintenance and eventual replacement.

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Tiivistelmä

Julkisella sektorilla teknisten verkostojen (kuten tiet- ja kadut, vesihuoltoverkosto, satamat, rautatiet ja lentokentät) rahoitus- ja ylläpitomahdollisuudet vähenevät jatkuvasti. Tämä johtaa uusiin tapoihin järjestää, hallinnoida ja rahoittaa näitä verkostoja kaikkialla maailmassa. Myös Suomen valtio ja kunnat etsivät keinoja vähentää infrastruktuuriverkostojen kustannuksia sekä parantaa niiden tehokkuutta ja asiakaslähtöisyyttä.

Tutkimuksen tavoitteena on selvittää ja analysoida erilaisten infrastruktuuriverkostojen omistus- ja hallintomallien vahvuuksia ja heikkouksia. Tutkimuksen pääpaino pidettiin perinteisesti julkisessa omistuksessa olevien katujen, vesihuoltolaitosten sekä satamien tarkastelussa, joiden toiminnassa on eniten kehityspotentiaalia. Kansallisiin teihin, rautateihin ja lentokenttiin keskityttiin vähemmän ja energiaverkkoja käytettiin vain vertailukohtana. Pääasiallisina tietolähteinä käytettiin infrastruktuuriverkostoissa mukana olevien toimijoiden haastatteluita vuosina 2009 ja 2010, kirjallisuutta sekä tilinpäätöksiä.

Infrastruktuurisektori

Tekniset verkostot ovat tyypillisesti julkisen sektorin omistuksessa ja hallinnassa, koska ne koetaan usein yleishyödykkeiksi, joiden toiminta tulee taata kaikissa olosuhteissa. Maailmalla näitä verkostoja on yksityistetty verrattain paljon, mutta Suomessa lähestymistavaksi on ennemmin valittu liikelaitostaminen tai yhtiöittäminen kunnan omistamaksi osakeyhtiöksi. Hallintomallimuutoksen avulla haetaan muun muassa palveluntuottajan parempaa liiketoimintalähtöisyyttä. Yksityisessä omistuksessa on Suomessa jo pitkään ollut tuhansia tieosuuskuntia sekä satoja vesiosuuskuntia. Nykyään Suomessa on myös muutama merkittävä yksityinen satama.

Suurin osa infrastruktuuriverkostoista on kuitenkin julkisessa omistuksessa. Palvelutuotanto voidaan toteuttaa joko omalla työvoimalla (perinteinen malli) tai

ostaa kunnan tai valtion liikelaitokselta, kunnan tai valtion omistamalta osakeyhtiöltä tai yksityisiltä yrityksiltä. Myös edellä mainittujen vaihtoehtojen erilaiset yhdistelmät tai kuntien väliset yhteistyösopimukset ja kuntayhtymät ovat usein käytettyjä vaihtoehtoja. Tilaajan ja tuottajan välinen tehtävänjako vaihtelee hallintomallin sekä käytettävissä olevan asiantuntemuksen mukaan. Mikäli kunnalla on osaavaa työvoimaa, mahdollisimman moni palveluista tuotetaan perinteisen, liikelaitos- tai osakeyhtiömallin mukaisesti. Jos omat resurssit eivät riitä, kunnat voivat hankkia palvelut esimerkiksi kehyskunnilta tai suoraan markkinoilta.

Suurin osa haastatelluista totesi, että infrastruktuuriverkostot tulisi säilyttää julkisessa omistuksessa (pl. yksityiset osuuskunnat), mutta omaisuudenhoitaja, palveluntuottaja ja toimittaja voivat olla joko julkisia tai yksityisiä riippuen olosuhteista ja siitä, mikä on kustannustehokkain lähestymistapa. Erilaisia käytössä olevia malleja on paljon, mikä tekee sektorien sisäisen ja välisen vertailun haastavaksi. Eri sektoreilla kiinnostus uudelleenjärjestelyihin on myös ollut erilaista ja muutoksia on tapahtunut hyvin eri tahtiin.

Infrastruktuurisektorin rakenneuudistuksen tarjoamat mahdollisuudet

Tutkituista sektoreista vesihuoltolaitokset, satamat ja energialaitokset ovat olleet aktiivisimpia uudistamaan rakennettaan. Kunnallisten katujen osalta uudistuksia on tehty vähemmän, joten niiden osalta muutokset ovat olleet varovaisempia. Todennäköisin selitys tälle sektoreiden väliselle erolle on palveluiden hinnottelussa ja toimijoiden tulovirroissa. Vesihuolto, satamapalvelut ja energiahuolto hinnoitellaan käytön mukaan, toiminta on kannattavaa ja edunsaajat voidaan tunnistaa selvästi. Teiden ja katujen käytöstä ei sen sijaan kerätä maksuja, vaan ne rahoitetaan verovaroin.

Rakenneuudistus ja siirtyminen esimerkiksi perinteisestä mallista liikelaitokseen tai osakeyhtiöön edellyttää toimintatapojen muutosta, jossa niin prosessien, järjestelmien, työkalujen kuin osaamisenkin täytyy muuttua. Rakenneuudistus voi etenkin pienissä ja keskisuurissa kunnissa tapahtua hyvin nopeasti vastauksena kriisiin. Tutkimusryhmä kuitenkin korostaa, että rakennemuutoksen tulee tapahtua harkitusti, eikä sitä tulisi toteuttaa pelkästään taloudellisen tai sosiaalisen paineen alla. Ajavana voimana tulisi pikemminkin olla parempi asiakaspalvelu, organisaation halu kehittyä ja kyky nähdä muutoksen tuomat edut ja lisäarvo eri sidosryhmille. On kuitenkin muistettava, että muutoksen jälkeen todellisten hyötyjen todentamiseen voi mennä useita vuosia. Rakennemuutos voidaan nähdä ”inves-

tointina", josta saatavat hyödyt näkyvät ja kertyvät hitaasti ja ovat lopultakin jossain määrin epävarmoja

Usean haastateltavan mukaan taloudellinen toimintaympäristö kiristyy tulevaisuudessa ja uudistukset tulevat todennäköisesti kohtaamaan vastarintaa. Esimerkkejä poliittisesti vaikeista asioista ovat hinnankorotusten vastustus, pelko markkinoihin perustuvan kilpailun vaikutuksesta työpaikkoihin lyhyellä aikavälillä ja mahdollisten tukikäytäntöjen poistamisen vaikutukset. Erityisesti perinteisessä ja liikelaitosmallissa lauta- tai johtokunnan liiallinen puuttuminen toiminnan yksityiskohtiin voi aiheuttaa ristiriidan yksityisen ja julkisen sektorin etujen välille. Etenkin suurissa kunnissa myös varainsiirtovero toimintoja yhtiöitettäessä voidaan kokea ongelmallisena.

Infrastruktuuriverkostojen omistus ja hallinto

Kunkin infrastruktuuriverkoston omistus- ja hallintomallien vahvuuksia, mahdollisuuksia, heikkouksia ja uhkia tunnistettiin perinteisen SWOT-analyysin avulla. Vaikka kukin sektori on ainutlaatuinen, voitiin sektoreiden välillä havaita myös yhtäläisyyksiä.

Tärkein infrastruktuuriverkostojen vahvuus liittyy nimenomaan kunnalliseen omistukseen ja sitä kautta vakaaseen ja turvattuun toimintaympäristöön sekä päivittäisen toiminnan tuntemukseen. Byrokratia, pitkät päätöksentekoprosessit sekä lyhytnäköinen politikointi ovat kuitenkin heikkouksia, joita on vaikea poistaa. Mikäli nämä yhdistetään avoimuuden ja vastuullisuuden puutteeseen, voi taloudellisesti kestävä kehitys ja palvelujen taso vaarantua. Tällainen toiminta voi johtaa infrastruktuurin fyysisen kunnon merkittävään heikkenemiseen ja arvon alenemiseen.

Perinteisessä mallissa ja liikelaitosmalleilla ei aina ole selkeää toimeksiantoa ja riittävää johtamisvapautta. Ne voivat olla myös osa poliittista näyttämöä, jonka logiikka ei noudata markkinaehtoista johtamista ja hyvän hallinnon periaatteita. Poliittisen puuttumisen syynä näyttäisi olevan muun muassa työntekijöiden suojeleminen ja palveluiden tuottaminen sopimuksellisesti ilman avointa kilpailua.

Liikelaitosten osittainen verovapaus on myös ollut pitkään ratkaisematon asia. Verovapaus asettaa liikelaitokset eriarvoiseen asemaan osakeyhtiöihin nähden ja vääristää markkinoita silloin kun toimitaan kilpailutilanteessa.Liikelaitoksen verovapaus on merkityksellinen erityisesti satamille.

Markkinoiden vääristymistä aiheuttavat myös kuntien sisäiset neuvottelusopimukset, joita käytetään erityisesti tiesektorilla, mutta myös vesihuollossa. Pe-

rinteisessä ja liikelaitosmallissa on usein päällekkäistä valvontaa ja hallintoa, jotka hidastavat ja byrokratisoivat päätöksentekoa. Päättäjien tulisi harkita poliittisesti valtuutettujen valvontaelinten poistamista kokonaan – kansalaisten intressejä tulee toki valvoa, mutta tämä voidaan toteuttaa muutenkin kuin poliittisilla mandaateilla. Liiketoimintalähtöinen toimintatapa edellyttää, että yrityksen toimintaa ohjaa ja valvoo asiantunteva ja monipuolisesti koottu hallitus.

Vanhasen/Kiviniemen hallituksen lakiesitykset valtion liikelaitoksista ja kuntien omat esitykset laeiksi kuntien liikelaitoksista poistavat tulevaisuudessa suuren osan kilpailuneutraliteetin ja läpinäkyvyyden ongelmista.

Keskeisiä heikkouksia useimmissa infrastruktuuriverkostoissa ovat puutteelliset tiedot ja johtamisjärjestelmät omaisuuden hallinnassa sekä tietämättömyys omaisuuden kunnosta ja kestävällä pohjalla olevan liiketoiminnan kustannuksista. Näiden seurauksena syntynyttä korjausvelkaa tulisi lyhentää, sillä saneeraukset vasta ongelman ilmennyttyä tulevat tarpeettoman kalliiksi. Parempi omaisuuden hallinta ja kustannustietoisuus ovat ratkaisevia oikeiden investointi- ja ylläpitopäätösten perustana, ja niiden omaksuminen osaksi rutiinipäätöksentekoa vaatii ajattelutavan muutosta infrastruktuuriverkostojen johtamisessa, hallinnossa ja taloudenhoidossa.

Tutkimustulosten perusteella liikelaitos- ja osakeyhtiömalleihin on mahdollista sisällyttää entistä enemmän liiketoimintalähtöisiä käytäntöjä, mutta mahdollisuudet vaihtelevat jonkin verran sektoreittain ja riippuvat vallitsevista markkinaolosuhteista. Tutkimustulosten mukaan todellinen tilaaja–tuottaja-malli yhdistettynä kunnan tai valtion omistamaan osakeyhtiömalliin on eräs hyvä toimintatapa. Samaan aikaan tulisi kuitekin kehittää ja vahvistaa markkinoita ja edistää yritysten vapaata pääsyä markkinoille kilpailun takaamiseksi. Sekä tilaajan että tuottajan roolit voivat vaihdella paikallisesta poliittisesta tilanteesta tai markkinatilanteesta riippuen.

Infrastruktuuriverkostojen tilinpäätösanalyysi

SWOT-analyysien lisäksi infrastruktuuriverkostoille tehtiin taloudellinen analyysi. Tavoitteena oli selvittää eri omistus- ja hallintomallien taloudellinen kannattavuus omistajien, sijoittajien ja yhteiskunnan näkökulmasta.

Tutkimustulosten mukaan mikään omistus- tai hallintomalli ei yksistään takaa hyvää taloudellista suorituskykyä. Mielenkiintoinen havainto on kuitenkin se, että liikelaitokset näyttivät suoriutuvan kunnan omistamia osakeyhtiöitä paremmin lähes kaikilla mittareilla mitattuna ja kaikilla aloilla. Huomionarvoista on

sekin, että liikelaitokset voivat vapaammin säädellä tilinpäätöksiään ja -kirjanpidon kirjauksiaan eivätkä ole verovelvollisia. Tämän tutkimuksen perusteellä näyttäisi siltä, että energiasektori on parhaiten menestyvä ala. Myös satamat ja vesihuoltolaitokset menestyvät tehtyjen tilinpäätösanalyysien perusteella hyvin. On kuitenkin muistettava, että saadut tulokset eivät anna luotettavan yhtenäistä kuvaa ykisttäisestä sektorista.

Yksikään tarkastelun alla olleista aloista ei näytä olevan riippuvainen arvopaperimarkkinoiden vaihteluista. Omistajille tulevat rahavirrat eivät korreloi markkinatuottoon, minkä takia infrastruktuurisektorilta saatavilla tuotoilla voidaan katsoa olevan pieni riski. Samanlainen tilanne oli odotetusti kaikissa tapauksissa riippumatta omistus- ja hallintomallista. Näin ollen infrastruktuuriverkostot ovat sekä julkisen että yksityisen sektorin näkökulmasta hyviä sijoituskohteita. Koska infrastruktuuriverkostot ovat käytännössä markkinariskittömiä, ovat nykyiset tuotot ja tasainen kassavirta houkuttelevia myös ulkopuolisille sijoittajille. Teknisessä rahoitusanalyysissa todennettava markkinariskittömyys ei kuitenkaan poista monia muita riskejä, jotka liittyvät teknisten verkkojen tuottoon: kysyntään, tekniseen kuntoon, ympäristöön, turvallisuuteen ja moniin muihin näkökulmiin liittyy edelleenkin riskejä aivan kuten muissakin sijoituskohteissa.

Ulkopuolisten sijoittajien mukaantulo edellyttää pääsääntöisesti omistuksen osittamista. Erityiset sijoitusvälineet, kuten projektiyhtiöt ja infrastruktuurirahastot, voivat luoda mahdollisuuksia ulkopuolisille sijoittajille, joskin niidenkin hallinto muodostaa uuden kustannuserän.

Trendit ja liiketoimintamahdollisuudet

Selkeä maailmanlaajuinen trendi tällä hetkellä on yksityisen sektorin roolin vahvistaminen infrastruktuuriverkostoissa, vaikka lähes kaikki verkostot ovat edelleen julkisessa omistuksessa. Suomessa suurin osa infrastruktuurin hallinnosta, johtamisesta ja palveluntarjonnasta on organisoitu perinteisten julkisten yksiköiden alaisuuteen, erityisesti kuntasektorilla. Tilanne on kuitenkin muuttumassa ja suunta on selvä. Aiemmin selkeästi julkisen sektorin perinteisellä tavalla organisoiduissa tehtävissä toimitaan yhä liiketoimintalähtöisemmin. Sekä valtio että kunnat näyttävät seuraavan kansainvälistä esimerkkiä lisäämällä yksityisen sektorin roolia sekä tilaajan että tuottajan puolella. Toisaalta julkinen sektori on yhä tietoisempi infrastruktuurin tuottomahdollisuuksista ja kunnat voivat tulevaisuudessa nähdä perinteiset ”kustannuspaikat” enemmänkin investointeina ja positiivisen kassavirran lähteinä.

Rakenneuudistus siis jatkunee, mutta sitä ajavat enemmän ulkoiset kuin sisäiset voimat. Tämä voi johtaa kyseenalaisiin omistajuus- ja hallintoratkaisuihin, jotka ovat tarkoitukseensa sopimattomia. Esimerkiksi liikelaitokset muuttuvat osakeyhtiöksi todennäköisesti sekä energia- että satamasektoreilla, mutta selkeällä siirtymäajalla. Kuntien katupuolella on tapahtunut mielenkiintoisia muutoksia viimeisen kymmenen vuoden aikana. Rakenneuudistuksia on toteutettu etenkin pienissä kunnissa, mutta suuret kunnat ovat selvästi hitaampia ja niissä on havaittavissa enemmän muutosvastarintaa. Joillakin aloilla, kuten vesihuollossa, rakennemuutos ei ole ollut niin merkittävä erilaisen liiketoimintamallin vuoksi. Myös tällä sektorilla on kuitenkin ollut muutoksia, mikä on lisännyt toiminnan avoimuutta ja läpinäkyvyyttä.

Tutkimustulosten mukaan suurimmat liiketoimintamahdollisuudet infrastruktuuripalveluissa syntyvät, jos sopimukset kilpailutetaan ja yrityksillä on avoin pääsy markkinoille. Tämä merkitsee neuvotelluista sopimuksista luopumista ja toimivien markkinoiden kehittymistä. Avoimet markkinat mahdollistavat uusia liiketoimintamahdollisuuksia kaikilla palveluiden osa-alueilla: palveluntuotannossa, johdossa, suunnittelussa, kunnossapidossa, taloudellisissa tutkimuksissa ja omaisuudenhallintajärjestelmien kehittämisessä.

Omistajuuden osalta yksityisen rahoituksen käyttö ilmantakauksia edellyttää selkeästi määriteltyä tulovirtaa, jota vasten omistussijoitus tehdään. Muussa tapauksessa yksityisen rahoituksen merkitys on pieni. Rakenneuudistus kunnan tai valtion omistamiksi osakeyhtiöiksi on siten tärkeä edistysaskel ja avaa uusia mahdollisuuksia infrastruktuurin rahoittamiseen. Yksi mahdollisuus rahoittaa infrastruktuurin korjausvelka olisi puhdas velkarahoitus, joka tilinpäätösanalyysin valossa olisi hyvinkin mahdollista. Tämä kuitenkin tarkoittaisi omistuksen jakamista ja yksityisten sijoittajien päästämistä osallisiksi kunnalliseen tai valtion omistamaan osakeyhtiöön tai muuhun omistusmalliin, joka mahdollistaa omistusjaon. Samalla kassavirta joudutaan jakamaan omistajien kesken pitkälle tulevaisuuteen.

Yhteenveto

Haastateltavat välittivät selkeän viestin siitä, että infrastruktuurin omistus, hallinto ja palveluntuotanto ovat julkisen sektorin (erityisesti kuntien) vastuulla. Avain tämän käsityksen kriittiseen tarkasteluun on ajattelutavan muutos, osin myös taloudellinen pakko. Muutos on vaikea, minkä takia rakenneuudistusta on tehty eri sektoreilla hyvin eri tahtiin. Niissä harvoissa suomalaisissa tapauksissa,

joissa rakenneuudistus on tapahtunut sisäisten voimien vaikutuksesta, on ensin kohdattu julkisten palveluiden pitkäaikaiset taloudelliset perustelut ja kyetty tarkastelemaan saavutettavia hyötyjä laadukkaiden ja edullisten palveluiden näkökulmasta. Jotta voidaan saavuttaa laajempia hyötyjä, muutoksen on oltava tarpeeksi kattava.

Yleisesti voidaan todeta, että yksi malli ei sovi kaikille. Tutkimuksen aikana kuvatut mallit tarjoavat omistajille erilaisia mahdollisuuksia järjestää infrastruktuuriverkostojen hallinto paikallisiin olosuhteisiin sopivaksi. Tavoitteena tulee olla selkeä tehtävänjako omistajan (tilaaja) ja tuottajan (yksityinen tai julkinen) välille. Kuntien tulee keskittyä omistajapolitiikkaan, jopa harkita omistajuuden muotoa ja tarvetta, ja hankintaosaamisen kehittämiseen, lisätä hallitukseen ammattitaitoa ja liiketoimintalähtöisyyttä sekä luoda tuottajaorganisaatioille toiminta-edellytyksiä. Tällainen lähestymistapa parantaisi ja loisi markkinoita myös yksityisille toimijoille. Muita vaatimuksia ovat huolellisesti laadittu lainsäädäntö, yhteiset pelisäännöt avoimuudesta ja tietojen julkistamisesta sekä yritysten avoin pääsy markkinoille. Lisäksi sopimukset on kilpailutettava ja oman työvoiman kanssa tehtävät neuvottelusopimukset poistettava. Hankintamenetelmät tulee harkita tilannekohtaisesti ja hinnoittelumalli valita niin, että se mahdollistaa investointien ylläpidon ja korvaamisen sekä kohtuullisen tuoton.

Preface

Finland's infrastructure is an important asset. It is essential for the wealth generation without which the mobility of people, goods and services would not exist in the form they do today. Infrastructure is first and foremost an enabler, but it also is an entity on its own right, because many industries and businesses depend on it. Infrastructure *is* business and there is a lot of business *on* the infrastructure. Infrastructure supply and delivery is a result of a complex production network involving the owners, administrators, managers, and an extensive network of service suppliers: planners, designers, operators, and contractors. There is a need to obtain a comprehensive understanding on how to govern, manage and regulate the infrastructure as well as the different functions on and in it.

This report summarizes the results of research carried out in C-Business (Communities' infrastructure networks – their ownership, governance and operation) project. The project was launched in 2008 upon the approval of the project plan by the National Technology Agency of Finland as the main financier. Other financiers included: Ministry of Transport and Communications, Finnish Road Administration (now Finnish Transport Agency), City of Oulu, Ministry of Finance, The Association of Finnish Municipalities, Pension Fennia, Destia Ltd., and Helsinki City Transport. European Investment Bank provided financial support to the project through its STAREBEI program.

We thank the financing institutions and appreciate their support throughout the project. We also thank the people and organizations who provided data, information and ideas and in so doing helped the conduct of the research.

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List of abbreviations and definitions

FCF *Free cash flow.* The amount of funds available for a company of the operating profit after deduction of taxes and investments.

FoM *Federation of Municipalities (kuntayhtymä)*. Is owned by two or more municipalities and is established by mutual agreement. According to the law, FoM is an independent legal entity separate of its member municipalities. FoM resembles MOE with MOC features.

FTA *Finnish Transport Agency (Liikennevirasto).*

MOC *Municipal-Owned Company (kunnan tai kuntien omistama osakeyhtiö).* Operate as commercial business under Limited-liability Companies Act. Do not have societal obligations like and receive no government or municipal financial support.

MOE *Municipal-Owned Enterprise (liikelaitos)*. Business unit, for which municipal council has defined the state of (financial) independence.

OECD *Organisation for Economic Co-operation and Development*

PPP *Public-Private Partnership*. Partnership between the public sector and the private sector for the purpose of delivering a project or a service traditionally provided by the public sector.

SOC *State-Owned Company.* Operate as commercial business under Limited-liability Companies Act. Do not have societal obligations like and receive no government or municipal financial support.

SOE *State-Owned Enterprise*. Business unit, for which government has defined the state of (financial) independence.

ROA *Return on Assets*. Company's net result, financial expenses and taxes divided by average adjusted balance sheet total.

ROCIM *Return on Capital Invested by Municipality*. The ratio of money sent to municipality over the money received from the municipality in the company's balance sheet.

ROE *Return on Equity*. Company's net result of 12 months divided by average adjusted shareholders' equity of the fiscal period.

ROI *Return on Investment*. Net result, financial expenses and taxes of a company divided by average invested capital of the fiscal period.

1. Background and objectives

1.1 Introduction

Shortage of capital to finance society's infrastructure networks (roads, and streets, waterworks, ports, railways and airports) has resulted in new proposals for organizing, governing and financing these networks all over the world. New ways of thinking, such as New Institutional Economics with its roots in Coase's work (1998), have inspired numerous studies on organizational arrangements of public institutions (see e.g. Eggertsson 2005). Project finance is an example of pragmatic applications of institutional economics using public-private-partnerships (PPP) and other unconventional financing models. Leviäkangas (2007), presents a good review on project finance and Välilä (2005) for PPP. There is copious literature on project finance, on whether PPP is more economical than conventional procurement, see for example Leviäkangas (2007), Blanc-Brude et al. (2006), Shaoul et al. (2006), and Kain (2002). However, institutional arrangements have not previously been studied systematically, except some isolated privatization cases. Privatization has been analyzed by many authors, e.g. Mees (2005) in Australia and Kay (1993) in the UK. Restructuring and institutional arrangements and their evolution have also been a major issue that has been discussed, but the discussion has been sector and mode-specific (see e.g. Talvitie 1996 for road sector and Leviäkangas 2000 for the railways).

Also in Finland, the State and municipal governments are seeking ways to reduce costs, improve efficiency and enhance customer orientation in public service delivery. Infrastructure networks in particular, are experiencing strong pressures to reduce their costs, also in Finland. Various means and arrangements are attempted to lower the costs to administer, manage, provide access and supply the services. Governance can be seen as the common denominator for these development actions. Most of the infrastructure networks in Finland are owned and managed by local municipal governments, or the State. Finland has not experi-

enced liberalization and privatization comparable to the Anglo-Saxon countries. Organizing some infrastructure services as companies owned by state or municipalities has, however, taken place. Infrastructure networks and services are often monopolies, but many services can be, and are purchased from the private market, i.e. design, operation, construction, maintenance and management services.

There seem to be no comprehensive studies addressing the question of different types of Ownership and Governance (O&G) models and the related technical-economic risks. There are no existing analyses on the pros and cons of different models. This research report attempts to fill this gap. The variety of O&G models observable in Finland may well be the result of case-specific thinking for different infrastructure sectors. Table 1 presents the existing O&G models.

Table 1. Existing ownership and governance models.

Network or node		Ownership	Governance model
Transport	Public roads	State	Mandated infrastructure administrator and manager; from 2010 onwards Finnish Transport Agency, before that the Finnish Road Administration
	Streets and communal roads	Municipality / city / private road association	Mandated department of the municipal government, a private road association, or a municipal-owned enterprise.
	Rail network	State	Mandated infrastructure administrator; from 2010 onwards Finnish Transport Agency, before that the Finnish Rail Administration
	Ports	Municipality / city/private	Municipal-owned enterprise or municipal-owned company or department in the municipality administration / private limited company
	Airports	State	State-owned company
Municipal infrastructure networks	Water & sewage	Municipality / city	Municipal-owned enterprise or municipal-owned company or department in the municipality administration, or a cooperative
	Local electricity	Municipality / city or private	Municipal-owned enterprise or municipal-owned company or private limited company
	Local telecommunications	Private	Private limited company or a cooperative
	Heating	Municipality / city or private	Municipal-owned enterprise or municipal-owned company or a private limited company
National transmission grids or networks	National electricity gridlines	Private (the state has a minority share)	Private limited company
	Telecommunications	Private (the state has a minority share in some)	Private limited company

1.2 Objectives and scope

The objective of this research was to investigate different Ownership and Governance models (O&G) of infrastructure networks serving communities, municipalities, associations of municipalities, and the state. The research objectives can be summarized as follows:

1. Mapping O&G structures and models.
2. Assessing the strengths, weaknesses, opportunities and threats of different O&G.
3. Assessing risks: business and investor risks of investments in infrastructure networks; socio-economic risks; and main technical risks and their impacts.
4. Identifying business and investment opportunities enabled by different O&G structures.
5. Pointing out unutilized potentials for added value.

In this research, the emphasis was on municipal streets, water and sewage networks and ports. These networks are mostly traditionally organized by public entities and they hold the greatest development potential. National roads, railways and airports were included to a lesser extent (for more information see Leviäkangas 2000, and Leviäkangas & Talvitie 2004). Energy networks were used as a benchmark due to their advanced business nature. Telecommunication networks were left outside the scope of this research because they are fully privatized and operate in competitive markets.

1.3 Methodology

Semi-structured interviews were used as the main source of information. Structured questionnaires were utilized as an interview guide, but interviewees were given the freedom to express their views and interviewers were allowed to ask additional questions when necessary. The interviews were kept as informal as possible. The objective was to capture the state of practice and to obtain a comprehensive picture of the infrastructure networks and their ownership and governance. Typical interviewees included infrastructure network, municipal and state department executives. The infrastructure networks included roads and streets, railways, waterworks, ports, airports, and to a limited extent local munic-

ipal energy producers. The interviews were arranged during 2009 and 2010. The interview questions are included in Appendix A and the list of interviewees in Appendix B.

The interviews formed a basis for describing the existing ownership and governance structures and their variants. In addition, flow diagrams developed identified the ownership and governance structures and the main services provided by the infrastructure networks. This included identification of the main owner, administrator/client, manager or operators, and service suppliers, the activities, and the customers of the services. In addition, revenue sources were identified to clarify if the used models included sunken costs, entrepreneurial models, public corporate models, or taxpayer subsidized models.

The interview results were utilized to classify different ownership arrangements and describe their streghts and weaknesses. There are numerous variations and practices used by the municipalities.[2] Some state networks, under the state ownership jurisdiction, were also included. This was important because state entities are more advanced in their restructuring and also have a greater visibility. Apart from the research work and interviews, this research also benefited from two stakeholder workshops (held in Oulu April 8, 2010 and in Espoo April 9, 2010), where municipality technical directors and experts provided valuable insight to the project.

Quantitative analyses of selected infrastructure networks financial statements were also conducted. The financial analyses and indicators were considered important in order to understand the financial performance of different units. These analyses followed the standards of financial information analysis developed to study companies listed in a stock exchange (Committee for Corporate Analysis 2006). Because not all the performance measurement tools are applicable to non-listed entities, the Association of Finnish Local and Regional Authorities was consulted for additional tools. For the analyses, publicly available financial information, profit and loss statements and balance sheets, were used as the core data from which all the ratios were calculated. The key financial ratios calculated included cash flow (Free cash flow), beta values and key profitability ratios (Return on investment (ROI), Return on assets (ROA), and Return on equity

[2] The road/street sector identified ownership structures in more than 135 municipalities, which were then classified into six major types. This is a large 40% sample of the 336 (in 2011) municipalities in Finland and lends credence to the typology and other results.

(ROE), cost of equity (Re), cost of debt (Rd) and weighted average cost of capital (WACC)). The details are explained in Chapter 4 and in Appendix C.

1.4 Report structure

The report consists of seven parts. This chapter has described the background, objectives and method of this study. Chapter 2 discusses and identifies the ownership and governance models of infrastructure networks and presents the developed classification framework. Interview results are presented in Chapter 3, where each sector is dealt separately. Chapter 4 shows the financial information of the entities, analyzed using methods usually applied to listed companies. Chapter 5 presents the strengths, weaknesses, opportunities and threats (SWOT) of the studied ownership models. In Chapter 6 the trends in sectors are studied and analyzed based on the results of the research and information gathered. Finally, Chapter 7 concludes from the research with some key messages and ways forward in Finnish networks and utilities industries.

2. Ownership and governance of infrastructure networks

2.1 Brief history

Communities' infrastructure networks such as electricity, heating, water, sewage, telecommunications and transport networks have traditionally been owned and operated by the public sector. These public goods have often been provided through taxes, even though pay schemes that exclude non-payers would have been technically feasible. Free services have been provided because of a belief that denying public services to non-payers would be denial of rights (Jacobson & Tarr 1995). Current economic theories, however, argue that many public utilities and services can be delivered more efficiently when private sector is involved or when the entity delivering the service is corporatized or privatized. The private sector is said to bring stronger managerial capacity, access to new technology, specialized skills and more flexible and rapid response to changes in the world markets (Rondinelli 2003). Also opposite opinions have been presented that, in certain circumstances, public ownership or public-private partnerships would be more efficient.

The rise of the public ownership took place at the beginning of the 20th century. Economics supported government ownership if any market inequities or imperfections such as monopoly power or externalities were present (Shleifer 1998). It was believed that government could protect the companies from the power of the market and secure the post-war service provision of socially important commodities (Taylor 2006, Perotti 2004). These ideas lasted for several decades until the ideas of economic transformation at the end of the 1970s. Protection, rent-seeking and customs barriers gave way to (regulated) profit maximization and efficiency acquired through private sector involvement.

The wave of privatization started in the early 1980s with the UK government taking the lead under Prime Minister Margaret Thatcher. Privatization spread rapidly worldwide. In many countries previously nationalized infrastructure networks were sold to private ownership. However, privatization experienced difficulties during and after the process, such as increased prices, self-serving management, deterioration of quality of the product or service or both, and other nuisances. It was realized that, in absence of good regulatory framework, privatization does not always lead to lower costs, better quality or more efficient production because, from the public viewpoint, of the private sector objectives did not coincide with those of the public. Privatization processes are still going on in some developing countries, but in the industrialized world it has declined a little. In the latter countries, private sector involvement is being used in different ways when emerging economic theories and financing instruments suggest that methods such as corporatization of public entities, public private partnerships (PPP), or other market-oriented mechanisms might offer higher and sustainable benefits in the provision of public services.

Public private partnerships started to gain ground in the 1990s when the negative consequences of the privatization processes became clearer and when it was understood that purely public provision is not efficient either. The partial inclusion of the private sector in projects and in the provision of public services gives the advantages of the strengths of both the public and the private sectors. Private sector is thought to effect more competitive and economically efficient operations while the public sector emphasizes more social responsibility and accountability. Figure 1 shows the ownership and governance reforms.

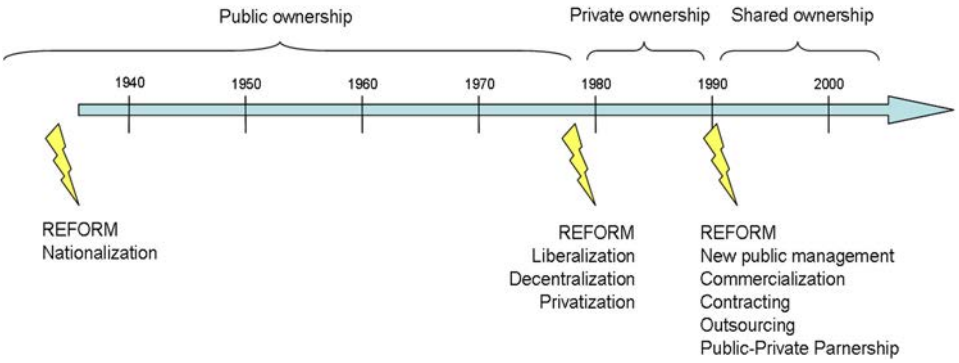

Figure 1. Reforms and development of ownership.

Politics has always influenced public service provision. This is also true in today's Finland. Infrastructure development, kinds of public goods demanded, and the roles played by private firms have over the years been shaped by politically important actors and the workings of government, political, and legal institutions. The same holds true also abroad; in the US, for example, regulatory, franchising and contracting arrangements have been influenced by the opinions of how "public" the various goods and services are. When the service has been seen as predominantly "private", the private service provider is makes decisions about price, output and quality of the service. When the service instead has been seen as public, these decisions have had to be made, or at least regulated, by government agencies, regardless of the role played by the private sector (Jacobson & Tarr 1995).

2.2 Definitions

Ownership has four attributes (Olsson 1999, Alchian & Demsetz 1973, Alchian 1993): (i) the right to decide how the property is used; (ii) the right to benefit and earn income from the asset's use or lease; (iii) the right/obligation to bear the consequences if the net value of the property changes; and (iv) the right to sell, give up or exchange the property and exclude others from using it.

Transferability of property rights enables the separation and specialization of ownership and control, that is, the separation of the ownership from management.[3] Although this can bring benefits, it also introduces the principal-agent problem: will the agent (the management) pursue the principal's (the owner's) objectives under asymmetric information and diverging interests. In order to align the interest of the principal and the agent, the latter's compensation contracts must on one hand have fair risk-sharing properties, and on the other hand the Board of Directors need to have the powers to represent the interests of the principals and exercise appropriate control over the operations. The principal-agent problem is dealt with by means of corporate governance.

[3] There are, in fact, normally four actors involved in infrastructure services: the owner (normally the state or municipality); the administration (which makes or procures the plans to effect the owner's policies); the manager (which supervises or controls that the plans and services are carried out as specified); and the supplier/operator (which designs, builds, maintains and operates the infrastructure services). These are explained more thoroughly later in the text.

The definition of corporate governance is taken from Organization for Economic Cooperation and Development (OECD): *"Corporate governance is the system by which companies are directed and controlled, in the interest of shareholders and other stakeholders, to sustain and enhance value."* OECD has proposed a 'menu' of good governance for external and internal control mechanisms that motivate corporate executives to make decisions that enhance the firm's value to its stakeholders.

Good governance essentially means:

- focusing on the organization's purpose and on outcomes for citizens and service users
- performing effectively in clearly defined functions and roles
- promoting values for the whole organization and demonstrating the values of good governance through appropriate behavior
- taking informed, transparent decisions and managing risk
- developing the capacity and capability of the governing body (Board) to be effective
- engaging stakeholders and making accountability real.

Appendix D details the OECD 'menu' for good governance in state-owned enterprises (SOE) and companies (SOC). These are well-observed in most SOEs and SOCs in Finland. However, in municipally owned enterprises (MOE) and companies (MOC) the experience is mixed, in fact their characteristics fall far short of several of the 'menu's requirements.

Governance is especially important when the ownership and control are separated, as they should be in SOEs and MOEs. When the ownership is divided between many parties, as is sometimes the case in Finland, or when the owners do not "run" the company, as is also the case in many Finnish SOCs, SOEs, MOEs and MOCs, but have a management team in charge of daily operations of the company, corporate governance is of central importance. Governance is important even when the owners' employees operate the infrastructure networks as is the case for most infrastructure networks in Finland, which are operated by a department in the municipal administration or a state entity. The role of the Board of Directors to ratify and monitor important decisions and to avoid collusion between owners and management of the control agents is a difficult issue in state or municipality-owned entities.

The OECD ‘menu’ addresses these issues (see Appendix D). Briefly, good corporate governance requires the creation and establishment of institutions and mechanisms, which can reduce the transaction costs arising from the separation of ownership and control. Governance is about information sharing and trust between owners and administrators and managers so that the owners can not only have confidence but can also monitor and verify that the management makes reasonable decisions from the owner’s viewpoint.

The choice of ownership form, control (Board) and operation (administration and management), the Board mediating between the other two, defines the governance framework and, ultimately, the performance and efficiency of the enterprise and its operation (Figure 2). This governance framework is also determined in relation to decentralization, outsourcing, commercialization, corporatization or privatization and public-private partnerships as discussed later. Note that the governance framework encompasses also ownership, although in the sequel, for clarity, ownership is often viewed as an independent choice.

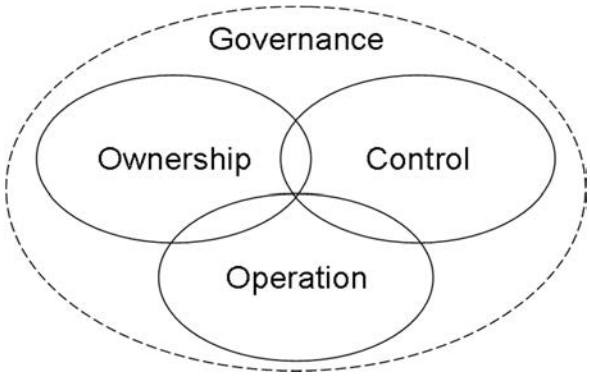

Figure 2. Ownership, control, operation and governance.

2.3 Situation in Finland

Most of the infrastructure networks in Finland are publicly owned and the privatization movement has not advanced at the same pace as in several other countries. Technical infrastructure networks are typically owned, administered and managed by the public sector as they are considered public goods and critical infrastructure by the state and the municipalities. However, the public sector is beginning to adopt the business entrepreneurial practices in the form of Municipality-Owned Enterprises (MOEs) and Companies (MOCs).

The private ownership models that were observed during the course of the research were for the private road and waterworks co-operatives and (two) private ports. The range of variations is from the public departments which deliver all services by public employees to the purely private. Most of this report deals with infrastructure under public ownership.

There are important differences between public companies and public enterprises. Importantly, the public enterprises cannot go bankrupt, they do not have to pay VAT and other taxes, and often – even after the EU SOE decision – they are in some places competing with entities organized as companies. When contrasted with the OECD guidelines for the SOE, the MOEs fall short on many dimensions, as reviewed in Appendix D. It also is necessary to make a distinction between Client MOE/SOEs and Supplier MOE/SOEs. The former procure services or products, either by negotiation or competitively, and the latter supply the services or products the clients have procured either through competition or direct negotiations.

Many waterworks, ports, energy and the airports are already public enterprises (MOE/SOE) or companies (MOC/SOC). This may be due to their customers paying directly for the services or products they use, these revenues cover (most of) the expenditures. In the municipalities, the road and street users are not paying directly for their use, but funds are provided from the general budget, which presents a management challenge for the municipality's technical directors. At the state level, the road and waterways users pay special taxes and fees for road or seaway use; these revenues accrue to the state as general tax revenue. The taxes and fees collected from the road users more than cover the expenditures on the roads (Leviäkangas & Talvitie 2004); but fall slightly short for seaways. Of course, for both roads and seaways, there are regional variations in the cost recovery. The railway users pay for rail service operator, VR, for service, although the publicly owned infrastructure cost is mostly covered through state budget. For roads and railways the taxpayers do pay for the infrastructure, but until 2009 in road sector the special fuel tax was levied on the road users only, however the tax was not ear-marked for road infrastructure costs; in the railway the majority of infrastructure costs is covered by direct state budget transfers, with only a fraction recovered from user charges through VR. These two sectors provide an incomplete picture of the sector financing when assessed only through revenues collected.

From 2009 onwards, the road traffic has been subjected to carbon-based taxation. This resulted in a decrease in the cost recovery of the sector as far as public state roads are concerned, but still covered all the costs (Leviäkangas & Hautala 2011).

The state has been more active than the municipalities in restructuring the infrastructure networks. The main motivation or logic is that the state has been more intent to restructure in order to reduce the national budget expenditures for infrastructure administration and management. Some restructuring is also taking place in the municipalities as several small to mid-sized municipalities have adopted the (true) client-supplier model, explained in the next chapter. Even in a few of the larger cities there are MOEs both in the client and supplier side. Restructuring does not necessarily lead to converge towards privatization or private service provision. What is more important is to strive for efficiency gains through restructuring measures. Several challenges exist, preventing the municipalities becoming good stewards of infrastructure networks. The challenges include how to keep or return the assets in good condition, how to obtain good knowledge of asset conditions and accurate cost information about asset maintenance, and how to procure the supplier services competitively from the market.

Governance correlates with ownership and includes a hierarchal structure, which has a systematic approval process where issues, budgets, management and administration, and others pressing issues are decided. Various types of boards and committees are the mainline structure, while the technical network agencies and departments run the day-to-day operations and management of the infrastructure networks. The governance structures between the state and municipalities are quite similar, but change when different models are used. Figure 3 shows the different of governance arrangements for both the state and municipal levels.

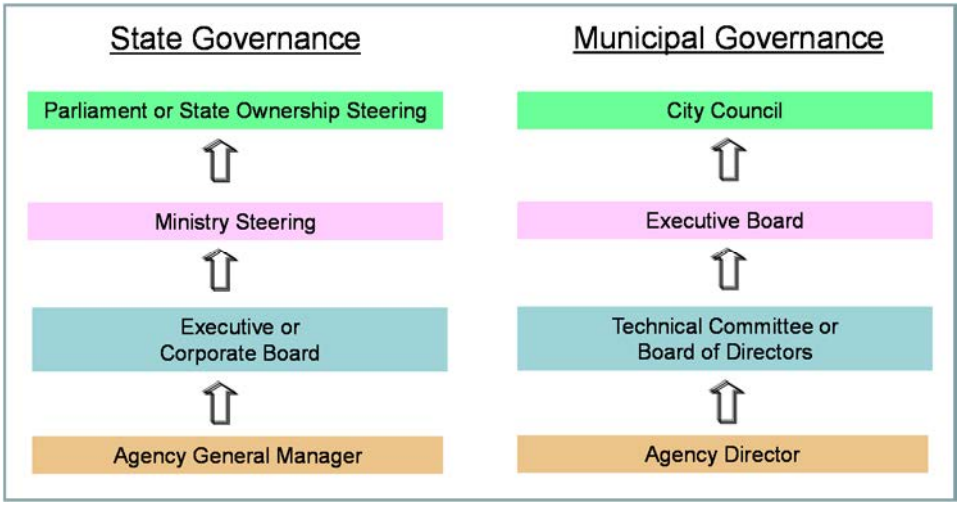

Figure 3. Typical governance structure.

C-Business project has examined several types of governance models for infrastructure networks, both at the state and the municipal level. The actors involved in all infrastructure sectors include:

- *Owner* defines the legal and organization framework, policies, goals, and funding. In Finland there are three kinds of owners: the state, the municipalities, and private companies and cooperatives.
- *Administrator* ensures that the policies, goals, and political aims of the owner are fulfilled For example, in Finland, the administrator for the national roads is the Finnish Transport Agency, aided by the ELY Regional offices; in the municipalities the administrator is usually the city's technical department
- *Manager* specifies the activities in detail, procures, supervises, and monitors the works. In the road sector, the manager is ELY regional office for the state (ELY = Centre for Economic Development, Transport and the Environment); in the municipalities the technical department, or a municipal enterprise or company; the manager can also be a private sector "operator" of the services; in a few cases the manager tasks are outsourced to a consultant, or a design-build contractor.

Typically, in most cases, the administrator and the manager combine the tasks of the *Client Services*.

- *Supplier* is the entity that supplies the services for studies, design, construction, maintenance, and operation of services; these can be the same of different entities or companies.
- In Finland, the supplier can be the technical department's labor ("own workers"), or a private sector company, or a combination of these two. In cases where the supplier and the manager roles are combined and outsourced, the *Client* is the administrator.

The modern trend is that the manager and the supplier are from the private sector. The administrator can be a civil service or private sector entity. In some cases the administrator and manager duties or the manager and supplier duties are combined. The practice in which the Client procures the services and the private sector supplies them is called the (true) *Client-Supplier Model*.

In the following chapter the classification of typical ownership and governance models is described.

2.4 Classification

There are at present 336 (in 2011) municipalities in Finland and each of them has its own tailor-made approach to governance of infrastructure networks. These variations in the approach are classified to six basic models (Figure 4) to fit the circumstances and administrative and political context in the municipalities. In spite of the lack of standardization and common practices the six governance models cover the existing practices surprisingly well. The recent mergers and cooperative efforts require some homogenization of practices. The merging of practices has been deliberate and slow and even impractical in some cases. Thus, in sum, the observation during their research was that, despite of the diversity of arrangements, issues and characteristics in each sector can be classified into a few models.

On the basis of case studies, the ownership and governance models can be categorized into six models:

- **Traditional model:** Work is carried out for the most part by the own labor force, often with some degree of outsourcing.
- **Municipality- or State-Owned Enterprise model:** MOE or SOE can be either the client or supplier part of an organization; legislation is used to establish business or entrepreneurial entities and practices with the objective of self-sustaining cost recovery. MOE/SOE does not pay taxes. There are three variants:
  - Client MOE or SOE
  - Supplier MOE or SOE
  - Integrated MOE (Co-ownership or merger of several municipalities)
- **(True) Client-supplier model:** All the services are procured in the market, such as design, construction, maintenance and other services. Procurement is done in competitive market without negotiated contracts.
- **Municipality- or State-Owned Company model:** MOC or SOC can be either the client or supplier part of organization. These entities, legally established, are self-supporting and pay full corporate and value added taxes.
  - Client MOC and SOC
  - Supplier MOC and SOC
  - Integrated MOC (Co-ownership or merger of several municipalities).

- **PPP model:** The client (municipality or state) and a private contractor enter into a legally organized partnership, hence the name Public Private Partnership (PPP). In Finland, Mikkeli is the only example of a PPP model. Mikkeli retains a certain percentage share and the contract winner has the remaining share of the partnership. This means that the rewards and risks are shared.
- **Private Cooperative or Association:** This is an entity formed by a group of autonomous persons to meet certain service needs of its members. A cooperative is owned by its members, who usually are the customers of the service. Both the road and water sectors have a private cooperative model. The road cooperative model can receive government grants for capital expenditures. Many municipalities provide financial support for maintenance of private road associations as a service to the residents in the community.

Using this classification the ownership and governance models are illustrated in Figure 4.

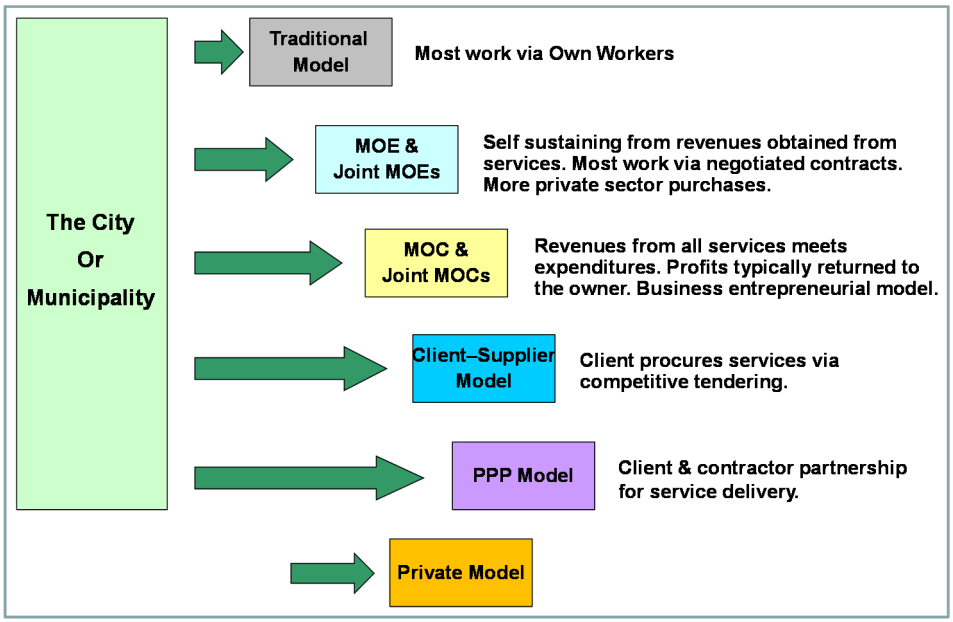

Figure 4. Typical ownership and governance models.

The ownership model can also be looked at from governance vantage point as shown in Figure 5. It shows the various governance forms, public and private. The state ownership structure would be equivalent to the municipal figure. The (true) client-supplier model and the PPP model are not shown as they do not match this particular style of private or public ownership shown in Figure 5.

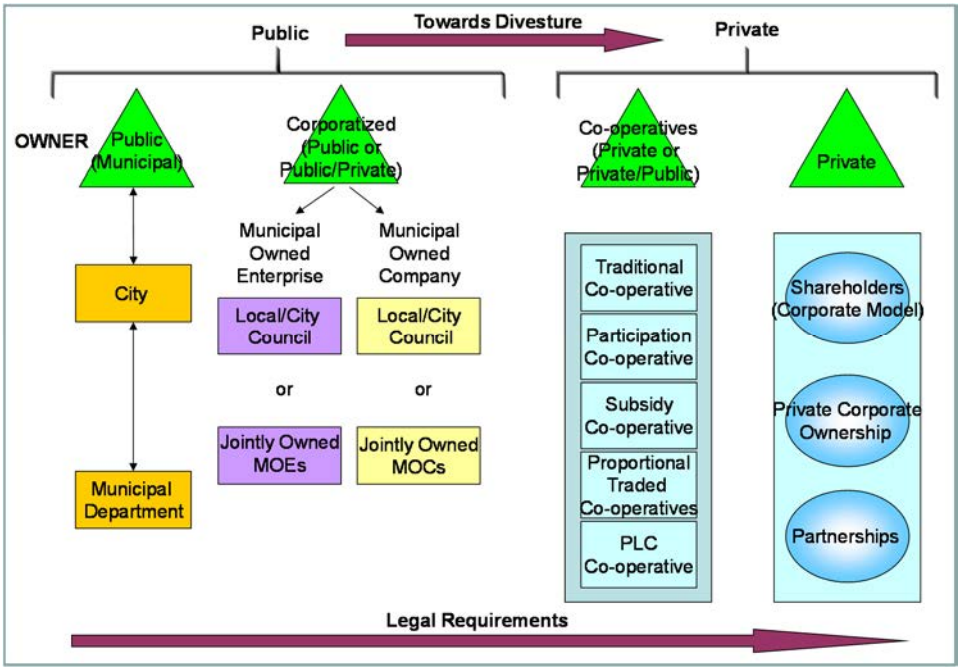

Figure 5. Ownership from governance point of view.

2.5 Variations in ownership and governance structures

2.5.1 Management variations

The debate continues over public or private ownership. Both extremes, a public or a private monopoly are not considered effective. However, a private monopoly, unless well-regulated, is perceived by many to be worse as public values and quality can be displaced by monopoly pricing, and service provision at the lowest possible cost. A cooperative approach between the public and private might be a worthy approach to achieve a proper balance. More recently, with diminishing public resources and downsizing trends, it has become difficult for a government entity to deliver all the services the infrastructure networks provide, and private

participation may be a welcomed strategy. But, even under diminishing budgets there is a need to consider and seek other alternatives than the simple strategy of elimination of all or most public jobs.

Most of the municipal infrastructure networks are *administered and managed* through public agencies, departments or technical centres, which are termed the client organization (excludes co-operatives). The *supplier* organization does the physical works, services and operations, which can be performed by own labor force or outsourced from the private market. In the cases where there are MOCs and SOCs, the services may be performed by vertically integrated sister companies. There are small municipalities, Askola, Inkoo, Varkaus and some others that have totally disvested their own direct labor force for the infrastructure networks. Also the Finnish Transport Agency (FTA) is a client organization and has and owns no direct labor force to supply services (a client-supplier model). The VR Group owns a railway supplier company VR-Rata. Finavia also owns sister companies, but their services are procured competitively and also offered to other clients.

The administrative services are performed by the municipality staff. There are many variations and idiosyncrasies. In the traditional model the following decisions are made: (i) which organization does the planning and approvals; (ii) will the design services be carried out by own labor force, or will it be outsourced; (iii) what percentage of the civil or other works will be done by own labor; (iv) who performs the outsourcing for the services; (v) and how the personnel are arranged within the organization itself. The established monopolies have flexibility to choose between direct labor force and procurement from the market. An interesting variation is in the Kiiminki road sector where the outsourcing of services is actually performed by the supplier organization and not the client.

It is typical in the MOEs/MOCs structure that the client negotiates contracts with the supplier MOEs/MOCs, instead of procuring the services using competition, as in the (true) client-supplier model. This is an artificial exercise since the supplier's direct labor force is retained as first priority. This practice was observed in all road/street supplier MOEs/MOCs; their contracts were always negotiated, for both capital and maintenance projects. This is a weakness of the model. In the (true) client-supplier model all services are not negotiated, but procured through open public tendering. The core functions with the client organization can vary, but procurement is permanent – and important.

Some of the publicly owned enterprises and corporatized companies have corporatized subsidiaries (sister companies) that supply services for management,

operations, and civil works. These are sometimes referred to as vertically integrated companies. This corporate style structure was observed for the state rail network operator, some water networks, airports, energy production and transmission, and ports. For the most part, these types of public ownership models are employing corporate entrepreneurial practices.

In MOCs/SOCs there are also other variations. How much profit is returned to the owners; whether there are corporate subsidiaries; whether international competition or ventures into other business opportunities are allowed; and whether there is single or shared ownership (municipal mergers).

Asset management and ICT systems, and asset management tools are needed to determine the activities and their timing. This practice varied greatly; most municipalities did not have asset management systems at all. This was correlated with the municipality's size and with the ownership model. Larger municipalities do have some type of asset management systems, while the smaller ones rely on local knowledge of experienced staff.

Even though the ownership may have been restructured, there is very little private management of the infrastructure networks. This is an interesting finding since private management operators are quite popular, especially for waterworks in England and the USA. In Finland, private sector participation in the management services was only used in some recent cases. Askola roads use a private firm to manage, operate and provide the services it needs. FTA uses private firms to manage some isolated projects. These one-off cases show that there are options available for private participation from management to service delivery, including the PPP model.

2.5.2 Service variations

The tasks performed by the client and supplier units vary between governance models. The services vary with the level of expertise available in the municipality. If the ("in-house") direct labor force has competence, the services are provided with own labor force up to its capacity. In the case where market does not exist within the municipality, services can be procured from surrounding municipalities' direct labor force through a cooperation approach or, when direct labor capacity is exhausted, directly from private market. A good example, in some municipalities, is the resurfacing of streets and roads where there is a framework agreement with surrounding municipalities to use the in-house staff or labor first up to its capacity (this is irrespective of the governance model).

Helsinki represents a traditional model where both the client and the supplier are organized as municipal units (separated from each other). The City Engineer's office (Rakennusvirasto) acts as the client and city's own supplier organization, Stara, builds and maintains streets, parks and other infrastructure, renovates city-owned buildings and provides logistical services. In Oulu, the client organization of the municipality (organized as a unit) procures most of the construction and maintenance of streets, water, and recreational areas from TEKLI, the supplier MOE of the city.

In the case of Lahti Aqua Oy, the parent company Lahti Aqua is responsible for water and sewage services and their development, administration and customer service. Subsidiary Aqua Services Oy provides operational and maintenance services and subsidiary Aqua Networks Oy owns the pipelines and facilities, and commission and finance investments. Lahti Aqua procures for example construction services also from private companies.

2.5.3 Mergers, cooperation & others

One common trend that was observed with municipalities is the formation of joint municipal authorities that are taking advantage of economies of scale and scope by having one joint entity to provide the services for all participating municipalities. There have also been several recent mergers of municipalities into one larger municipality with the same result. In addition, short of a merger of municipalities, is the merger of individual infrastructure networks, such as waterworks around Helsinki, Lahti, Turku and Hämeenlinna with the big city as the anchor. In Helsinki region the waterworks, organized as a Federation of Municipalities (FoM), resembles a MOE with some MOC features. Waterworks in Lahti, Turku and Hämeenlinna are organized as MOCs.

The Helsinki Region Environmental Services Authority (HSY), organized as a FoM, provides waste management and water and sewage services in Espoo, Helsinki, Kauniainen and Vantaa. Although HSY provides also other services, water and sewage services have a profit and loss statement and balance sheet separate from other HSY services. HSY does all four core services (water acquisition and treatment, water delivery, sewage collection and sewage treatment) and maintenance with direct labor. Some smaller construction work can also be done with the direct labor, but most construction is outsourced. An interesting aspect in HSY governance is that the general (shareholder) meeting of the federation elects the members of the Board of Directors in relation to political power

for the duration of the municipal election cycle. This would not be possible in a MOC and this might be one reason why the municipalities in the Helsinki metropolitan area chose to establish a federation instead of a MOC.

One example of cooperation is the concession agreement between Lahti Aqua Oy and the municipality of Hollola. The 15 year concession agreement covers all water and sewage services in Hollola so that the municipality of Hollola owns the facilities and networks and Lahti Aqua Services Oy provides services with Hollola's equipment. This is the first model in Finland, where the waterworks takes a financial risk to provide certain service level to neighbouring municipality with a fixed price.

Some other merged entities apply the traditional model; in Seinäjoki the merged entity is predominantly using the traditional model with direct labor force and outsourcing only services to selected remote areas. The technical network in Kerava is a unique model in which six different departments are merged into one client MOE. Six departments are consolidated into one in order to obtain economies of scale and scope. This represents another kind attempt to improve efficiency and effectiveness.

2.5.4 Evolution of governance models

Concurrently with the interviews and the development of governance classification reference was made to previous research on the evolution of ownership and governance typologies (Talvitie 1996, Robinson 1999, Dunlop 1999). Although there were variations from municipality to municipality, it appeared that it was possible to classify the governance models into five distinct classes based on the separation of client and supplier functions.

Most public authorities began as an in-house organization (traditional organization, Phase 1 in Figure 6). In many, especially larger, municipalities this has evolved through the identification (Phase 2) and separation of the client and supplier functions and roles (Phase 3) into corporatization of the producer (Phases 4a–c). In the initial phases of the client and supplier separation negotiated contracts are common between the client and supplier entities (Phases 2–4b). A culmination point is the pure client-supplier organization (Phase 4c) where all procurement is done competitively and all the suppliers are either privately or publicly owned companies operating under the same commercial laws. From Phase 5 forward the supply organization is fully privatized and is just another company amongst many that provide products and services for the customers.

The subsequent phases (Phases 6–7) indicate corporatization or privatization of the client, which in Finland has happened only in a handful of cities[4].

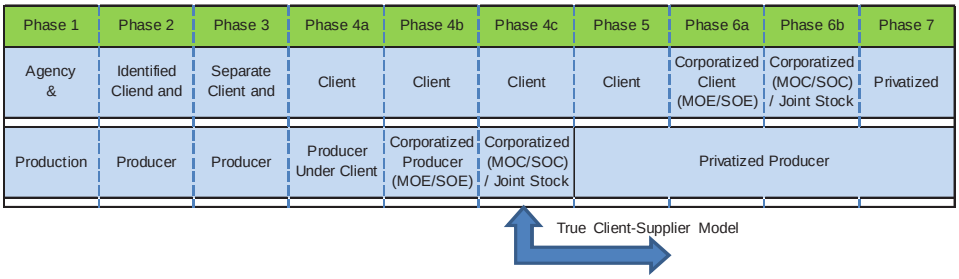

Figure 6. Stages in reform.

In ports sector the World Bank has provided a selection of managements models broadly applied globally.The World Bank port reform toolkit (World Bank 2007) outlined four port administration models and assessed the strengths and weaknesses of each model. The ownership-governance model adopted in countries is influenced by the way the ports are organized, structured, and managed. The models outlined in the tool kit are the *Service Port*, the *Tool Port*, the *Landlord Port*, and the *Private Service Port*. These models differ by how the services are provided by public sector, private sector or mixed ownership providers; their orientation (local, regional or global); who owns the superstructure and capital equipment; and who provides dock labor and management.

Service port model is one predominately public model in which the Port Authority, a government entity, owns the land and all port assets (fixed and mobile) and performs regulatory and port functions. All cargo-handling operations are performed by direct labor of the Port Authority. This model is used in many developing countries. The Chairman of the Port Authority is (usually) a civil servant responsible for port administration, and reports directly to the Minister. In some cases, cargo-handling services are performed by a different public entity; this division of operations between public entities can present unique management challenges. Under this model, the same organization has the responsibility for performing regulatory functions, developing infrastructure and superstructure,

[4] Although privatization is here described as Phase 7 it is certainly not the end result of all reform activities. The project group does not recommend privatization of infrastructure that is necessary to the society.

and executing operational activities. Generally there is an absence of private sector involvement in port activities. The strength of this model lies in the fact that facilities development and operation are the responsibility of only one entity, allowing for a streamlined and cohesive approach to growth. On the other hand, the dearth of competition can lead to inefficiencies in port administration, to a lack of innovation, and services that are not user or market oriented. Dependence on government for funding may lead to wasteful use of resources or under-investment.

Tool port model is characterized by divided operational responsibilities. The Port Authority owns, develops, and maintains the port infrastructure and superstructure; including cargo handling equipment such as quay cranes, forklift trucks etc. The operation of Port Authority equipment is usually performed by Port Authority labor, but other operations are performed by private cargo-handling firms, on board vessels as well as on the quay and apron. The private operators are usually small companies. While the model results in an avoidance of duplication of facilities because investment in infrastructure and equipment is provided by the public sector, the fragmentation in responsibility for cargo-handling can lead to conflicts between small operators and between the stevedoring companies and port administrators. Another weakness of the model is that there is a risk of under-investment. Strong stevedoring companies are not developed to benefit the local economy.

In the **Landlord port model**, the Port Authority maintains ownership in the port while the infrastructure is leased to private operating companies. The responsibilities of the Port Authority as a landlord include economic development, long-term land development, and maintenance of basic port infrastructure like access roads, berths, and wharves. The private operating companies that lease from the Port Authority provide and maintain their own superstructure and purchase and install their own equipment. Dock labor is also employed by the private leasing companies. The strength of this model is that the same entity both executes operations and owns the cargo-handling equipment; therefore, the executed plans are likely to result in better outcomes and be more likely greater responsiveness to changing market conditions. However, there is a risk of over-capacity as more than one private operator may pressure for expansion. Also, there may be duplication of marketing effort as both the terminal operators and the port authority visit potential customers; therefore greater co-ordination of marketing and planning is required with this model.

In the **Private (service) port model**, the public sector no longer has interest in port activities. Port land is owned by the private sector. All regulatory functions and operational activities are performed by private companies. This is the model used in many ports in the United Kingdom. This model often results in flexible investments in port operations. A particular strength of the model is that port development and tariff policies are market oriented. On the other hand, this type of model may result in monopolistic behavior as well as a loss of public involvement in developing long-term economic policy and strategies. Figure 7 shows the traditional port management models.

Type	Infrastructure	Superstructure	Port Labor	Other functions
Public service port	Public	Public	Public	Majority public
Tool port	Public	Public	Private	Public/private
Landlord port	Public	Private	Private	Public/private
Private service port	Private	Private	Private	Majority public

Figure 7. Port management models according to World Bank Tool Kit (World Bank 2007).

3. Interview results

This Chapter summarizes the results from the municipal and state level interviews in Finland.

3.1 Overview of infrastructure network sector

Most of the technical municipal networks are administered and managed through public agencies, departments or technical centres, which are designated as the Client. The physical works, services (e.g. design), and operations can be performed by direct labor force (hereafter termed as the traditional model), the Municipality- or State-Owned Enterprises (MOE & SOE), the Municipality- or State-Owned Companies (MOC & SOC), or private companies. Several municipalities have dissolved much of their own direct labor force and called the remaining entity as observing the Client-Supplier model (this is, of course, incorrect in cases when a substantial percentage of work is conducted by direct labor).

A limited number of private ownership models were observed. These included private road owned by the forest industry or private land owners (road cooperatives), waterworks organized as cooperatives and two ports owned by private industry. Most of the interviewees declared that the infrastructure networks should remain under public ownership, but the administrators, managers, operators and suppliers can be either public or private depending upon the circumstances and the most cost effective approach.

3.1.1 Municipal ownership

In the traditional model the public owners retain control and management, but can occasionally purchase services from the private market. The amount purchased from the private sector varies with competence, extent and the availability of the direct labor force. Waterworks, energy generation, and ports have experienced governance restructuring as clients and as suppliers; MOE and MOC

models are relatively common in them. A predictable income stream that covers the costs and may provide profit encourages the adoption of a commercial mode of operation. Nonetheless, in general, there has been only minor introduction of private management into operations in any of the infrastructure networks. This is unlike in the US and the UK where private operators are popular (in UK the waterworks have already been privatized).

3.1.2 State ownership

Most of the state technical infrastructure networks have been restructured in the form of State Owned Enterprises (SOE) and State Owned Companies (SOC). Some examples in Finland include Destia Oy (road), VR-Group Oy (rail), and Finavia Oyj (airports). The state has been active since the late 1980s to restructure other government functions like Finnair, TeliaSonera, Raskone, Kemira, and Fortum. However, a majority of the infrastructure networks were not restructured until the 1990s and the Finnish Road Administration case occurred in 2001 and Destia Oy was changed from SOE to SOC in 2007.

The state has restructured more than 52 entities with some being listed in the stock exchange and others as profitable SOEs and SOCs. The state ownership is divided into different classifications and the state can have either a minority or majority ownership share, depending upon the strategic importance determined by the state. The reasons for the restructuring on the state perspective has been to achieve efficiency, reduce the size of government, and to have profitable organizations with a good balance sheet, The impetus was, however, the EU decision in the Destia Oy case, which led the Finnish government to restructure most State Owned Enterprises (SOEs) into State Owned Companies (SOCs) in 2010. The state has not, however, divested its majority ownership in most of its infrastructure networks. TeliaSonera, not included in this study, may be the exception.

3.1.3 Governance structures

There is a hierarchy of oversight to provide policies and to verify that policies are followed and major issues are administered and managed satisfactorily. The OECD guidelines address this issue clearly. The governance structures between the state and municipalities do not vary significantly, but do – and should – change when restructuring proceeds. Several boards and committees, often with overlapping mandates, are the mainline form of governance in the municipalities,

while the technical entities run the day-to-day operations and management of the infrastructure networks as was discussed in Chapter 2.

During this research, it was observed that there is interference and attempts for direct control, especially in the traditional model, by committees and boards in the management and operations of most municipal networks. Governance is sometimes restrictive, controlling, interfering and bureaucratic. Even some MOEs/MOCs are being influenced by the Board members that appear to have a conflict of interest (public/private conflict). Overall, the major problems in governance in government owned entities are interference and duplication of effort, and that too little authority is left for the technical directors in operations and management. It should be possible to merge or eliminate some boards (lautakunta) and committees which have oversight for a network. As a comparison there is only one board in Arlington, Virginia, USA, that makes the recommendations to the city council on all infrastructures.

3.1.4 Infrastructure market

Several municipalities are outsourcing some services especially for construction and design, while many municipalities continue to use direct labor force. There is a potential market for services, but it is upon the ownership and governance structure how the municipalities utilize the private market.

Currently, the signals from the municipalities to the market are not always clear. The private firms are uncertain how much and what kind of services may be procured, whether they are pre-empted by negotiated contracts from the municipality's direct labor force and thus prevented from entering the market. This situation is abetted by the absence of information on asset condition. Except in a select few circumstances, the private sector has not yet been allowed into the management and operations.

Below are approximate figures from the Finnish Statistical Agency of the size of the market for the operating cost of the Finland's infrastructure networks.

Water	387 million €
Airports	227 million €
Energy	675 million € (municipal total)
Rail	1456 million €
Roads	982 million € (state roads)
Roads/Streets	526 million € (municipal total)

3.1.5 Externalities and market imperfections

Externalities are becoming more important to both the owners and the private market actors. The list of externalities includes:

- safety and collisions
- congestion
- environment (pollution)
- social costs
- regional development
- mobility of disadvantaged
- climate change and extreme weather events.

Approaches need to be developed to embrace environmentally friendly practices, including the cost of the externalities in the price of service, and providing alternative approaches to service delivery. The interview results were astonishingly revealing that there were no really innovative ideas and means to cope with externalities. In fact, there was relatively little knowledge or plans to manage externalities. The water pipeline breakages, heavy snowfall, and significant damage to the gravel roads show that plans are short-sighted and processes and means to manage these risks are needed.

Market imperfections may distort fair play and cause delays, difficulties, additional costs, mistrust and potential long periods of legal proceedings through the courts. Other market effects or imperfections include:

- strategic behavior by the actors to prevent the market to develop and private or new firms to enter the market
- EU rulings and other restrictions may have an adverse effect
- EU procurement rules may result in favoring traditional methods of procurement
- dominance, e.g. one large contractor winning most of the market share or having de facto monopolistic position (limited competition)
- quality issues in level of service
- cartels
- absence of fully standardized contract documents throughout Finland (creates confusion amongst service providers)
- avoidance of the market with direct labor force employment by the public sector.

3.2 Distribution of ownership and governance models

Table 2 shows the distribution of ownerships models using all available data sources for the sectors that were part of this study. In a nutshell, the results show that the majority of municipalities adhere to the traditional public sector model; restructuring or privatization are not as common in Finland as in many other countries. In Finland restructuring in the infrastructure networks is a well-guarded process, which includes political inertia and protection of turf. The public owners incorporate cautiously private sector knowledge in management, operations and the supply of services.

Table 2. Ownership and governance models – Numbers by Sector.

	Water	**Roads**	**Rail**	**Ports**	**Aviation**	**Energy**
Municipality or State Administration. (Traditional model)	223	> 100		29		
MOE/SOE	54	2 Client MOE 4 Supplier MOE		10		2
MOC/SOC	155	1	1 Supply SOC	2	1 Client SOC	
True Client – Supplier Model		> 49		1		
Private Co-Operatives	(About 950)	(About 15 800)				
Private	??	??		5		

Figure 8 presents the interviewed case organizations by sector and shows their governance model evolution (most of the cases have, at one time, been in Phase 1).

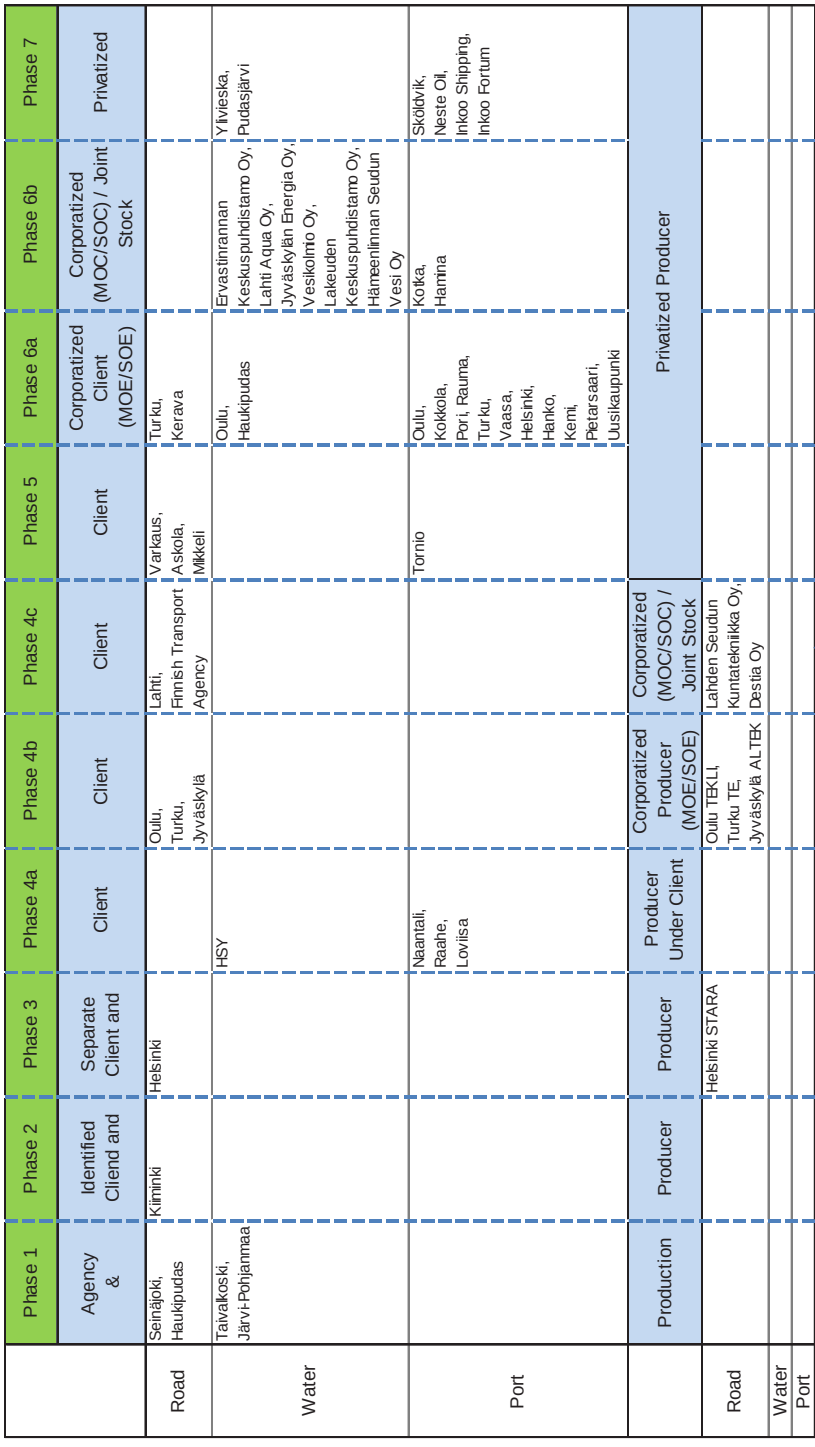

Figure 8. Interviewed case organizations by sector.

3.3 Road and street sector

3.3.1 Identified models, cases

The road/street technical network owners, administrators and managers will confront significant issues and challenges in the near term. The challenges are both in the supply and demand side: the road budgets are tight, especially for capital investments, and traffic is increasing in the national roads and city streets. And yet, the road users expect a higher level of service in return for the high price they have to pay for travel. Inevitably the solutions must be a combination of four things: restructuring, better asset management, a cost-based pricing regime, and entrepreneurial efficiency. Within restructuring the governance structures, including the form of ownership, and more effective market discipline can present several options to improve efficiency of the road budget. Dealing with these rational issues is made more difficult, especially in the municipalities, by the "political-bureaucratic" complex: how deal with the over-sized direct labor force, whether in the traditional organization or in the MOE/MOC organization; how to minimize political interference in decision-making exerted from outside the legal oversight framework; and how to allocate resources between sectors to satisfy the expectations of the public. Technical issues are of no lesser importance and difficulty: introduction of new procurement methods and practices; opening the market fully to private firms; developing data and asset management systems for cost-effective use of the budget, and adopting high technology system for pricing and user charge collection. Finally, there is the uncertainty about future: economic stability and growth, climate change and other externalities, and possible changes in values and preferences.

The traditional model remains the dominant ownership model, but there already are many municipalities using the (true) client-supplier model, especially in small and mid-sized municipalities. The supplier entity has been informally established in some of the larger cities, but to date there are only 4 municipalities that have established an official *supplier MOE*. Recently, Kuopio and Espoo, both large cities, have announced in the media that they are forming a MOE in the beginning of 2011. Presently there is only one MOC, which is a joint services MOC called the *Lahti District Technical Services Company*. Turku has announced that it will restructure its MOE into a MOC in 2012.

Turku Client MOE. Turku is the only known municipality using the *client MOE* model even though Kerava is officially registered as a client MOE. Kerava

has a unique organization model, which integrates six departments into one, but it is not a self-sustaining model with a designated income for cost recovery. In Turku, the revenue stream comes from real estate land sales, various associated infrastructure fees, parking meter revenue and other miscellaneous fees. These are used to pay for road maintenance and capital improvements. At the moment revenues significantly exceed expenditures, but its sustainability is uncertain. In any case, only a small portion of the revenues are related to the use of roads and streets, a point that deserves consideration. Nonetheless, the Turku client MOE represents a commercial business practice approach to meet and satisfy the public demands for the road and street services and possibly for their management, and to prevent asset deterioration. It introduces a new and challenging concept to the other municipalities.

Varkaus Client-Supplier Model. The approach chosen in the city of Varkaus is in essential parts of the true client-supplier model for maintenance of the road network. In Varkaus, the maintenance works have been outsourced to a private company for a 7 year period via competitive tendering. Part of the agreement includes the transfer of the direct labor force and equipment to the winning tender and the contract includes some management activities. The contract is managed by the private company and includes services for both maintenance works, and capital works up to a limited quantity. The chosen supplier company can also bid for capital works not part of the contract. This is thought to ensure competitive pricing. There is a two year safety net for the direct labor force and after the 2-year transition period, Varkaus is using the *true client-supplier* model.

Askola Client-Supplier Model. Askola has recently adopted a new approach in which both the maintenance works and their management have been outsourced to the private sector through the public procurement process. Askola has thus placed trust on the private sector to carry out both maintenance and its management. Askola is one of the rare municipalities, which uses private sector management services for all its activities and services. Askola, and Varkaus, are considered the *true client-supplier* model, even though the approaches differ in details.

Mikkeli PPP Model. Mikkeli is the only municipality that employs a kind of PPP model that has not been duplicated elsewhere. Its main feature is a partnership contract between the client (Mikkeli) and the private contractor (a company co-owned by Mikkeli and a private company) to provide the maintenance and upkeep services. In the contract the rewards and risks are shared. All of Mikkeli's equipment fleet was transferred to the contractor using fair market rates,

and about 65 employees were also transferred to the contractor. The employees and the equipment are not dedicated to serve only Mikkeli's roads and streets.

Jyväskylä and Oulu Supplier MOE. Both Jyväskylä and Oulu have supplier MOEs for which local council has granted (financial) independence. They are still owned by the municipality, but attempt to behave like a private entity, but with a no-profit objective. In both Jyväskylä and Oulu, and also in general, the MOE is more efficient than the traditional model, but is not totally free from interference from the municipal entanglements. The MOE has better accountability, administration, management, and partial flexibility. Further efficiency, in Jyväskylä and Oulu, come from integrated water and road services (economies of scope). The weakness, in Jyväskylä and Oulu and many other cities, has to do with negotiated contracts with the municipal client, because the negotiated contracts are arbitrary and non-competitive employing the direct labor force as the first priority).

Figure 9 summarizes the restructuring phases and progress in the different municipal and state organizations from in-person interviews.

Phase 1	Phase 2	Phase 3	Phase 4a	Phase 4b	Phase 4c	Phase 5	Phase 6a	Phase 6b	Phase 7
Agency &	Identified Cliend and	Separate Client and	Client	Client	Client	Client	Corporatized Client (MOE/SOE)	Corporatized (MOC/SOC) / Joint Stock	Privatized
Seinäjoki, Haukipudas	Kiiminki	Helsinki		Oulu, Turku, Jyväskylä	Lahti, Finnish Transport Agency	Varkaus, Askola, Mikkeli	Turku, Kerava		
Production	Producer	Producer	Producer Under Client	Corporatized Producer (MOE/SOE)	Corporatized (MOC/SOC) / Joint Stock	Privatized Producer			
		Helsinki STARA		Oulu TEKLI, Turku TE, Jyväskylä ALTEK	Lahden Seudun Kuntatekniikka Oy, Destia Oy				

True Client-Supplier Model

Figure 9. Road sector restructuring phases from the interviews.

3.3.2 Important and timely issues

Bundling of services. There is an ongoing movement to bundle services through municipality integration, joint services, co-operative agreements and mergers, which provide economies of scope and scale. Since the final decisions are prepared and made in the politically chosen committees and elected city councils,

both are often driven by political rather than technical/economic priorities. There is an absence of sufficient professional oversight. This presents a significant challenge to the decision-makers. A significant increase in the municipality mergers took place before 2010, but recently there has been backpedaling as city councils have rejected some recent mergers. For roads and street, mergers and coalitions are often a good and logical practice, but these decisions are conflated with decisions made in other sectors.

Asset management. Asset management systems and associated data collection, retrieval and storage systems are crucial for customer service, infrastructure network management and asset facility management at all levels. Asset management here refers to both the capital, maintenance and operations expenditures to provide service to customers and maintain the value of the physical assets. In Finland asset management systems for the infrastructure networks have not been developed to the level to enable most managers of these entities to tell the condition of the facilities and the service they provide. The practical implications of the lack of asset management systems and skills to use them can be costly for a public entity, and ultimately to the taxpayers.

When the assets are not managed properly there is a risk that services generated through these networks are not meeting expected quality and even safety criteria. Municipalities that have limited information and knowledge of the nature, location, quantity, condition, and quality of all assets they own in their jurisdiction are vulnerable to asset depreciation and higher costs at a later time. Presently, most of the asset knowledge and information rest with the senior staff, but that knowledge is lost at their retirement. There are simple asset management systems that could be adapted to help keep track of their assets, their condition and typical costs. However, due to the lack of resources or interest, numerous municipalities do not avail themselves such systems and, information, although they would improve planning and decision-making and eventually pay back their costs. Simply put, good asset management is not possible without good data and tools with engineering-economy underpinning.

Efficiency of multi-level (true) client-supplier model. Finnish Transport Agency (previous Finnra) was a good example of the (true) *client-supplier* model. With the new organization structure it has become a client-client-supplier model, with dual transactions as the private sector services (supplier) are procured by the Centres for Economic Development, Transport and the Environment (the "second" client), which in turn are (the "customer") to the Finnish Transport Agency (the first client). It remains to be seen if this results in inefficiencies,

loss of competition, more bureaucracy, and poor allocation of tax resources and a potential loss of control of quality through performance agreements with other governmental agencies. In any case, this political decision by the government will have lasting consequences. Sweden, for comparison, has formed a similar multimodal transport administration, but has (wisely?) kept control of the regional offices to retain the (true) *client-supplier* model.

The public roads infrastructure is still owned directly by the state and is viewed from the state treasurer's side as a cost centre, first and foremost.

Road pricing and governance. The road and street networks are "sunk costs" without dedicated revenue sources (Turku is presently the exception) to support the construction and maintenance of the assets. The next phase from the (true) *client-supplier* model is the establishment of a dedicated revenue source as has been implemented in the US, New Zealand, Estonia (previously) and elsewhere. In most countries the roads and streets continue to be funded from the budget. In Austria however, the motorway network has been corporatized as SOC – Asfinag. The network cost is covered by issuing state-guaranteed bonds and collecting tolls from the users. This arrangement relieves a significant share from the state budget and enables to view the network more of a revenue generating asset that is outside the balance sheet of the federal administration.

There has been much discussion of road user charging schemes, and the issue is a vigorously and internationally debated in the profession. A comprehensive discussion of the theme is beyond the scope of this research. Recent advances and low cost in GPS technology have made road pricing a distinct possibility. Road pricing is desirable not only because it provides a predictable revenue stream, but also because it allows pricing by time of day, functional and administrative class of road or street, vehicle type, coverage of externality costs, user payment of service consumed, and possibly on other grounds.

Road pricing also presents an issue in equity and transparency. A large percentage of municipalities use revenues from the use of other infrastructure networks to subsidize social programs. The revenues are simply bundled into the municipal accounts to support the public welfare and other expenditures. This cross-subsidy needs transparency and discussion. If road pricing is adopted there is a danger that it not only covers the full costs of infrastructure and externalities of its use – as is the case presently – but is a means to collect money for other public programs. This is squarely a governance issue.

Ownership and job security. Destia Oy is a State Owned Company (SOC) that competes with the private market for infrastructure services and has also

diverged into other markets using their core competencies. Destia Oy is one step away from becoming a privately owned company, but there has been opposition from political activists and negative reactions from the labor unions, fearing it will fall into foreign ownership. This similar situation happened in New Zealand, when the public monopoly was split-up and was sold internationally. Presently, Destia's has had to lay off staff to remain competitive. Thoughtful and challenging decisions are necessary for Destia Oy.

Job security and loss of core competencies are current issues at both the state and municipal organizations. This is a significant challenge in the next five to ten years for both the public and private organizations. This also may affect the competition between the different infrastructure networks. The training for new competencies is also an issue which needs solutions. The labor unions and the local politicians are likely to lobby for job security, which threatens to postpone the inevitability of a solution. Not surprisingly, outsourcing, privatization and market competition do offer alternative models to cost-effective, service oriented governance of technical infrastructure.

EU ruling on the publicly owned enterprise model. The EU decision regarding the complaint against Finnish Road Enterprise (Tieliikelaitos), now Destia Oy, caused severe consequences to the legally available ownership structures. The municipalities contemplating establishing an MOE or those presently having an MOE may have a difficult decision to make. The prevailing interpretation of the EU ruling, which did ignore the great importance of an MOE as a learning phase, is to require a MOE to compete with private companies, allow for their bankruptcy, and require them to pay corporate taxes – or remain ring-fenced in a restricted market (whose flip side is the prevention of others to the ring-fenced market). If this interpretation holds, a critical issue arises: how can an MOE become a MOC if it has not first learned, through practice, procurement of services, bidding for contracts, financial management, and competition against the private sector to become efficient and effective to win contracts? Are the MOEs allowed to continue to exist for a while through negotiated contracts and can the direct labor force move directly to a MOC, possibly with safeguards to employment for a transition period? These challenges to ownership and competition, and the comments from interviewees overwhelmingly support the view that this is a major practical challenge that hinders the desired outcome. The issue is not with the core competence in performing the work, but being efficient and competitive to win contracts when publicly tendered.

It is very difficult for an MOE to become a cost-effective if it is not allowed to learn by doing and competing with the private companies to gain valuable knowledge and experience. Originally, the assumption was that the MOEs/SOEs were allowed to compete just like the Finnish Road Enterprise competed (beginning in 2001) for the maintenance and capital investment contracts. The crucial point is: will the MOE/SOEs grant private sector entry to their market, that is, no priority for negotiated contracts? If negotiated contracts remain the practice for a percentage of work, beyond a transition period, then MOE/SOE is a "paper tiger" and amounts to protection of direct labor.

The EU ruling and Finnish reaction to the ruling has jeopardized the expectation that the MOE/SOE could remain until they are ready to become a MOC/SOC. Presently there is indecisiveness with the municipal owners as to the future of MOEs. The State has made a decision to advance the existing SOEs into SOCs. The governance model of these SOCs will be based on the specific technical network and how the details of its governance will be organized. For example, Finavia (the airport owner) and Finstaship (maritime services for ice breaking) have already become SOCs. The key issue for both is what Ministry or entity will represent the owner rights and who will be the client? The issue is clear for Finavia, but less so for Finstaship.

The Final Word. Recently, the governance and ownership are popular themes in the media and news. There is misunderstanding, opposition, and criticism to changes in governance and ownership arrangements. Restructuring was intended to lead to more efficient, effective and transparent administration management and operations. This misunderstanding is a real challenge to advance restructuring. There is hope as the decision-makers in many municipalities are beginning to realize that outsourcing is not a "*monster*" and that a functional private market can be more effective for providing the services. Several challenges exist in order for the municipalities to restructure their ownership and governance models and become good stewards of their assets. The budget constraints and international economic crisis are having an effect on borrowing capacity with long-term consequences. Additional loans are risky and the preferred idea seems to be that long-term solutions for good enough asset management for roads and streets can remain on hold.

3.4 Water sector

More than 90% of Finland's 5.3 million inhabitants belong to the water system and around 80% to the sewage system of Finnish waterworks (Herrala 2011). Arranging water and sewage services for municipal residents is a fundamental obligation of municipalities (Act on Water Services 119/2001). There is, however, much variation between municipalities and there are probably as many different models of governance as there are municipalities.

The most common ownership and governance models found in the Finnish water sector, measured in number, are respectively: cooperative, municipal department, municipal-owned enterprise (MOE), and municipal-owned company (MOC). There also are hundreds of partnerships, limited partnerships and few federations of municipalities (FoM) of which the Helsinki metropolitan area is the largest one (HSY, Helsinki Region Environmental Services Authority). Although municipalities typically use either municipal unit, MOE or MOC as governance model for water and sewage services, in many cases there is also cooperation between neighboring municipalities. This cooperation might include selling of water and transferring sewage to another waterworks, or more recently, jointly established and owned wholesale or sewage treatment company.

Water and sewage services have a reasonably high level of quality currently, but the future has challenges in the store to which the different ownership and governance models have to respond (see more details in Herrala 2011). According to the interviewees main challenges in current and future operations are the following:

- *Hygiene and environmental requirements; water quality control and risk management.* Many of the smaller municipalities will have problems with hygiene and environmental requirements, water quality control and risk management in the future. Municipalities do not have enough money to meet the requirements of the environmental permits. For the same reason rehabilitation of the pipeline networks is also behind schedules.
- *Administration and maintenance of property.* Good condition of pipelines and facilities are a precondition for good quality water and sewage services. There is however risk that infrastructure will deteriorate unless the pipelines are renovated. It is estimated that the current renovation level should be increased from 0.4–0.8% to 2.5% of pipeline length per annum to keep up with the aging network (ROTI 2009).

- *Retention of competencies and competitiveness.* The staff age structure and knowledge profile is typically skewed in waterworks. Due to retirements there are too few young and educated people. Hiring employees may not be possible due to the municipality's resource constraints.
- *Short-term politicking.* Politicians, as representatives of municipal owner(s), can use their voice in general shareholder meeting to elect the Board of the MOE. The politician-turned board members rarely have adequate knowledge on waterworks engineering and management and the special characteristics of the business. The city council term is four years long and commitment to long-term planning and operation of waterworks is difficult.

Traditional model. Waterworks operating as an integral part of municipal organization is the traditional ownership and governance model in Finland. Its strength is that operates as part of municipality's technical services which enables flexible usage of labor and may have cost savings to the municipality. Main weaknesses are lack of transparency and cost awareness. Simple accounting methods can be used to 'hide' waterworks costs into municipal bookkeeping and not show them in waterworks financial statement. In addition, capital transfers to and from waterworks make the operations non-transparent and lead to decision-making compromises. Because waterworks operate under municipal budget and investment programme, municipality's annual budget limitations are a clear weakness and the four year election period makes long term planning difficult.

MOE. Especially larger municipalities consider MOE to be the most suitable ownership and governance model for waterworks. Its main strengths are improved transparency compared to the traditional model and preferential tax treatment compared to MOC. Weakness is that MOEs still operate close to the municipality's leadership and may lack independence in pricing. Short-term politicking and bureaucracy are therefore threats. Oulu waterworks is a good example. It has to order materials and services from a municipal service provider for employment reasons, although both could be procured cheaper from the market.

MOC. Municipal-owned companies are typically regional wholesalers or sewage treatment plants providing services to several municipalities. The most important strength of MOC waterworks is the business-like approach. Salary and employee policies are more flexible than in the traditional and MOE models. Independence and flexibility add degrees of freedom to financing and possibility

for longer-term planning of investments. MOCs are, however, in unequal position compared to the traditional and MOE models because they need to pay both value added tax and tax on profit. Business-like operation carries opportunities, which all MOCs have not yet realized. The MOCs can also sell their services to other municipalities and MOC is the only model which provides real opportunities for institutional investors to invest in the water and sewage services.

Cooperative. The role of cooperatives in the provision of water services is historically very important in sparsely populated areas. This is so also today. The strength of a cooperative is that they are usually relatively small and have a simple organization and easy decision-making processes. They are also independent from municipal organization which means that all revenues can be used for investments and development of service. Small scale operation and large ownership base is a weakness if owners are not interested in the development of the cooperative. In the future, small units may have difficulties in achieving tightened water quality and environmental requirements, making consolidation with other cooperatives a realistic option.

Figure 10 summarizes ownership and governance model of the interviewed waterworks.

Phase 1	Phase 2	Phase 3	Phase 4a	Phase 4b	Phase 4c	Phase 5	Phase 6a	Phase 6b	Phase 7
Agency &	Identified Cliend and	Separate Client and	Client	Client	Client	Client	Corporatized Client (MOE/SOE)	Corporatized (MOC/SOC) / Joint Stock	Privatized
Taivalkoski, Järvi-Pohjanmaa			HSY				Oulu, Haukipudas	Ervastinrannan Keskuspuhdistamo Oy, Lahti Aqua Oy, Jyväskylän Energia Oy, Vesikolmio Oy, Lakeuden Keskuspuhdistamo Oy, Hämeenlinnan Seudun Vesi Oy	Ylivieska, Pudasjärvi
Production	Producer	Producer	Producer Under Client	Corporatized Producer (MOE/SOE)	Corporatized (MOC/SOC) / Joint Stock	Privatized Producer			

True Client-Supplier Model

Figure 10. Water sector ownership phases from interviews.

Important and timely issues:

Clear roles and responsibilities. Each ownership and governance model, have different roles and responsibilities for different governing bodies. The division of tasks between administrative bodies is defined in the legislation. Representa-

tives of municipal owner(s), currently use their voice in the annual meeting and in the Board (executive board in MOEs and Board of Directors in MOCs and coops). Because all the major issues are taken at the Board's discretion, the competence and composition of the Board has a significant impact on the efficiency of the services. The Board members often are politicians who lack adequate knowledge on waterworks engineering and management, and the special characteristics of the business. Consequently, in the selection of the Board members value should be placed on management, pricing and technical expertise. The municipal owner should ensure that services are of high quality and that the waterworks have freedom to make necessary investment, pricing and other operational decisions. The politicians should not interfere with the day-to-day management of waterworks.

Financial and operational transparency. The Act on Water Services (119/2001) declares that in the long term, the waterworks should cover all operational and investment costs with the revenue from the customers. This requires, first and foremost, transparency and accuracy in the bookkeeping so that all costs and revenues are visible and that the municipality does not subsidize waterworks nor transfer waterworks profits for other purposes. Achieving transparency is not possible without clear separation of waterworks accounting from the municipal bookkeeping (this applies particularly to the traditional model). One solution for more efficient operations of waterworks could be definition of uniform reporting practices at the national level. This would increase transparency and allow benchmarking by waterworks management and others. Improved statistical information could also be used for research. Because there is no real competition between different waterworks, openness should be seen as an opportunity to find best practices, learn from the best and improve one's own performance.

Full cost recovery. Covering operational and investment costs with customer payments is a prerequisite for sustainable business and is also required by the law. According to this research and the working group working to amend the Act on Water Services (MMM 2010), this principle is not, however, very well realized. Currently, the municipalities may set the water price below the operational and investment needs, or inappropriately exploit the monopoly position with high prices to support other purposes. A good "warning" indicator is the ratio between fixed charges to (variable) use-based revenue which is distorted, according to this research. Due to the capital intensiveness of the service, the fixed costs are high, but nonetheless about 90% of income is received through the use-based fees. The HSY, Helsinki Region Environmental Services Authority,

and Hämeenlinnan Seudun Vesi Oy, are considering raising the percentage of fixed charges from 5–8% to 20% to correct this distortion. Typically, cost-based pricing guides the customers toward cost awareness and efficiency.

Investment management. The biggest challenge is waterworks asset management and maintenance of the existing infrastructure. Without knowing the asset condition and investment needs of the pipeline network and the facilities, it is extremely difficult to provide the customers the high level of service they value. Systematic mapping, modeling and digital storage of asset data are good instruments for assessing the current condition and future investment needs, but they also help transfer the tacit knowledge from the retiring employees to the younger ones. A good benchmark is HSY, Helsinki Region Environmental Services Authority, where working groups went through all the pipelines to determine the value and condition of the assets in merger of the four waterworks. Research results suggest that many waterworks know their short-term operational and investment costs quite well. It, however, became obvious that there are shortcomings in the long-term planning of waterworks operations. Investment plans are currently made only for four years although the lifetime of the pipelines is over 50 years. Long-term planning is most difficult in the waterworks whose organization is part of the municipal organization, i.e. traditional model and some MOEs.

Cooperation. Jointly owned waterworks or water wholesalers are sensible options when a municipality has an abundance of good quality water and another does not. In sewage treatment, especially smaller waterworks may have difficulty to reach the future refinement and purification targets and therefore cooperation makes sense. A good example is Kalajoki river valley where jointly-owned company, Vesikolmio Oy, provides both water acquisition and treatment, and sewage treatment services to six municipalities. Cooperation is likely to be a part of nationwide pattern in which water acquisition and sewage treatment are concentrated to few regional operators. This would ensure safe and efficient high quality product and service while also exploiting economies of scale and provide synergy. In a water and sewage service business there is no one right way, but each waterworks should evaluate what they can do best themselves or if a partnership or cooperation would be preferable. In addition to ‘traditional’ cooperation and jointly owned businesses, more daring options could also be considered. Pooling of resources, such as personnel, movable machinery and equipment could be feasible options for smaller waterworks, such as cooperatives, which lack necessary resources. Also operation and management (O&M) contracts,

already in use between Lahti Aqua Oy and Hollola, can become more popular if Lahti-Hollola case brings good experience.

3.5 Port sector

3.5.1 Finnish ports

Almost 90% of Finnish exports and 75% of imports pass through ports, and more than 60% of international passenger traffic also goes by ship. There are more than 30 seaports spread across the Finnish 1100 km long coastline. The number is large for a country with such a small population, which inevitably results in most ports having small traffic volumes compared to other ports in the Baltic Sea region. Recent economic downturn and structural changes in industries, especially the forestry industry, have affected severely the ports' economic performance. The Finnish ports offer interesting opportunities for improvement as the European Union competition regulations require municipal ports operating in competitive markets – as the Finnish ports do – to be restructured as companies.

Finland has a total of about 50 ports handling foreign trade transports; of these some ten are in the Lake Saimaa district. The target is to secure year-round services to 23 winter ports. The volume of seaborne foreign transports has doubled in the last two decades. The increase has been gradual, an average of just over 3 percent a year. In 2008, seaborne imports amounted to 58 million tons and exports to 44 million tons, totaling nearly 103 million (metric) tons of transports. However, in 2009 seaborne transports decreased by nearly 20 million tons. The major Finnish ports are presented on a map in Figure 11.

Figure 11. Map of major ports in Finland (Finnish Port Association 2010).

The Finnish ports have a long history as a municipal industry. The harbor legislation was modernized in 1995 and opened the way for modern port reforms in Finland. Most ports are still owned by municipalities, but there are also some private ports owned by industrial companies. Most of the private ports handle goods and products from an industrial plant in the immediate vicinity of the port, but there are also some privately owned public ports serving general customers as well. After the legal reforms in the 90's, several larger seaports were restructured into municipality-owned enterprises. Two of them, Kotka and Hamina, later organized as municipality-owned companies. Both ports operate under the Limited Liability Companies (LLC) Act, but are still fully-owned by the two cities. The ports have decided to merge in 2011 into a single limited company co-owned by both cities.

The Finnish ports are organized to be both the port authority and the port administration. The port authority is in charge of the port and its activities. Even when the port is organized as a private company, it has the responsibilities and duties of the port authority. Stevedoring is done by independent companies,

there may also be a private tug company, which may or may not have an agreement with the port, and there can be private warehouses in the port area or the port may have its own warehouses, which it leases to customers.

The port, even when part of the municipal administration has a port board and a port director selected by the municipal council. If the port is part of the municipal organization, there may only be a technical board. In the smallest ports, the duties of the port director may be exercised by someone in the municipal organization, for example the technical director of the municipality

The private ports and the ports that are municipal companies have their own accounts including both income statement and balance sheet. If the port is part of the municipal administration, the port has its own accounts, which are legally part of the municipality accounts. With the exception of the smallest ports, the Finnish ports make annual accounts public.

Port operators (mainly stevedoring companies but also other firms operating in port area) in Finland are private companies These companies offer not only stevedoring operations but also different auxiliary services related to freight handling, such as forwarding, ship agency and clearance services. This is unlike in Germany or Sweden, for example, where port operators are often publicly owned, meaning that the port infrastructure and the port operator company are owned by the same entity.

Stevedoring firms have traditionally handled the physical movement of cargo, vessel loading and unloading, and terminal operations. With a few exceptions, the present stevedoring firms in Finland are owned by the forest and steel industry, and the shipping companies. There is no legal or administrative limitation on the number of port service providers. Some stevedoring companies are operating in several ports; often the stevedoring company is owned by the port's main shipper customer. One major stevedoring company is owned by a leading Finnish shipping line.

Competition for cargo handling services in ports has increased, but it is still typical to stevedoring services in most Finnish ports that one stevedoring company has a monopoly or dominating market position for reasons of small cargo flows in small ports, long traditions and ownership bases. The trend seems to be that stevedoring firms that operate in different ports have the same owners and are merging into bigger units.

Port infrastructure is built and maintained by the port owner. The costs are covered by port dues paid by the customers. The fixed structures and equipment (including large ship-to-shore cranes) in the ports are generally owned (and their use charged) by the port authority. Privately owned stevedoring firms normally

finance and own all mobile cargo transfer and cargo handling equipment. In addition to port authorities, companies using the port may also build their own storage facilities.

Ports have had the right to set their fees and tariffs since the mid 1990's. Ports rent land and equipment such as cranes to the stevedoring companies. Usually the port has published a price list for this purpose. If the port has leased land or buildings, normal land-lease contracts apply which are based on commercial pricing. Port dues, charges and rents are in principle collected on a tariff basis. Port dues consist of four obligatory dues: port dues on vessels, port dues on cargo, passenger and waste disposal dues. Municipalities have the authority to decide on their tariff policies. Decisions are made by the Port Board, or by the municipal Council in the smaller ports.

The trend has been moving towards a landlord port with private firms supplying the port services, and the port authority concentrates on maintenance and development of port infrastructure. The State is responsible for financing, constructing and maintaining the land access and waterway connections to ports (outside the port area). This includes roads, rails, inland waterway connections, waterway channels etc. The State is responsible for all sea channels outside the port area, passage ways and their buoyage in Finnish waters, as well as for icebreaking. The State collects fairway dues (covering as well light housing and icebreaking costs) and the pilotage fees. In certain cases the port takes part in the costs of traffic connections to ports. The Finnish Transport Agency is responsible for fairway services. Pilotage outside the port areas is the responsibility of the state owned company Finnpilot Pilotage Oy (formerly the Finnish State Pilotage Enterprise). The Maritime division of the Finnish Transport Agency and the Pilotage Company are self-financed. Fairway dues and sea pilot dues are non-negotiable and reviewed at irregular intervals. Discounts (on application) from fairway dues are offered for cruise vessels, vessels calling the ship repair yard and vessels carrying cargo in transit. Public dues and charges are normally valid for one calendar year and are reviewed on a yearly basis.

3.5.2 Port ownership models

The ownership models used for the time being in Finnish ports can be classified into four main categories (more details can be found in Rönty et al. 2011):

- Traditional municipal model
- Municipality-owned enterprise model (MOE)

- Municipality-owned company model (MOC)
- The private port model.

The traditional model is still the most common ownership model for Finnish ports, when inland ports are also included. There are approximately 30 traditional municipal ports in Finland. Most of them are located on the shores of Saimaa and other inland lakes. The port is a legal part of the municipality as a department or a budget unit. Traditional ports do not differ drastically from port enterprises in terms of operational practices. Both models have exemption from taxes, and they can use private port operators in addition to their own service provision. Tornio port is a peculiar case: the municipality has leased all the port operations to Outokumpu stainless steel manufacturing company. In principle the port is still a traditional municipal port, but the arrangement could also be considered as public-private-partnership or a concession agreement.

Municipality-owned enterprise is also a typical ownership model for Finnish seaports. The enterprise model is a way to organize municipal business activities. It is an interdependent part of the municipal administration and finances. The MOE ports have separate accounts and restricted budget freedom. The separate financial statement of a MOE port is also integrated into the municipality's financial statement. MOE-ports' close relationship with the municipality is an advantage for image and marketing. The MOE also has the advantage of owning a large asset pool and real estate located in prime areas, and exemption from taxes. The efficiency of the MOE is significantly greater than that of the traditional model in terms of administration, productivity, cost awareness and accountability.

Municipality-owned company ports operate in competitive markets, and within a transition period of few years all Finnish ports will be restructured into company form. Municipality-owned companies operate commercially under the Limited-liability Companies Act without social obligations. MOCs are expected to make profit and provide reasonable return on invested capital. MOC's can develop their business activities; make decision about products, services and pricing; and choose customers on the basis of market situation. MOC ports have flexibility in decision-making process, including salary structures, business-like management and operating style, and freedom to make agreements and contracts with other parties. There is clearly more dynamics in decision-making and co-operation with the private sector.

Private ports are few in number internationally, also in Finland. There are less than 10 noteworthy ports in Finland that are owned by private companies and industries, the biggest ones including Neste Oil Corporation's port in Sköldvik and Inkoo Shipping Ltd. Internationally, private ports can be found mainly in the United Kingdom and New Zealand. Full privatization is considered by many as an extreme form of port reform. The strengths of private ports include maximum flexibility in decision making, financing and port operations. Besides laws and regulations, there is no direct government interference or interest in the port. From the municipality point of view the loss of its ability to execute a long-term economic development policy with respect to the port business and the port land is a weakness.

Figure 12 summarizes the ownership models and restructuring phases in the port sector.

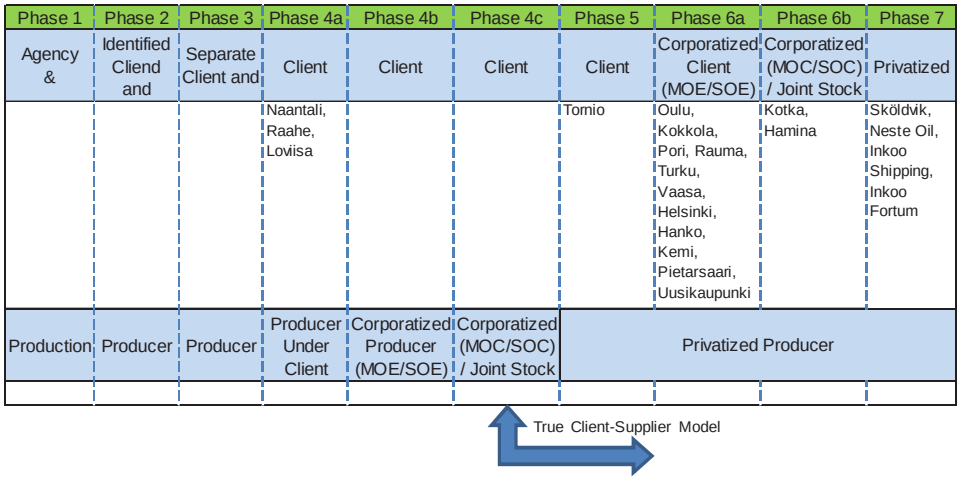

Figure 12. Port sector restructuring phases from interviews.

The port governance model that is widely used by municipal ports in Finland could be considered as a combination or modification of the *Landlord* - and *Tool port models*. The port authority owns, develops, and maintains the port infrastructure and part of the superstructure. The operation of port authority equipment is usually performed by port authority labour, but other operations are performed by private cargo-handling firms. The private operators are usually rather small companies. Similar to the landlord model port authority maintains ownership in the port while the infrastructure is leased to private operating companies.

The “Finnish port model” however differs from the standard models in some ways. In most cases there is only one main operator. The operators and ports have been traditionally closely connected for a very long time and in many cases could be described as strategic partners. Hence, in practice new operators (mainly stevedoring companies) have no realistic possibilities to enter the market or at least it is very difficult. Another significant difference to the landlord model is that Finnish ports often own cranes, warehouses and other superstructure themselves, and also provide lifting, warehousing and other services. The port of Helsinki in Vuosaari is an example of a port utilizing the standard landlord port model. There are a few smaller municipal ports that are examples of ports utilizing the tool port model.

Financial analyses reveal that ports are a good revenue source for municipalities, and that specialized ports have better results than those with several types of cargo and/or passenger transport. Ports tend to finance the bulk of the investment from cash flow, in some cases without compromising the owners need to receive a fixed amount of return in any given year. The ownership and governance model does not seem to contribute decisively to financial performance, which makes it more challenging for municipalities to change their current business model.

For many municipalities the port and its economic impacts are significant and it is unlikely that a municipality would close its port even in the current economic downturn. For the competitiveness of a port the supporting basic infrastructure is the key to ensure that it will be able to compete with other ports and even alternative modes of transport.

3.5.3 Important and timely issues

Finnish ports are already in transition due to EU policies. Then there are a number of other important and current issues at hands. These are listed below:

- EU decision regarding municipality-owned enterprises operating in competitive markets is leading to corporatization/privatization of all ports in Finland within a transition period.
- There is a continuous need to develop and strengthen operations, governance and cost efficiency. In Finland the number of ports is rather high, and many of them are small in size. One solution could be increased co-operation or direct mergers between port companies. However, the number of ports is a market-based decision.

- Structural changes of industries and deteriorating infrastructure due to municipalities' difficult economic situation.
- New ownership and governance models including improved landlord-model, public-private-partnership and concession-models.
- Port operations are too regulated and the legislation needs simplification/deregulation, and international harmonization at least at EU level.

3.6 Rail sector

Most of the railways throughout Europe have undergone a reform and restructuring process. This process is due to requirements set by the Commission of European Union in its Directives on rail revitalization. Without this external pressure, the restructuring would probably not have proceeded in many countries at all. However, this external pressure is also due to the fact that Europe's current transportation system is unable to provide an acceptable service level for European citizens or freight customers, especially the European industry. Europe's railways are primarily passenger railways; in very few countries the freight share of total kilometers of rail tranport is above 10 percent.

At the same time, the current transportation system is believed to cause environmental and safety hazards. It is believed that transfer of the traffic to rails, which is environmentally friendly and safe transport mode, the negative effects can be reduced. In order to achieve that goal the state railways need to be improved and developed in terms of customer-orientation and economic performance. Long tradition and the lack of competition have resulted in poor, costly and inefficient rail service. Today, a consensus exists that railway traffic simply costs too much for national governments in pure cash terms. These are the main reasons why restructuring has been promoted – the process which has started more than a decade ago and which will go on for another decade or even longer than that (Leviäkangas 2000).

From year 1862 to 1989 the Finnish State Railways VR operated as a state administration with a large share of funding coming from the state budget. VR was governed as any state administration. In the 1980's, VR made economic loss, the revenues from passenger and freight services did not cover the expenses of transport and infrastructure operations (at that time VR owned and managed the rail infrastructure as well). In 1990 VR's organizational status was changed into an SOE. VR was transformed into profit pursuing business organization, but

it was still state owned and the state was responsible for VR's financial liabilities. The SOE has been very typical in the Finnish government sector transformation process which has been applied to aviation and postal services, for example. The SOE transformation required a change in the Finnish legislation.

Another milestone took place in 1995, when SOE status was changed into a standard limited liability company status, and VR became VR-Group Ltd. Also this change required legislative actions and many other measures as well. For example, labor union representatives required that the state promised to avoid staff lay-offs and that infrastructure would be actively developed. Without this "insurance" the corporatization would probably not have been politically possible. The corporatization also meant that VR was restructured in multiple business entities, i.e. subsidiaries to VR-Group Ltd. The state owned (and still owns) all the share capital (equity) of VR-Group Ltd.

Infrastructure was handed to a new state administration, Finnish Rail Administration (RHK), who owned and managed the rail infrastructure. RHK continued to receive its funding from the state budget as a state administration. The same practice continues after the modal administrations, excluding the airports, were reorganized under the Finnish Transport Agency (FTA) in 2010 as a separate department.

Besides institutional separation of infrastructure and operations, there was separation of accounts as part of corporatization. This meant three major outcomes:

1. The new corporation was able to make profit since the infrastructure maintenance and construction costs were now transferred to RHK which received state budget funding for these activities.

2. The new VR corporation increased its turnover because now the corporation's subsidiary VR Track Ltd. was supplying track construction and maintenance services to RHK and then later to Finnish Transport Agency. But traffic volumes also increased, until the recent economic recession, aided by VR's pricing freedom, which was part of the reform package.

3. There had to be a separation of balance sheet accounts as well. A great deal of assets (rolling stock, some stations, depots, etc.) was transferred to the ownership of the new corporation. The infrastructure (tracks, land under the tracks, track-related infrastructure, most stations, etc.) was transferred to the ownership of RHK / Finnish Transport Agency.

It is noteworthy, that the restructuring meant that the state assumed responsibility for infrastructure and its costs through RHK / Finnish Transport Agency.

All the aforementioned restructuring decisions were made at highest political level. First, the Council of Ministers approved the restructuring goals and later these goals were approved by the Parliament according to the Council's proposal. This occurred step by step: first, the SOE established and later, the corporatization plans were drawn up and accepted.

The company VR operates on the Finnish rail network as a SOC. The current VR Group structure is shown in Figure 13. It shows how the railway system elements have been separated under different subsidiary companies. The structure of the corporation is explained below.

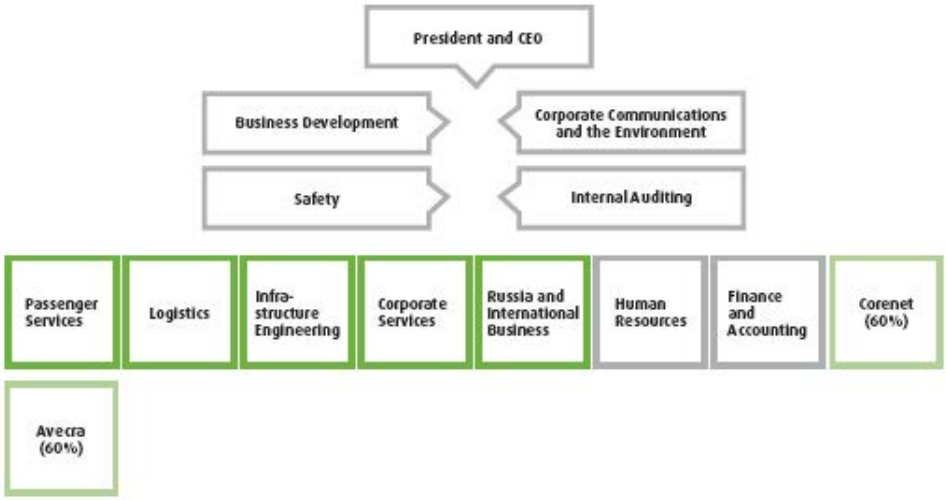

Figure 13. VR Group structure; the green units are the group's five business segments (source: VR 2011).

VR Ltd., the Group's largest company, provides rail passenger services. VR Transpoint comprises a number of subsidiaries and parent company arms providing freight services both on rails and roads. Rail services account for some 50% of VR Group's total net sales. . Road-based services account for roughly 21% of VR Group's net turnover. VR Track Ltd. (infrastructure and engineering unit) is responsible for track maintenance, construction, design and development, generating some 22% of the VR Group's net turnover. VR Group also includes Avecra Oy, which provides catering and restaurant services, and Corenet Oy, which provides ICT services. Altogether VR Group comprises 28 companies.

VR-Group Ltd., the parent company, provides real estate, financing, communications, training and administration services to its subsidiaries. VR-Group Ltd. is a limited liability company owned entirely by the Finnish state that was established in 1995 to continue the operations of Finnish State Railways (VR).

The safety and regulatory body and safety authority was until 2010 the Finnish Rail Agency. This agency was merged under Finnish Transport Safety Agency *Trafi*. Currently, the Agency also issues the operating licenses necessary to exercise rail transport business. The safety certificate allows the operator to access tracks. Agency operates under the Ministry's control but is in fact enforcing the European legislation. Trafi is hence governed by the Ministry directly from a managerial point of view Trafi's director general, but from the legal point of view, Trafi's rail department is governed by the European Rail Agency.

The infrastructure supply is based on public good and public service principles, and hence provided by the state and financed by the taxpayers. FTA as the infrastructure manager is mandated to maintain and develop rail infrastructure within the limits of the budget. Infrastructure services are provided mainly by VR's subsidiary company VR Track, which in practice holds a monopoly of track maintenance and construction market, which needs special skills and equipment. FTA as the client of these services may split contracts to enhance competition between different suppliers, such as sleeper suppliers, materials suppliers and special parts and system providers. However, VR Track is usually the main contractor in projects.

In summary the Finnish rail sector is state-driven, with its state-owned infrastructure, state licensing and certification bodies, and state-owned monopoly operator. The Prime Minister's Office via its State's Ownership Steering Department controls in practice the functioning of the management and governance bodies of VR. It is very hard to see the situation differently, and indeed this fact has not escaped from some of the analyses of Finnish rail sector. The REORIENT project reported Finland as one of the hardest places within EU for new operators to access the tracks (Mahmassani et al. 2007).

The infrastructure management structure is a straightforward state administration. For track access, processes for free access are in place in principle, excluding the passenger services not yet open for competition. The European Commission has expressed its clear will to have open access for passenger services already in 2010. As the infrastructure charging is based on marginal cost recovery, there is a *de facto* subsidy for the state-owned operator.

The externalities are mostly associated with market inefficiencies, the rail system being controlled by the political system. The state owns and governs the infrastructure via its authority-mandated bodies and exercises much control over the rail transport services through low track access charges, allegedly based on short-term marginal costs (Tervonen & Pekkarinen 2007). In 2005, the cost recovery from taxes and basic charges was less than 12% of (the then) Rail Administration's total budget. Currently, after a new round of reorganization of the state's transport sector administrations and decline in transport volumes, the cost recovery is in all likelihood slightly less than 12 percent.

The risk with such a low cost recovery in the long run is that the rail sector will lose credibility as an efficiently run transport mode. The climate change issues have softened the critique because the railways are regarded as an environmentally sustainable transport mode. Shifts from road to rail transport may seem beneficial in project appraisal context in terms of environmental and accident costs, as has been pointed out (Leviäkangas et al. 2009). However, these appraisals do not look at the projects from fiscal and willingness to pay points of view. Vast development of the rail system with current governance and ownership models is likely to turn out to be very expensive for the taxpayers. A rational pricing system with well-founded principles should be used to guide railway investments. Introducing a new governance and pricing model might, however, disturb the political consensus.

One solution could be the development of a governance model of rail infrastructure that would actively seek to increase rail traffic volumes while at the same time collect revenues from operators with a better cost recovery ratio for the system as a whole. To simplify this novel line of thinking: it would make more sense to make money out from the infrastructure than to subsidize its use; shifting money from state's one pocket to another, as is the case today, may not be sensible in the long run. This might also satisfy the spirit of EU legislation better, by allowing more competition on and for the track use and separating them from the complex political ties to transport operations, whilst making the infrastructure the critical asset of the state to generate revenues to the owner or at least yield a better fiscal balance.

In plain words, rail infrastructure could well be organized as SOE, which would however, require some state subsidies. In the long run, train operations should pay for the use of infrastructure in the spirit of full infrastructure cost recovery. Since rail is a low-carbon emitting mode of transport, part of the inevitable infrastructure financing gap could be covered by exchanging emission rights.

3.7 Airport sector

Airports play an important role in the Finnish economy and the society as a whole. Finavia offers its customer's safe, internationally competitive airport services, supporting commercial operations and air navigation services. Finavia's responsibility includes maintaining 25 airports and air traffic services in Finland. It has a staff of about 1700 people. The gross income is about 330 million Euros and more than 50% of the income is derived from the services to airlines. Security, safety and regulations are also very important aspects of the core business practices. State has recently issued Finavia's Ownership Strategy. [6]

Partly in response to an EU decision, the Finnish State restructured Finavia into a State Owned Company (SOC) in January 2010. In practical terms, in near-term view, the change from SOE to SOC was not material. A fully private ownership model would not have served the state's strategic interests, especially if an international entity or investor group became the owner. Finavia's clients are numerous domestic and international private entities, placing the state's shareholder rights in the Ministry of Transportation and Communication (MOTC) is a logical choice because of the Ministry's expertise and international competence in the air transport matters.

Finavia's main functions and includes airport services, customer services, and the commercial retail services. To carry out these functions requires airport navigation, ground communications, arrival and departure information, air traffic control services, security, winter maintenance of runways, emergency services, retail and business for land-side transportation, restaurants, training and education, and other infrastructure services. It is important to have safe, clean, functional, and operative services for the multiple types of clients and customers. Finavia is also responsible for the military airports services and facilities.

Even though Finavia is a monopoly in Finland, the real competition is from the international airports. It is critical for Finavia to be competitive, internationally attractive, and find strategic means to maintain the gateway concept. Finland is essentially an island outside of the European community and does not have the extensive agglomeration of attractions in its neighborhood like Paris, London, Amsterdam, and Frankfurt. Within Finland, the competition is virtually non-existent; the main competition comes from the private car, and subsidized rail-

[6] Finavia Oyj owner strategy principles 10.3.2011 (http://www.lvm.fi/c/document_library).

way services. For air transport, the competition is from abroad in terms of costs and service quality with the European airports. This is an essential part for being a gateway for the European and Asian connections; being or becoming an international contender is a challenging task.

Finavia's pricing regimes are determined twice a year in negotiations with the airline partners. Finavia tracks international trends continuously to verify the delicate price balance. Cost control is important, as is efficiency and productivity improvements, without sacrificing security and safety. Presently, the balance sheet is satisfactory, but the present economic climate and the numerous union strikes against the airline industry, will require adaptation to changes to establish strategic redirection.

Many of the key services at the airports are provided by affiliated or subsidiaries of Finavia, while others, such as airport security services, are outsourced. Decisions on asset management, what should be done internally and what services are available from the market at competitive prices, require continued vigilance. The customer service surveys are one of the main forms of performance measurement and are evaluated using the balanced scorecard. This approach is quite new and still under development.

The business entrepreneurial model matches well Finavia's structure and objectives. The revenue income usually exceeds expenses and there is transparency and accountability in financial management. The new SOC structure provides flexibility in strategic planning, efficient decision making practices, financial decisions, and in operational matters. However, this also requires meeting the financial goals, customer service improvements, maintaining the market position, and high safety and security standards. The resiliency of Finavia will be tested continually over the forthcoming years.

3.8 Main issues and development needs

Figure 14 displays the main activities that the technical infrastructure network entities need to pursue and achieve in the restructuring process toward the *true client-supplier* model or corporatized governance models in infrastructure client agencies. The term restructuring does not have a strict definition; it simply means 'improvement'. The improvement needs in infrastructure agencies have already been discussed or implied in several places, particularly under *'Timely Issues'* for the roads, waterworks and ports. In this section the most important issues are briefly highlighted.

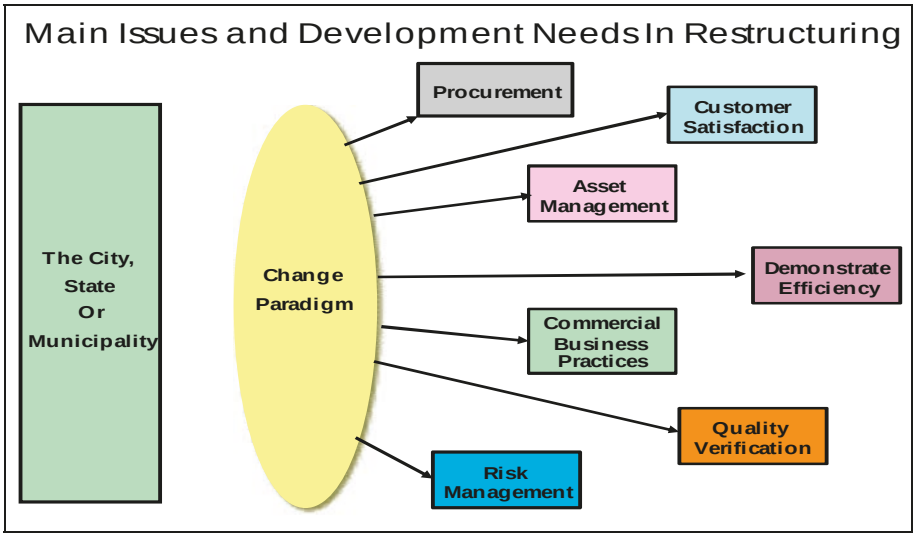

Figure 14. Main issues and development needs in restructuring.

Procurement is a central feature in restructuring. Restructuring of publicly owned entities will lead to an arrangement in which the products and services will be procured with competitive bidding from the private sector (and partly, during the transition period, from the corporatized public sector entities).

For competition there must be a functioning market or it has to develop in the process, otherwise cost-efficiency advantages will be marginal or none at all. The development of procurement processes and having innovative procurement practices (see Pakkala et al. 2007) will and must be the one of the most important activities in the administration of the technical departments.

In the road sector, at the state level, there already is a competitive market for construction, design, maintenance, and planning and engineering design studies and management systems; at the municipal level further development of market competition needs to occur for maintenance, planning and engineering studies and management systems. Aviation and ports purchase most of their products and services from the private market that are competitively priced. Aviation is governed by a special law which exempts them from competition in some cases and up to a certain limit. The majority of waterworks are taken care of by direct labor or vertically integrated sister companies, except construction which is mainly procured from the private sector. The railway services are a (subsidized) monopoly at the national level; limited competition is provided by bus and truck transports. For railway infrastructure competition is emerging.

However, competition must be healthy and not corrupted by cartels. There needs to be a balance between excessive strategic behavior by the market actors, and presence of a number of competitive bidders to maintain a functional market. The biggest obstacle is the introduction of market competition for most services and ability and the consequent challenge is to implement innovative and alternative procurement methods similar to those used by the Finnish Transport Agency (FTA).

Customer service is an important, challenging and evolving part for the infrastructure networks. Currently it is being applied more diligently and thoughtfully as restructuring proceeds toward the company model, the MOCs and SOCs. Customer benchmarking surveys are presently primitive in municipalities and needs improvement. The benchmarking results need to be fed back into the decision processes in order to be meaningful and to effect changes in the procedures. Customer service is also an area that needs definite strengthening to ensure that things are done right (efficiency) and that the right things are done (effectiveness).

Asset management is the third major issue that was recognized as needing improvement. With the retirement of senior managers and professionals there will be a significant loss of data and know-how. Most municipalities lack recorded data and information about asset condition and assessment, and the costs associated to maintain asset integrity. There is a lack of ability to predict the cost associated to remove asset backlog. A significant development effort is in order to implement good asset management practices. To ensure uniformity, a preferable option is to design an asset management system around a common framework that would serve all the municipalities. Presumably the larger cities would adopt a more complex version of a common system.

Risk management is at its infancy in most entities. At the state level it is mandated in the Budget Law. FTA, which is a good example on risk management, has adopted an internationally recognized COSO-ERM framework for internal control and risk management[7]. Briefly, in FTA, the objectives of risk management are to ensure that: (i) operations are efficient and effective; (ii) FTA operates in accordance with rules and regulations; (iii) external and internal management reporting is accurate and sufficient; and (iv) management of the assets and property are safeguarded. The Internal Control unit's mandate goes much beyond the financial controls and audit; it provides independent and objective

[7] See: http://www.coso.org/ERM-IntegratedFramework.htm.

assessments not only on FTA internal controls, but also on risk management and administrative processes to manage and safeguard the assets. In this way it provides broad support to FTA in achieving its objectives.

Other issues that will need attention and development in the wake of *procurement, customer surveys, asset management system, and risk management* are business practices, supervision of works and quality verification, and reporting systems to show that cost-effective practices are being followed.

4. Financial analyses

The goal of this work package in the C-Business project was to study the financial viability of infrastructure networks' ownership and governance (O&G) models from owners, investors and society's viewpoint (more details can be found in Nokkala et al. 2011). The studied infrastructure networks are ports, water and sewage networks, railway, airports, roads, and energy, and the O&G models are classified as, municipal owned enterprises (MOE), municipal owned companies (MOC), state owned enterprises (SOE), state owned companies (SOC) and private companies or cooperatives (P).

The research results apply to current situation. In these analyses, publicly available financial information, that is income statements and balance sheets, are used as core data from which all the profitability and risk ratios are calculated. The key instruments to examine profitability are cash flow statement (Free cash flow), and key profitability ratios (Beta, Return on investment (ROI), Return on assets (ROA), Return on equity (ROE), and Return on capital invested by municipality (ROCIM)). We also examine the entities' cost of capital structure that is cost of equity, cost of debt, and weighted average cost of capital (WACC). Glossary of the terminology used is in Appendix C to give a brief explanation of each indicator. We apply the analysis to the entities presented in Table 3.

Table 3. Studied entities, grouped by industry and ownership.

Industry	Ownership	Company	Number of cases
Ports	MOE	Port of Oulu	7
		Port of Kemi	
		Port of Helsinki	
		Port of Turku	
		Port of Kokkola	
		Port of Vaasa	
		Port of Hanko	
	MOC	Port of Kotka	2
		Port of Hamina	
	P	Inkoo Shipping	1
Waterworks	MOE	Haukipudas waterworks	5
		Oulu waterworks	
		Helsinki waterworks	
		Espoo waterworks	
		Vantaa waterworks	
	MOC	Kempeleen Vesihuolto Oy	4
		Lakeuden keskuspuhdistamo Oy	
		Lahti Aqua Oy	
		Hämeenlinnan Seudun Vesi Oy	
	P	Ylivieska waterworks co-operative	2
		Pudasjärvi waterworks co-operative	
Railway	SOC	VR-Group Ltd.	1
Airports	SOE/SOC	Finavia	1
Roads	SOC	Destia Ltd.	1
Energy	MOE	Oulun energia	2
		Helsingin energia	
	MOC	Jyväskylän Energia Oy[8]	1
	SOC	Fortum Corp.	1
			Total 28

[8] Jyväskylä Energia's results are not presented separate in the report as per their request.

There are several limitations to the analysis that should be noted:

- Some of the entities under "traditional model"[9] do not produce separate financial statement.
- Due to the small sample size, the analyses presented are not statistically significant.
- For unlisted companies application of financial ratios may not always yield meaningful results, for instance the beta may assume (small) negative value as investors may have revenue expectations that differ from those of the listed companies.
- Adjustments to income statement and balance sheet are kept to minimum, because not all studied companies have provided equally comprehensive information.
- Analyses are presented as ex-post, and therefore do not automatically provide a picture of the future financial position of the company.
- Some companies have not paid taxes or this information is omitted from their financial statements.

In those cases and years where no tax payment has taken place the tax rate has been adjusted to zero. This has made it impossible to use real tax rate in the calculation of WACC. The leasing liabilities have not been included in the analysis because all entities did not provide data on their leasing liabilities. This has potential impact on the results of the financial analysis. Large leasing liabilities would lead to a lower WACC rate.

The principle of the smallest mutual denominator has been applied in analyzing the data. The aim is to make the companies as comparable as possible, but at the same time, where applicable, make the same adjustments apply to all the companies. The adjustments that have been left out may have a minor effect on the result. The aim of the minor adjustments and simplifications made was to render the results comparable and fair across all the entities. For the entities analyzed, the main assumption is that the companies have made their income statements and balance sheets according to standard practices and that the information is reliable. For some entities certain years were omitted from analyses

[9] Traditional model here refers to the production within the municipality, usually under the technical department.

due to missing data. These were port of Hamina and Vantaa waterworks for 2001 and Finavia for 2009.

4.1 Key financial indicators

The analysis in this work package follow the basic methodology used in Finland to analyze companies listed in the stock exchange. To supplement the short definitions below, Appendix C shows the definitions of financial ratios based on published (but adjusted) income statements and balanced sheets.

The key ratios calculated included:

- *Free cash flow (FCF)* represents the amount of cash that a company has left over after it has paid all of its expenses, including investments repayments and depreciation according to plan. Free cash flow is important because it allows a company to pursue opportunities that enhance shareholder value. The presence of free cash flow indicates that a company has cash to expand, develop new products, buy back stock, pay dividends, or reduce its debt. High or rising free cash flow is often a sign of a healthy company that is thriving in its current environment.
- *Return on assets (ROA)* measures how profitable a company is relative to its total assets. ROA gives investors an idea of how effectively the company is converting the money it has to invest into net income. The higher ROA, the better, because the company is earning more money on less investment.
- *Return on investment (ROI)* measures how profitable a company is relative to its invested capital. ROI measures a company's profitability and its managements' ability to generate profits from the funds investors have placed at its disposal.
- *Return on equity (ROE)* measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested.
- *Return on capital invested by municipality (municipalities) (ROCIM)* measures the amount of profit a company generates with the money municipality (municipalities) have invested (note that there can be multiple municipalities as shareholders).

- *Risk relative to market return (beta, B)*; in this case Finland, the market beta represents share value's sensibility to the changes of the OMX Helsinki index.
- *Cost of equity (Re)* is the return that equity investors require on their investment in the firm.
- *Cost of debt (Rd)* is the return that lenders require on the firm's debt.
- *Weighted average cost of capital (WACC)*; firm's WACC is the overall required return on the firm as a whole.

4.2 Findings

Research results from various financial analyses are summarized using a rough rating, which was constructed as follows (Table 4):

Table 4. Indicator ratings.

	FCF/Net Sales (%)	ROA (%)	ROI-min (%)	ROE-min (%)	ROCIM-min (%)	|B|	Re (%)	Rd (%)	WACC (%)	**RATING**
Good	> 20	> 10	> 5	> 5	> 5	< 0,2	< 5	< 5,08	< 5	**1**
Satisfac-tory	0–20	5–10	0–5	0–5	0–5	0,2–1	5–10	5,08–9,58	5–10	**2**
Weak	< 0	< 5	< 0	< 0	< 0	> 1	> 10	> 9,58	> 10	**3**

Table 5 shows the summary of all the studied entities and their performance in the indices applied. Based on the indices, the average is calculated to determine the overall performance.

Table 5. Performance order, grouped by companies.

Company	FCF	ROA	ROI	ROE	ROCIM	B	Re	Rd	WACC	Average	
Port of Oulu	3	2	2	2	2	1	1	2	1,5	1,83	satisfactory
Port of Kemi	3	2	2	3	2	1	1	2	1,5	1,94	satisfactory
Port of Helsinki	3	2	1	2	2	1	1	1	1	1,56	satisfactory
Port of Turku	1	2	2	3	2	1	1	2	1	1,67	satisfactory
Port of Kokkola	2	2	2	2	1	1	1	2	1,5	1,61	satisfactory
Port of Vaasa	1	2	2	3	2	1	1	2	1,5	1,72	satisfactory
Port of Hanko	1	1	1	1	1	1	1	1	1	1,0	good
Port of Kotka	3	2	2	1	1	1	1	2	2	1,67	satisfactory
Port of Hamina	3	3	2	2	2	1	1	2	2	2,0	satisfactory
Inkoo Shipping	2	1	1	1		1	1	1	1	1,13	good
Haukipudas waterworks	3	3	2	3	3	1	1	1	1	2,0	insufficient
Oulu waterworks	2	2	2	3	1	1	1	2	2	1,78	satisfactory
Helsinki waterworks	1	2	2	3	1	1	1	3	2	1,78	satisfactory
Espoo waterworks	2	2	2	3	2	1	1	3	2	2,0	satisfactory
Vantaa waterworks	1	2	3	3	2	1	1	3	2	2,0	satisfactory
Kempele waterworks	3	3	3	3	3	1	1	3	2	2,44	poor
Lakeuden keskuspuhdistamo	3	3	2	3	3	1	1	1	1	2,0	insufficient
Lahti Aqua	3	3	2	3	3	1	1	1	1	2,0	insufficient
Hämeenlinna area waterworks	3	3	3	3	3	1	1	3	2	2,44	insufficient
Ylivieska waterworks co-operative	3	3	3	3		1	1	3	2	2,38	poor
Pudasjärvi water-works co-operative	3	3	2	3		1	1	3	2	2,25	insufficient
VR-Group Ltd.	2	3	2	2		1	1	1	1	1,63	satisfactory
Finavia Corp.	2	3	2	2		1	1	3	2	2,0	satisfactory
Destia Ltd.	2	3	1	1		1	1	1	1	1,38	good
Oulun energia	2	1	1	1	1	1	1	2	2	1,33	good
Helsingin energia	1	1	1	1	1	1	1	1	1,5	1,06	good
Fortum Corp.	2	1	1	1		1	1	1	1	1,13	good

RED = Return under risk-free rate[10]

BLUE = Negative return

insufficient = profit less than risk-free rate

poor = loss-making to investors and owners

[10] Risk-free rate for this analysis was fixed to 10-year state bond return in May 2010.

It appears that the ownership model in itself is not a guarantee for financial performance, for the better or for the worse. However, due to the fact that some ownership models require publication of less financial information, some of the analyses have been difficult to carry out. Most financial analysis tools have been designed for listed companies to enable comparisons with one another in a comprehensive manner. The financing arrangements between a public entity (state or municipality) and a company that it owns appear to have more complex repercussions to analysis than one would assume from the outset. For instance, the tax position and the financial statements of some of the companies are quite unclear from the data provided.

Although companies listed in the stock exchange are major consumers of energy and water, values of beta for energy and water entities do not seem to depend on the fluctuations of stock exchange, i.e. the performance of their major clients. This finding is rather surprising as there appears to be a non-significant relationship between stock exchange listed companies' performance and utilities providers, whose supply in principle depends on the demand of the industries.

Betas were also calculated for all sectors. None of the sectors appeared to be particularly dependent on the market fluctuations, as measured by beta. For instance, for waterworks it is quite easy to conclude that they are not dependent on the market as water is a basic utility; on the other hand industries are also major users of waterworks services. Apparently the fact that water is a necessity dominates the economic downturn's impact on consumption.

A provisional conclusion of the financial analysis is that the energy sector is the best performing industry, followed by ports and waterworks, again keeping in mind that the results are far from a unified picture of a given industry. It appears that the ownership has a lesser role in determining the financial position of a company than what would have been the initial assumption, provided the financial accounts that the research team had available are accurate, and there are no hidden costs or subsidies. Ownership does not appear to hinder performance from the financial point of view. Ownership restructuring seems to focus on reducing the size of public labor force, on effective competition, and only indirectly, especially for the waterworks, on efficiency gains and financial performance. On better asset management the jury is out because the value of the assets may not be accurately reflected in the financial accounts.

4.3 Final remarks and investor viewpoints

In Figure 15 beta and ROI form a graph that shows industries' profit and risk compared to the security market line. Industries above the security market line (SML) are good investments, as they have made good profit with small risk. In Figure 16 beta and ROI are grouped by ownership model. MOEs and MOCs risks are almost the same, but MOEs profits are better than MOCs. This is a surprising result and more research on the issue is needed. However, it is evident that purely from shareholders' wealth increasing point of view ownership model is not the only solution.

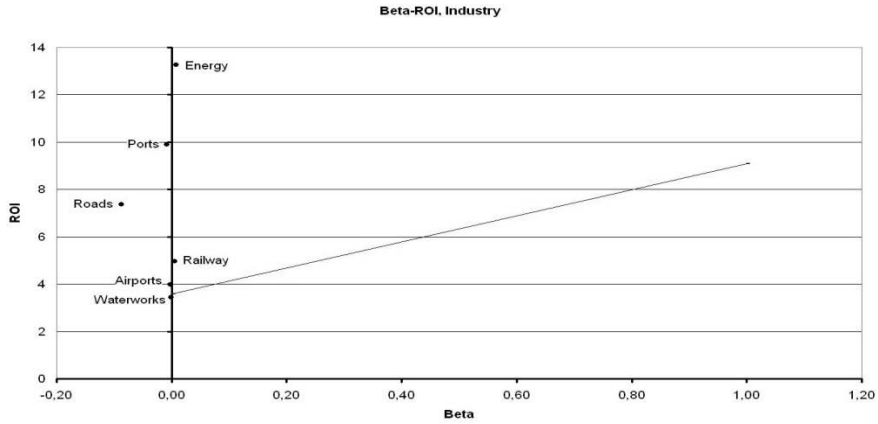

Figure 15. Beta-ROI, grouped by industry.

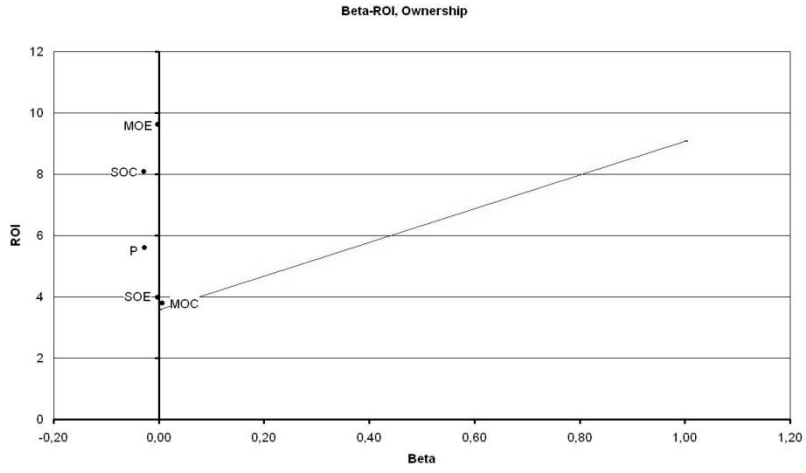

Figure 16. Beta-ROI, grouped by ownership.

MOCs and SOEs have almost the same profit and risk as the risk-free rate. All the other ownership models have made higher profits than the risk-free rate, and their risks are small. This is a contradiction to some of the earlier assumptions, but on the other hand in line with some empirical analyses on infrastructure projects as an investment, e.g. Leviäkangas (2007).

One of the most interesting results of this study is that the MOEs outperform MOC in almost all sectors and all measures. Reasons for this could be the following:

- Taxation differences (MOEs do not pay taxes).
- Valuing of assets.
- "Creative" accounting or different cost accounting practices.
- MOEs have larger equity capital which makes the returns on assets lower in general.

MOE may be a good operational model for waterworks as they operate as natural monopoly within their area of operation without competition. This results in tax treatment being a neutral factor as there are no commercial/private service providers to compete with the MOEs. However, there could be competition for the management and operation contracts of the waterworks, which could be organized under any of the models using the client-supplier concept (e.g. Askola, Mikkeli or Varkaus in the road/street sector). This would, of course, make negotiated contracts and the use of direct labor extremely difficult. The industry is also controlled by legislation so the market operations are regulated and do not allow for much room to deliberate. The waterworks face important risks when the owning municipalities demand higher returns or maintain lower prices and postpone rehabilitation or other investments, which both would increase maintenance backlog. Municipalities have more control over the MOE than a MOC so the demands can also be tougher in terms of bringing cash to owners.

The MOE (or a SOE) as a concept may not be possible in the situation where the market has other operators too. This applies to also municipalities technical departments as managers, which produce same services to public as private companies would, but with a privileged position in the markets.

In Figure 17 beta and ROI are grouped by industry and ownership model. All groups have small risks, but some have ROI above the security market line (SML) and some have ROI below the SML. Private port and municipality-owned energy enterprises have made the highest profit. MOEs have made better

profit than MOCs in every industry. Municipality-owned waterworks companies and private waterworks have made smaller profit than the risk-free rate.

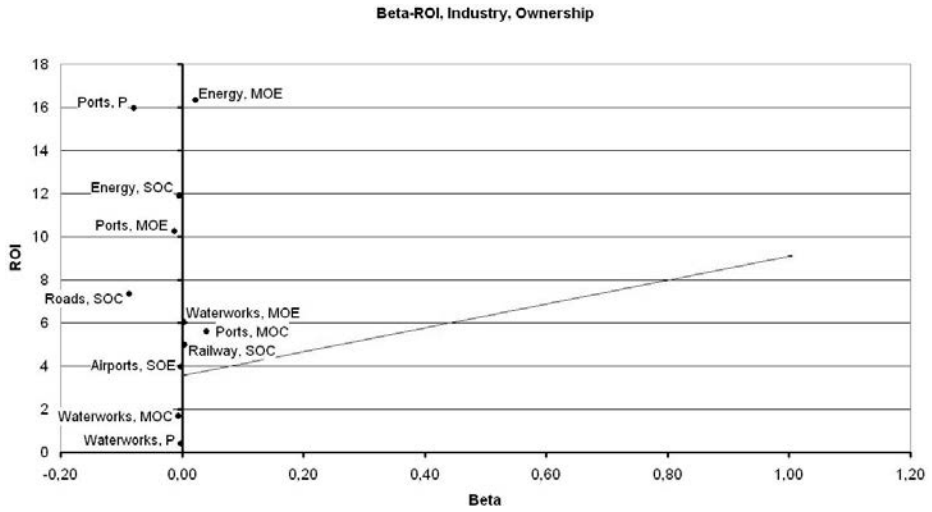

Figure 17. Beta-ROI, grouped by industry and ownership.

In the case of the waterworks, the results can be biased as 4 of the 5 MOEs studied are among Finland's biggest municipalities. Haukipudas, the only smaller size municipality is a representative example of the majority of Finnish municipalities. The larger municipalities have opted for the MOE model, possibly due to the fact that this is a way, as a monopoly, to generate revenue to the municipality. Cooperatives are working in a much smaller scale of operations, which also explains their "modest" results.

In sum, the end result is actually logical: the cash flows to the owners of infrastructure and utilities are non-correlative to the market returns and hence result in small volatility. This is occurring, as expected, in all cases irrespective of ownership model. Hence the utilities in general appear as very good investments both on the public and private side. When the ownership is public, caution should be exercised if sale of these valuable assets is contemplated. Competition, innovation and private sector efficiency can be introduced through management contracts without asset privatization, but with professional Boards for oversight. On the other hand, there certainly is a definite need to improve the transparency of accounts and money flows, especially in the case where normal corporate accounting rules are not applied. There is no reason why municipalities and the state could not follow standard accounting practices whatever the ownership model is.

5. SWOT of different ownership and governance models

C-Business project has observed a number of Strengths – Weaknesses – Opportunities – Threats (SWOT) from different case studies and O&G models for various sectors. The SWOT analyses are based on interviews and financial and risk analyses and represent the viewpoint of the owner. This chapter summarizes the main findings from the SWOT analyses that were described more detailed in an extensive research report (more details can be found in Herrala et al. 2011).

The traditional model's most important strengths are related to the stable and secure ownership by municipality, large assets in operations and facilities, good knowledge of day-to-day operations, and understanding the local politics and residents' concerns. The weaknesses include bureaucracy, lengthy decision-making, political interference, an inability to compete with the private market (supplier MOE), negotiated contracts with direct labor or a MOE supplier, limited flexibility to change the traditional systems that were established and a general lack of understanding of and limited use asset management tools. In addition, there is a lack of transparency and accountability that may endanger sustainable development and maintenance of infrastructure networks and services. The municipalities have the opportunity to reduce costs by outsourcing, developing and improving the asset management tools and systems (however doubtful), and real partnering with industry and other public authorities. The main threats are the continuation of traditional practices (lack of innovation and growth), negotiated contracts to protect the in-house employees, continued backlogs, insufficient annual budgets, and short-sighted political decision making and an inability to respond timely to societal changes.

The Municipal Owned Enterprise (MOE) model offers business entrepreneurial practices into the public ownership structure. It is important to understand that the MOE can be applied to the client organization as well as the supplier organi-

zation. This model offers better management accountability, cost accountability, efficiency, and better practices in management and administration. The opportunities include focus on efficiency, a potential for borrowing financial capital, and customer service approach. Threats are the continuation as a MOE that is trapped in the process between competition and public service (of which some ports and roads are a good example), changes in taxation and changes in the legal structure. It should be highlighted that originally many believed that a MOE could be sustainable over a long period, but the EU petition against Destia Oy has foiled that approach and is now considered as an intermittent, although valuable phase to increase efficiency prior to being restructured as a MOC. MOEs can perform quite well in terms of generating cash to owners, albeit without tax responsibility.

The Municipal Owned Company (MOC) model is essentially the business entrepreneurial model that can compete in the private market. It is important to understand that the MOC can be applied to the client as well as the supplier organization. A supplier MOC infers practices similar to private companies that need to be self-sufficient from revenues. Borrowing from the financial market is more flexible, there is flexibility to purchase and sell assets and companies, and to expand into other similar markets. The limitations are associated with sustainable revenues, paying corporate and VAT taxes, and political and social resistance.

In the client-supplier model all services are procured through open competition. This also implies that modern procurement practices, better customer services, development of asset management and tools need to be developed. There needs to be balancing of risks, transparent operations, a functional market of service providers, and quality standards and verification procedures for satisfactory quality outcomes. The inherent challenge is that all these take time to develop, require significant human resources, cooperation with the private market, and that a functional market continues to operate without significant market imperfections.

The PPP model has not been studied thoroughly, but it is a cooperative arrangement of public and private resources to provide services. Since this is a relatively new model the results are not yet known; in a real sense PPP is an unknown territory. The PPP model is intended to combine the knowledge and assets of the public and private sectors. The early feedback is that improvements in efficiency and management have taken place but sometimes with a limited scope. Unless there is real partnership and a willingness to renegotiate contract elements when unforeseen events emerge, a PPP may not be sustainable, because no contract can be complete as written originally. On the other hand, it is

an increasingly popular model around the world to get value for money and benefits quickly to the users.

Main differences between different ownership and governance models are highlighted in Table 6.

Table 6. Comparison of different ownership and governance models.

	Strengths	**Weaknesses**	**Opportunities**	**Threats**
Traditional model	Support from the municipality and its units Preferential tax treatment	Limited resources Lack of cost awareness Lack of transparency Preferential tax treatment and negotiated contracts cause market distortions	Cost accounting Asset management Benchmarking Cooperation with other municipal units and other municipalities	Short-term politicking Bureaucracy Municipalities poor financial situation
MOE (SOE to some extent)	Transparency Preferential tax treatment Profit to the owner	Municipal interference Heavy administration Market distortions as in the traditional model unless a natural monopoly.	Business orientation Asset management	Short-term politicking Bureaucracy Changes in tax treatment Underinvestment
MOC (SOC to some extent)	Business-like operation Flexible decision-making Independent finance Transparency	Weaker municipal back-up	Customer orientation Access to capital markets Innovation Cooperation	Principal-agent problem Underinvestment Financial risks
Client-supplier model	Clear client role Open competition Improved transparency and accountability	Reliance on the market Difficult to write good contracts Undeveloped quality assurance practices	Risk sharing Cost savings with fewer fixed assets	Cartels Private monopolies
PPP	Combine technical expertise and knowhow of public and private stakeholders	Inflexible nature of the PPP arrangements Lack of exit strategy	Broad thinking Importing new ideas Access to capital markets Innovation	Limited scope of work Built around a project
Cooperative	Owned by customers Light administration Not-for-profit Working bees	Small-scale operation Lack of skilled staff	Consolidation or cooperation with other cooperatives or municipal owned waterworks	Tightening quality requirements Lack of interest

A summary SWOT results by sector are highlighted briefly next.

5.1 Waterworks

In the water sector political interference in financing, investments and pricing of services jeopardize necessary infrastructure investments, efficient operation and cost recovery required by law. To guarantee excellent service provision also in the future, systematic mapping of infrastructure conditions and proper investment planning and allocation is needed. In addition, more transparent operation and cost accounting, and freedom of political interference would enable more efficient operations. Municipal owned enterprises (MOEs) and municipal owned companies (MOCs) models are steps in the right direction, but there is room for improvement in the use of both models and to exploitation of their respective advantages.

5.2 Roads/streets

Restructurings of the road and streets sector essentially began in the late 1980s and have now received a new boost from the fiscal crisis and minor advances are made toward the (true) client–supplier model to gain efficiencies and cost savings. Many smaller and medium sized municipalities have already restructured to the client-supplier model as they are more nimble and adaptable. The main road-block, and a demanding challenge, is to engage the decision-makers to approve changes in the stewardship and operations of the street networks and make their management function more business-like. The SWOTs show that the more advanced restructuring models have more flexibility, less political interference, better efficiency, and they are able to more easily adopt asset management practices as opposed to staying in the traditional positions, where progress stands still and maintenance backlogs are on the increase.

5.3 Ports

Competition and fairness issues will become more important after the Municipal Owned Enterprise (MOE) model is replaced by the Municipal Owned Company (MOC). The latter model is probably going to be the most common already in the near future. The number of ports should be determined by the market. However, for many municipalities the port and its economic impacts are significant and it is unlikely that a municipality would close its port but rather find ways to compete more effectively. The supporting basic infrastructure at the port is the

key to ensure that the port will be able to serve the customers effectively and at low cost and compete with the other ports and even alternative modes of transport. There probably are overt and covert subsidies to keep marginal ports in operation.

5.4 Airports

The State Owned Company (SOC) model for the airports seems to be the correct ownership model. Even though Finavia is a monopoly in Finland, its competition comes from abroad. The business entrepreneurial concept complements the airport operations and allows greater freedom and effectiveness. The greatest challenges are being able to cope with market fluctuations, externalities, and providing a broad and good customer services to all travelers.

5.5 Rail

The railway infrastructure is state owned and financed. The passenger and freight services are organized as a SOC, VR, with several subsidiaries and cost centres. There is an EU mandated freedom to allow entry to the freight service market and international passenger service market in the EU countries, and no prohibition exists in Finland for market entry.

As of now, in freight, VR is a SOC in competition with private trucking companies. The playing field is not necessarily level, however. Some earlier studies indicate that social marginal cost recovery are about the same level for both trucking and rail freight, but there are no recent studies on this issue. VR Transpoint's road logistics arm does not differ significantly from any other road freight operators.

5.6 Cross-cutting issues

Each infrastructure sector has its unique features regarding strengths, weaknesses, opportunities and threats. In general, the most important strengths of the infrastructure networks' ownership, governance and operation are related to the stable and secure ownership from the municipal involvement and good knowledge of day-to-day operations. In this environment good management would be a definite plus. Bureaucracy, lengthy decision-making and political interference are however tough weaknesses to overcome. Combined with a lack

of transparency and accountability, sustainable development and maintenance of infrastructure networks and services is endangered. This can lead to deterioration of physical condition and diminished value of the infrastructure assets.

There are, however, significant analogies between the networks and operations that are carried out on them. In all networks, it is possible to distinguish (a) the infrastructure and its owner, (b) administrator, (c) manager who specifies the activities in detail, (d) supplier of the service, and (e) the type of service that is delivered to end users. The right O&G models depend most likely on the interaction between the aforementioned. For example, waterworks are a natural monopoly that delivers a service that is essential for sustaining life! It is hard to see feasible areas of competitive activities excluding the typical maintenance, construction and design functions supplied to infrastructure owner and operator. Rail infrastructure is almost a natural monopoly too, but it is much harder to find arguments against having competition on tracks: mobility services are not that critical and can be offered by many suppliers. Looking at the infrastructure and its services as a whole, there could be found more sustainable solutions to ownership and governance issues.

In addition, there are taxation differences. The taxation issue is relevant especially for ports which are operating in the competitive markets, but also for other infrastructure. Differential taxation of governance models in an economic activity may prevent meaningful and efficient consolidation of services and competitive management contracts..

MOE is a good model and step forward, but it should be considered as an intermediate phase in the competitive markets. This is due to the fact that MOEs do not have to pay taxes and they cannot go bankrupt which gives them significant competitive advantage and distort the market. Another significant issue that concerns especially the waterworks is that loans from the municipality are interest-only loans (zero coupon bonds). This might cause severe financial problems in the future when infrastructure ages and needs repairs. The third issue which concerns all sectors is the amount of maintenance backlog that already has accumulated over the years and will continue to do so unless steps are taken to develop and implement a well-founded rehabilitation and maintenance program. Only few municipalities know the condition of their networks and the extent of maintenance and rehabilitation backlog.

Improved asset management and cost awareness are crucial issues in all the sectors. It is important to have the motivation and incentives to acquire cost knowledge and use of modern methods of asset management and pricing. This

requires changes in the concept, a change in the way of thinking about management, governance, and stewardship of the infrastructure networks.

The future ownership and governance of the infrastructure networks greatly depends upon the decision makers and the economic situation. The SWOTs show that there is potential to incorporate business practices into the ownership model of MOEs and MOCs, but that varies from sector to sector. The ethos for public ownership of the infrastructure networks is strong in Finland and the privatization concept does not enjoy popular appeal. Nonetheless, even within the public ownership of the infrastructure assets, many advantages in service delivery, customer service and economic efficiency can be obtained by adopting the kind of stewardship of the assets that is contestable in the market.

6. Governance trends and business opportunities

Unmistakably, worldwide, the trend in the infrastructure network governance is toward greater private sector role, although almost all the infrastructure networks are and will remain publicly owned. In Finland, the majority of infrastructure entities that administer, manage and supply the infrastructure services are traditional municipal departments. At the state level restructuring of the infrastructure entities has already taken place. The situation is changing in the municipalities, too, and the trend is clear. What used to be a ring-fenced public sector activity is now adopting business-entrepreneurial practices. Both the state and the cities are following the international pattern toward greater private sector participation on both the client and the supplier side.

This chapter sets the context and the challenges that face all the infrastructure sectors. It builds on the previous chapters, but it also includes views, reflections, and impressions from the discussions with the general managers or their deputies, the technical directors in interviewed cities, and professionals administering, managing, and supplying the infrastructure services.

6.1 General trends

Restructuring is likely to continue, but it is driven by external forces, not (yet) internal ones. This may lead to questionable ownership of the process and therefore to outcomes that are less quick than expected and optimal than desired. For instance, the transition from MOE status to MOC is likely to take place in energy and ports sectors. Because a transition time is required, the process will not bring expected gains and market changes until a period is passed and the true impact of restructuring can be gained and evaluated. The street sector in municipalities has been in transition over the last 10 years, especially in the smaller

cities; the larger cities on the other hand continue to show resistance to restructuring. Some sectors, such as the waterworks, are likely to be less affected by restructuring due to their different business model and scope of activity. The external pressures to restructuring apply earlier in cases where the entity is operating in competitive markets.

Another issue is the treatment of assets and current cross-subsidy/loan agreements in the public sector entities (municipality/MOE, state/SOE). Unbundling of the existing arrangements is often required. This may be troublesome as the current system has a long case-specific tradition. If the municipality moves assets from its balance sheet to a MOC, the valuation of assets at market prices can be difficult. Many industries also benefit from municipality's internal resource allocations between different sectors/operators, which would no longer be possible. This is likely to have impact on the profitability of the business.

6.2 Resistance to change

Resistance to the recognizable trends, the inertia to restructuring, common to all municipal infrastructure sectors, is all the more surprising because there are several success stories from restructuring experience in Finland and abroad, and staff members in many traditional organized infrastructure entities commented that it was inefficient and had experienced restructuring positively. Other benefits than reduced costs to the users and the society include:

- Recognition of the importance of customers and citizen well-being – infrastructure is in the end there to provide better quality of life.
- Customer and service orientation – infrastructure is serving the citizens and entities within the society, namely firms.
- Introduction of service improving innovations – provide more with less cost.
- Rethinking of work, planning and implementation processes – finding new ways to deliver service.
- Improvement in asset management – knowing what the true costs are, also in the long run.
- Developing interest in the private sector to innovate and to finance infrastructure – there is nothing wrong with private capital to be invested

in infrastructure if the needs of the people and communities are satisfied with that.

There are practical and institutional problems that lead to preference to *status quo* and resistance to changes in governance. Likewise, there are failures that make decision makers cautious. Typical errors are commercialization and/or corporatization in a manner that lead to monopolies with no competition and restrictions of potential competitors' market entry. Normally this situation leads to price increases and wealth transfer from the public to new owners.

Practical reasons call for good decision-making information and require:

- *Customer and asset information.* Good information on factors affecting customer satisfaction and on asset condition is necessary for good service delivery, and planning and design. Currently, especially the asset condition information is poor.
- *Cost information and transparent accounting.* Currently, with rare exceptions, there is glaring lack of knowledge about costs of maintaining or repairing the assets. Lack of accounting transparency is prevailing especially in traditionally organized infrastructure entities.
- *Benchmarking studies*. At present there is an absence of benchmarking studies on costs and benefits, and of an asset condition register (updated them periodically).
- *Understanding of the market structure.* Often significant decisions are made without seeing the big picture how the decisions are going to affect the market and its functioning may become less efficient after the change.

Institutionally, municipality/state owned enterprises (MOE/SOE) were seen attractive, because:

- *Commercial functioning.* As a "half-way measure" MOE/SOE was attractive because it enabled the entity to learn functioning in the market, while being protected from it. There can be no doubt that Destia, VR, and Finavia became more efficient in the SOE phase because they could learn and integrate financial management to their business practices.
- *Stability and tradition.* MOE/SOE phase enabled the owner to get partial benefits from business-like operation without exposing the entity to market competition. It could guarantee job security by negotiating con-

tracts with the in-house direct labor and contracting the works only whenever the capacity of direct labor was insufficient.

- *Freedom from taxes and income to the owner*. The supplier MOE/SOE does not have to pay VAT or corporate taxes, and therefore could effectively and unfairly compete against private sector firms (or receive contacts at about private sector prices without risk and overhead expenses) and cross-subsidize – to the detriment of infrastructure services – the municipality's other activities from profits.
- *MOEs and SOEs fit for natural monopolies* (often artificially created) while making it possible to generate cash to their owners; at the same time, owners could perform social control over those services that are very high in the hierarchy of needs (like affordable clean water).

These rational, sometimes more or less well-founded reasons against restructuring and introducing competition in management and service delivery were supported by political conveniences and necessities, which in the end may the most important ones:

- *Benefit transfers.* Especially roads and streets confer benefit and income transfers and therefore are important matters in political decision-making. The often lamented slowness of political decisions and seeming lack of motivation to move forward are a consequence of the time required to sort out the equity issues in decisions.
- *Labor protection.* Jobs security is an important issue, and for any restructuring to succeed, ways must be found to ensure that job losses do not occur, although the wages, salaries and benefits may need to be adjusted to be equitable and consistent with fair market compensations. Resolution to labor union issues is a key element in restructuring.
- *The multi-layered governance model*. Often the technical committees, executive boards and boards of directors, whose members serve with political rather than professional mandates, have overlapping responsibilities, and slow down the decision processes before a "fair" solution is found. The board structure and functions need to be re-thought. A further reduction, on top of what has already taken place, in the number of municipal boards would help streamline governance and foster transparency and customer orientation.

- *Lack of freedom to manage*. The technical directors of cities and municipalities have an unclear mandate and too little freedom to manage. A move to the true client-supplier model would be helpful but not a sure bet solution. Interviews revealed that even within a restructured organization, political interference can continue for the three reasons listed above. Technical director should have the freedom to manage and be accountable to results under clearly spelled out and publicly known criteria.

Although the study has classified the existing governance models and their evolution path to a few, detailed examination shows that one size does not fit all. There also are the rare clients that can do the work efficiently with in-house direct labor; but that is an exception. The owners have leeway to organize the governance framework to fit the local conditions. The objectives should include, a clear mandate to the organization, well-defined regulations, a broad professional Board representing the interests (Appendix D), and freedom to manage the entity.

Other requirements are: open entry for qualified firms to enter the market; competition for contracts; whenever possible, elimination of negotiated contracts with direct labor, using the procurement method that best meets the objectives of the assignment; and a pricing schedule that will provide a fair return on the investments, including their maintenance and eventual replacement. These requirements may take time to be met and the process in itself will take time.

6.3 Business opportunities

Business opportunities can be reviewed from various stakeholders' point of view, including the government and municipalities, private sector and expert services. In the C-Business case studies, various different potential entry points have been established to look at how the stakeholders could benefit from restructuring[11]. Both the client and supplier roles of the public sector entities can be taken into consideration when we ask the question how to best arrange for provision of certain services?

[11] Whilst it is noted that restructuring tends to favour the shift from "traditional model" through state/municipality-owned enterprises and state/municipality-owned companies towards more elaborated business models, it has also become evident that all sectors are unique and that there is no one-size-fits-for-all solution. Thus, restructuring here refers to improvements to the existing setting in a case study entity.

From the municipality's perspective as the owner of resources/facilities, there are several options available to benefit from the restructuring:

- *Moneymaking*. The municipality can benefit from pricing of services to finance the investments needed or to generate cash to begin to provide other services; it goes without saying that this option has to be considered with utmost care.
- *Privatization.* By selling off operations the public sector can generate one time revenues and avoid some future liabilities, including pensions; again, this one time revenue can be relief in short term, but a disaster in longer run.
- *Mergers.* Mergers both at the operations and municipality levels are likely to continue in the future, as municipalities are looking for ways to cut costs.

When analyzed from the point of view of the business entity (the "supplier"), several opportunities exist to improve the efficiency:

- *Restructuring.* Moving from municipality-owned enterprise (MOE) to municipality-owned company (MOC) status will be required from those sectors where the entity is involved in competitive markets. Care must be taken that market entry is not denied for qualified firms.
- *Management contracts*. Private sector can be procured to manage the services or operations of municipally owned infrastructure (using the client-supplier model with performance-based quality indicators – Askola, Varkaus, Mikkeli are variations of this concept).
- *Pooling of resources and procurement*. Business entities can improve their economic efficiency by clever procurement of services and by utilizing various types of pooling arrangements (equipment, staff, etc.) to improve their operations.
- *Moving to PPP*. This can enhance the opportunities to form new partnerships and bring together expertise and finance from both sectors; the emphasis is on word "partnership" – mere outsourcing is not PPP.
- *Economies of scale*. Size of operations can be enlarged and savings can be made in staffing and equipment through greater opportunities to uti-

lize them; on the other side of the coin, the risks of centralization and concentration should be reviewed with care.

- *Fiscal space*. Working with the private sector can bring operating currency and make investments happen faster, which potentially results in long-term savings in investment and life-cycle costs. Also public side's budgets can be relaxed through private sector's capital infusion.

From the private sector point of view as the potential investor/business partner, business opportunities exist in the following areas:

- *Financing*. Several infrastructure networks (energy, ports, waterworks) offer new investment potential. Institutional investors may wish to invest in new, risk-free industries, which offer a steady stream of revenue. The returns are equal to those from listed companies but at least in technical sens with less risk.
- *Management services*. As businesses become more complex, there is need to apply advanced management skills to traditional business areas. Some businesses can be also outsourced to private sector, as shown for instance by the roads/streets maintenance contract in Varkaus.
- *Efficiency gains*. By utilizing the resources already available, private sector entities can take over services produced by public sector and contracts can be defined to include criteria for improved performance.
- *New business areas*. Entering businesses traditionally managed by municipalities can lead to expansion of business, increased revenue and opportunities from new services and new clients.
- *Expert services*. At present, there is not sufficient information and tools available to measure the assets value or maintenance backlog in municipalities' networks. There needs to be more skills development both within municipalities as well as on the private sector to be able to carry out more analyses on the condition and financing needs of infrastructure networks. There is a potential huge liability in the networks for municipalities if they remain underserviced and underinvestment for long periods of time.

The discussion now moves to sector specific trends and business opportunities.

6.4 Road and street sector

The schematic diagram in the Figure 18 below indicates the progression in governance structures in the road sector (Talvitie 1996, Robinson 1999, Dunlop 1999). Except the low volume roads owned by road associations, the road and street infrastructure is publicly owned by the state or the city, but the supplier and also the manager duties are increasingly carried out by the private sector.

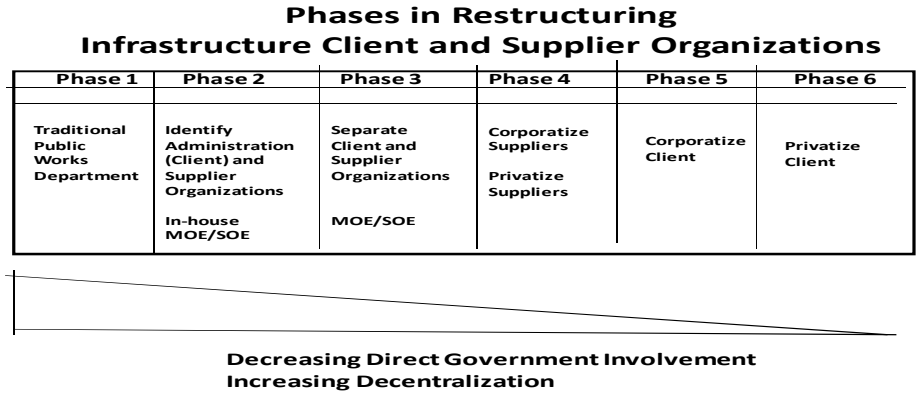

Figure 18. Progression in governance structures in the road sector.

Aalto University conducted a survey of some 140 Finnish municipalities and queried their road and street infrastructure governance organizations. The results are shown in Figure 19. Since 1980 there has been a three-fold increase in Client-Supplier governance structure and a corresponding decline in the traditional "public works department" arrangement of infrastructure governance. Formal commercial organization of the supply or client entity as an MOE is still rare. The prevalence of the traditional model is somewhat surprising because Finland has functional markets for engineering consultants and contractors and it would appear that the problem lies with the municipalities who could simply open the market for competition.

The same survey showed that *Client-Supplier* models are more common in smaller cities, and less common in the bigger cities. The interviews, conducted in the study indicated that the change process in the bigger cities is much more complicated and time-consuming than in the smaller cities that seemed to be able to adopt the client-supplier model quite easily and quickly. The bigger cities and the state owned entities that had restructured their governance model had of

necessity used a deliberate process and often started with a “champion” to drive the process and later engaged the entire staff.

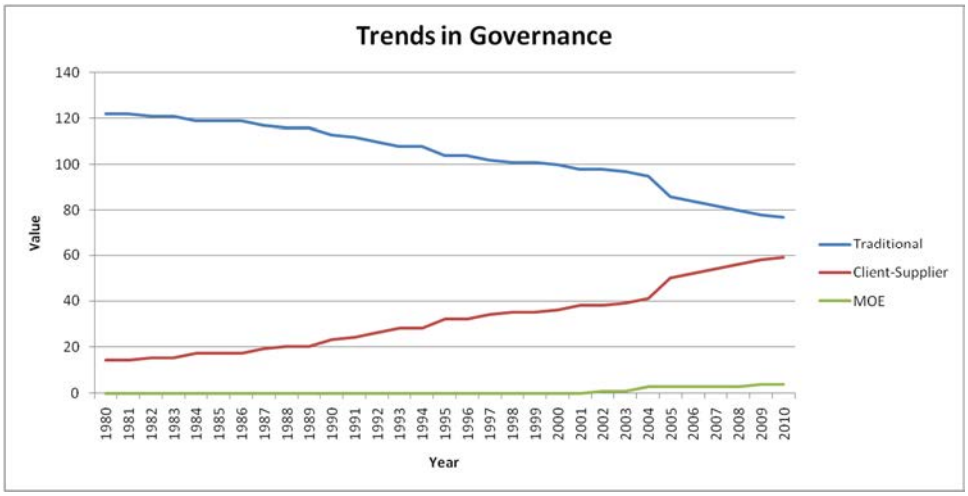

Figure 19. Road and street infrastructure governance organizations.

The research team conducted numerous interviews with the technical directors and knowledgeable technical professionals of infrastructure networks. Of the state entities, Finnish Transport Agency is a (true) Client-Supplier; Destia is a corporate entity operating in the market; and Finavia is also a corporate entity. On the municipal side, a few cities have advanced to the Client-Supplier phase; but some have even moved forward and combined the manager and supplier and functions (which is also practiced by FTA and Destia to a degree). Turku is the only one that has also organized a revenue stream for its street (from real estate land sales, various associated infrastructure fees) to pay for road maintenance and capital improvements. At the moment revenues in Turku exceed expenditures, but it remains to be seen if the revenue source is sustainable in the long run. The drawback is that most of the revenues are not related to the use of roads and streets, a point that deserves consideration.

Several State or municipally owned enterprises (SOE/MOE) indicated that the cost savings from a business-model operation are in excess of 15%. In the former Road Administration (Tiehallinto) contract maintenance reduced costs by 35–40%! There may be several driving forces for the trend shown in Figure 20, but, as convincingly shown based on a sample of different size municipalities with different business models shown in Figure 20, one of them is cost.

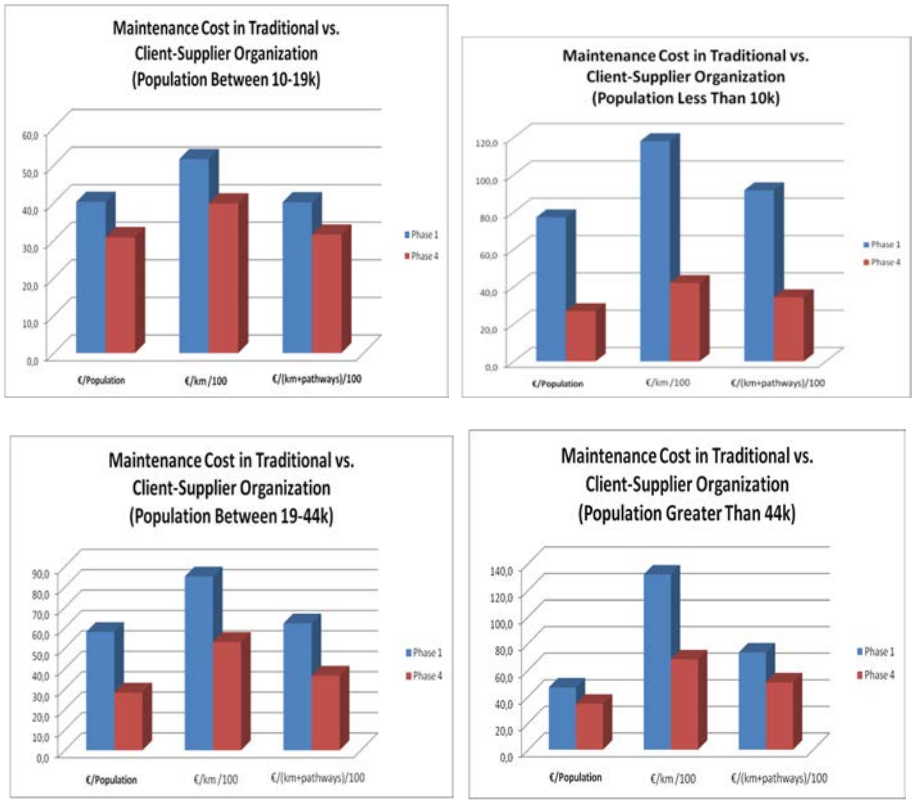

Figure 20. Cost of maintenance in the traditional organization vs. Client supplier organization.

In all population groups street maintenance costs are less (per population, per street km, and per street + path km) in the (true) client-supplier model. This is persuasive, albeit tentative, evidence that, regardless of the city size, restructuring and competition work to lower the maintenance cost. A caveat is in order, however. The responding cities and municipalities may not have understood the question exactly the same way[12], they may not have included the same costs items (e.g. overhead, space, personnel, etc.), there may be difference in snowfall and other weather conditions[13], differences in the lengths of street and path clas-

[12] The question asked was: "What are your street routine maintenance costs annually in 2005–2009 in your city". The survey covered 115 cities and municipalities with a population total of 3.1 million, 15 950 km of streets (61%) and 7829 km of pathways.

[13] Statistically, according to a study by Olsonen and Talvitie (1988) there are two road-impacting weather zones in Finland, southern and northern. Most of the data pertain to the "southern" zone, which somewhat ameliorates the weather related variation.

sifications and maintenance standards, and other unobserved factors, but assuming – plausibly – random distribution or "errors" the results are evidence that research and inquiry are necessary to corroborate or contradict these results and, if corroborated, why has commercialization of the service delivery not spread quickly to all the municipalities, especially to the larger ones.

Business opportunities in the road sector

The scope of business opportunities will increase in all aspects of service delivery. This ranges from management, to engineering and economic studies, asset management systems, engineering and maintenance works, and the labor to do all that. Private financing, without state guarantees, will not be significant until restructuring also includes a defined revenue stream against which the entity, a MOC or SOC can borrow. With the state guarantees, it may not matter much if the borrower is the state or the Finnish Transport Agency. If the winning contractor(s) of a large project acquires private financing from the market it is a matter who can offer competitive rates and other conditions, and whether the winning contractor(s) is willing to have private entities, such as a Pension Fund, as a silent shareholder in the project company. For the pension funds, a road Project Company shares may be an attractive diversification of portfolio. There may also be issues about the distribution of risk.

For the national roads, the revenue stream would be technically relatively straightforward: km-based road user charge, possibly differentiated by road class and geographic location using GPS technology; annual access fee whose payment is relatively easy enforce; and congestion charges in urban areas (although their collection might not be cost effective due to small level of congestion in Finland).

In city streets the revenue stream would be somewhat different and have three sources: km-driven based road user charge on the arterials using GPS or similar technology; access fee using club-theoretic considerations, and parking fees. Congestion charges could be relevant in a two-three cities a few hours a day, but the revenue from them is unlikely to exceed the cost of collection. The City of Turku has made a start along these lines. Whether it will be sustainable and not raided by the City Council for other purposes remains to be seen.

6.5 Water sector

There have been changes in the governance of waterworks, but the change has not been as extensive or rapid as expected. The waterworks are still perceived as a part of municipal engineering without clear separation of municipal operation and budget. It is true that it is not always practical to completely separate small waterworks from municipal engineering department since it may increase the overall cost of operation. Staying as a department is not, however, an excuse to neglect the financial separation and transparency of waterworks and is not an obstacle to more business-driven operation. Instead, more transparent and business-like operation should be the trend in the future.

A more distinct way to achieve openness and transparency is to change municipal waterworks' into MOEs and MOCs when feasible. MOE is a step toward a more business-like operation and with municipal back-up. Since waterworks are not likely to be affected by the EU's decision on MOEs, MOE model can be considered as a good model providing an opportunity for more transparent operation. MOCs are in most cases established as a joint service effort in order to exploit economies of scale and scope in the provision of for example water wholesale or sewage treatment services. This positive trend will certainly continue in the future, but it would be desirable for full service MOCs emerge – and not just water wholesaler or jointly owned sewage treatment plants. Although in MOCs flexibility to polyical demands might be lost to a degree compared to MOE, MOC still combines the best features of business-like operation and security of service provision. MOC model would also allow new innovative service solutions, such as concession contracts, to be introduced in wider scale (currently only one case).

The trend does not appear to be towards full privatization of water and sewage services. Water and sewage services are considered a vital public service requiring public control, which promotes public ownership. This does not however mean that the municipality needs to provide all services 'in-house' or that political power should be employed in controlling the operations of the waterworks.

Business opportunities in the water sector

Mergers and cooperation are quite popular in the water sector. Jointly owned water wholesalers and sewage treatment plants are exploiting economies of scale and are reasonable options in many regions in Finland. The consideration should

not, however, be restricted to co-ownership of a facility only, but options for full service provision or for example resource pooling should be considered.

Resource pooling is not very common in the water sector but it contains a lot of new opportunities when it comes to providing operation, management and maintenance services of waterworks. A ‘maintenance pool’ or a maintenance company providing basic maintenance services in a certain region could do basic maintenance and small repair work and if special skills are needed, it could put out a tender on behalf of the waterworks. The advantage in this kind of operation is that because facilities and pipelines does not usually need 24/7 care, fewer employees are likely needed to take care of monitoring and maintenance of several waterworks.

Waterworks could also consider outsourcing some individual activities. Currently it is almost impossible to find service providers from the market for certain activities. Possible services that private companies could provide are: water meter reading and changing, construction of service pipes, pipeline maintenance, pump maintenance, etc.

One potential business opportunity in the Finnish water sector could be related to operation and management (O&M) contracts. A good example, similar to this, is the concession contract between Lahti Aqua Oy and the municipality of Hollola, but this could be taken further by handing the operation and management to a private company (such as Veolia Water in France). One real threat in O&M contracts is that the contractor neglects the maintenance of the infrastructure to maximize its profit. This threat can be reduced only by carefully though and written contract so that contractor can get decent profit and the condition of infrastructure is not compromised.

6.6 Port sector

Most of the ports are owned by the cities, although there are a half a dozen private ports serving the nearby industries. Of the 16 non-private seaside ports only one, Kotka-Hamina, is organized as a municipality-owned company, a MOC. The others are either MOEs or managed as a relatively autonomous department of the city. The ports are important to the cities as an image builder, as a source of employment, and a source of income, although there may be hidden subsidies and less than full payment for icebreaker and other seaway and land side services. The ports function in a competitive market and all the MOE ports do not pay taxes and have a comparative advantage over the port incorporated as a MOC.

The most topical issue concerning ports is the upcoming reform in the municipal legislation. All traditional municipal ports and port enterprises have to be restructured into company model within a transition period of a few years. The reform derives from EU's decision concerning competition neutrality problems with municipal enterprises operating in competing markets. Ports operate in fully competitive markets, which give an advantageous position to the ports operating under traditional or enterprise models, mainly due to the tax exemption and bankruptcy protection. Those ports have to be restructured into municipal company model or turned into private ports.

Most of the studied ports have already started to plan the soon coming restructuring process. It is going to be an effort for them, but it also gives possibilities to develop the business operations and improve competitiveness. Most ports see the change more as a positive than a negative thing for them. From a wider perspective the decision of harmonizing the taxation practices and other competition factors is a right one.

This nutshell description of the Finnish port network also describes the challenges: there may be too many ports for the Finnish market; all the ports may not be managed by sound business principles; the MOE and the traditional ports will need to be corporatized as a MOC. It is likely that these challenges will be met by stroke of a pen when the ports are incorporated as a MOC. At that point it is important that the Board is selected using the OECD principles discussed in the Appendix D and in Chapter 2.

Business opportunities in the port sector

The Finnish ports already have extensive private services at the ports. It is likely that these business opportunities will remain and even expand in scope. For financing the picture is not clear, but it can be presumed that MOC ports will have or acquire the financial management expertise to use the best available financing sources.

In order to improve the efficiency in the port sector there are several possible ways forward, which would reduce costs, make the ports more efficient and competitive, and possibly but not necessarily reducing their number:

- marketing co-operation, alliances and joint ventures or even direct mergers of port administrations
- specialization to one or few cargo types

- new ownership and governance models including improved landlord-model, public-private-partnership and concession-models
- expanded ownership (for example institutional equity investors).

6.7 Rail sector

The Finnish railways have already been restructured although it is unlikely that the process has been completed. Although the VR Group consists of 31 companies, its organization is straightforward because it does not have regional offices or services. The VR Group's governance structure and regulatory framework comply with the EU railway directives. The administrator and manager of the infrastructure is the Finnish Transport Agency; safety, EU and other regulations, and licensing of (possible) new rail service providers are the responsibility of Finnish Transport Safety Authority (Trafi). Both FTA and Trafi report to the Ministry of Transport. The state is the sole shareholder of the railway holding company, the VR Group.

The railways in Finland have three huge challenges: (1) in freight the average length of domestic haul is short making next to impossible to compete with the truck; thus the freight demand is likely to experience a decline over the short and long terms; (2) the railways have an excess of low volume track length, which is politically difficult to discontinue; (3) the railways, especially the passenger services, require substantial subsidies to remain competitive.

These challenges can be solved only partially. VR can improve its freight service to the (few) existing customers and seek expansion to the East, to Russia and beyond. The FTA can begin the process of decommissioning 2500–3000 km of track. VR can increase its passenger fares to rely less on subsidy. These are difficult challenges, but all of them combined not only distort the transport market but also entail large benefit and income transfers, which should be taken into account in decision-making.

Business opportunities in the rail sector

The scope of business opportunities depends on the overall market context. Today, the dominant operator with all its established customer links, the structure of rail infrastructure charging, the availability of rolling stock and traction power, the ownership issues of sub-infrastructures plus many other additional reasons

will unlikely encourage private investments in the sector, beyonf the procurements of the state and the sector itself (namely VR and Finnish Transport Agency). However, for infrastructure, the engineering and economic studies, asset management systems, engineering and maintenance works, and the labor to do all that will offer opportunities for the private sector about at the same scale as currently.

Private financing of railway infrastructure is unlikely to a larger extent unless the logic of collecting infrastructure charges is changed. The current EU directives do allow also the capture of fair returns despite the general rule of marginal pricing.

The rail services, freight and passenger, are open to new entrants to the market. Whether such entries will be attempted is uncertain because it would require substantial upfront investment – except from a Russian company that has approximately the same rail gauge as Finland and could bring their equipment. The current rail operator, VR Ltd., already has a defined revenue stream, including a contract for Helsinki region commuter services. This business segment could well be lucrative provided that the market context, i.e. charging of infrastructure, slot allocation, etc., remains intacked. VR Ltd. is able to make profit only in current circumstances, where it does not have to pay the full cost of infrastructure, as is the case with the majority of European railways.

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For freight services the opportunities for new entrepreneurs have been there for some time and some early prospectors have emerged.

Of the VR Group's non-rail subsidiaries, VR Track Ltd. may present an opportunity for new entrepreneurs if it succeeds to overtake large contracts, either domestic or abroad. This situation again is analogous to the road Project Company case.

6.8 Airport sector

Unmistakably, worldwide, the trend in airports is toward corporate ownership structure, which Finavia has adopted. Finavia is wholly owned by the state. It has a clear mandate and directed freedom to manage its operations. According to the Ownership Strategy[14], the state has a special and strategic interest in Finavia's

[14] Finavia Oyj owner strategy principles 10.3.2011 (http://www.lvm.fi/c/document_library).

services not only in terms of transport policy, but also in its functions to serve the society, the economy and Finland's security. Guidance for these functions will be secured through laws and regulations.

As a corporate entity, Finavia functions in internationally competitive and challenging market. A critical task to fulfill its mandates is to remain internationally competitive and serve the domestic market well. Besides retaining its market position and cost-efficiency, Finavia has some additional degrees of freedom to fulfill its mandate and to respond to the challenges. They are context dependent, and while they are consistent with the state's ownership strategy, there is no clear answer or preference over one or the other. The issues are:

- In a country, with small population but large territory, such as Finland, and which operates in a fiercely competitive market, should a hub airport subsidize the many small airports in remote locations, or should this function, part of the ownership strategy, be subsidized by the government?
- Should the state remain the sole shareholder of the airport company, or should the shareholding be divided among the state and the cities having airports, and other interested parties? There may also be financing opportunities for private sector participation.
- Does an airport have strategic importance to the state, which has influence over its governance and what is that strategic importance?
- In a tight international competitive environment what regulations are provided against unwarranted labor union actions so that the competitive margin of the airport company can be protected?
- To what extent the airport company can or should be a participant to develop the high tech and other economic developments in the airport neighborhood.
- In what way can Finavia protect the airports, their air space and the environmental effects of air traffic from urban development decisions, to which it is not a party that may affect negatively the airports' services and viability.

The chosen business entrepreneurial model matches well Finavia's structure and objectives, and the state's ownership strategy. The SOC structure provides flexibility in strategic planning, efficient decision making practices, and autonomy in

financial decisions and in operational matters. However, this also requires meeting the financial goals, customer service improvements, maintaining the market position, and high safety and security standards.

It is likely that there will be financing opportunities for Finnish pension funds in developing Finavia's business interest within the state's ownership strategy. These opportunities may not present themselves in the short term, but become concrete if the new mid-field terminal becomes a definite possibility. Finavia has the necessary experience and financial expertise to organize financing that best serves its interests and long term plans.

7. Conclusions and recommendations

7.1 General considerations

The project has produced new information on infrastructure networks and related ownership and governance models. The variety of available models, representing evolutionary phases, is broad and makes comparisons a challenge. Many operational units managing or supplying these services see themselves as a part of the client-supplier model. In most cases, however, these operations do not fully follow the client-supplier model as the services are not outsourced to potential suppliers within a competitive framework. This is closely linked to the municipal ownership and control of networks and utilities. Political decision-making is often concerned with job security and taking care of the interests of some stakeholders, instead of addressing the benefit of the entire community.

From the sectors analyzed, waterworks, ports and energy are more active in restructuring, while streets and roads are slower and have a more deliberate process. The most probable explanation is that the current pricing and revenue collection from the use of streets and roads does not provide cash flow, but the funding comes from the general taxes. Other sectors like waterworks, ports and energy are generally producing a positive cash flow and the benefits are uniform (waterworks, energy) or the beneficiaries can be identified clearly (ports). Waterworks and energy sectors are also different from other networks as they can price according to services used; this is what the transport-related networks cannot yet do. The state has been more active and successful in restructuring its network organizations than the municipalities. The main motivation and logic has been to gain efficiency, cost-effectiveness, and greater productivity. It is inevitable that the municipalities will need to follow the same logic.

Moving from the traditional ownership structure toward other models requires a process where different types of systems, tools and competencies should be

developed that are commensurate with the stage of restructuring. The process of restructuring starts from recognition of the need for change. Varkaus, Inkoo and Askola are rare examples from the roads sector of municipalities, which have found it necessary to restructure. Restructuring should be a deliberate process, but can occur quickly especially in small to mid-sized municipalities, often in response to a crisis. The small municipalities also have a more limited availability or access to resources for skilled labor and capital, which makes it more natural to consider outsourcing. Restructuring is a learning process when moving from one phase to the next along the client-supplier paradigm. When the technical part of restructuring process is completed, it may take several years before the desired objective and benefits are achieved.

Several interviewees in the project delivered the message fact that tougher times are ahead. However, the research team refrains from asserting the conclusion that only economic or social pressures, although present, will drive the reforms. Rather, the driving force should be the understanding why reforms are more important than waiting for the external pressures to force the reforms.

The interviews conveyed a clear message about a common belief that infrastructure, its ownership, governance and service delivery, are the responsibility of the municipality. The key to restructuring this belief is thus change in the mindset. This is a difficult task and has led to processes moving at different pace across the sectors. The rare cases in Finland where restructuring and changes in service delivery model have taken place through internal driving forces have first faced confronting the long-standing economic rationale about public services, but ultimately resulted in broad and sustained benefits in the form of rightquality of services at a lesser cost and price to the users.

Most infrastructure networks and utilities will remain in public ownership also in the future, all other functions – administration, management, operation and supply of service can be subjects and objects of deliberation. In this respect, the privatization movement in Finland has not corresponded to that of UK and US, for instance. The most difficult among them is the transfer of the administrative tasks to a private provider, because administration also means compliance with laws and regulations and requires communication with a large number of users, possibly spread over a large area. In the future the public sector is likely to adapt commercial practices in governance of public infrastructure networks, in order to achieve efficiency, transparency, accountability, and better user services. It is possible that, especially the smaller communities or their coalition can benefit from contracting with the private sector, including the administrative functions

because a private firm would be more nimble and unbiased in communicating, analyzing, interpreting and servicing the users and affected interests than an administrative office located in a municipality. Experience, albeit limited, indicates that for all the other functions and tasks – management, operation, and supply of services – the private sector is in the best position to do them. It is emphasized that this service framework requires that there is a professional Board that oversees the contracted private companies, and that there are clear performance requirements the contractors have to satisfy.

Reforms are likely to encounter resistance. For instance, political difficulties include resistance against price increases, resistance to market-based competition leading to job losses, and the removal of the currently used cross-subsidization practices. The micro-management of board, particularly in some MOEs and traditional models, is a result of conflicting public and private interests. In the large municipalities the taxation of asset transfers can be a challenge. Changes in current legislation could ease the financial liability of asset transfer. Alternatively, assets could remain with the municipality balance sheet – the municipality or the state is the owner and would have the shareholder rights – but the other functions could be provided by the private sector under a management, and supply and install contracts with the administrator. This viewpoint favors the administrator to be a (municipal) government entity. In a small municipality it can consist of one person with a shared administrative assistant. There can be other options for organizing the framework for infrastructure ownership and governance. In the future, restructuring may also result from changes in legislation, particularly regarding entry to market, competition and a requirement for full or partial cost recovery.

A general conclusion is that one size does not fit all. Context-specific assessments and arrangements need and can be made. In the research team's opinion, restructuring ownership and governance of Finland's infrastructure networks would bring broad-based benefits and would be desirable.

7.2 Ownership and governance (O&G) structures and models

The results of this study indicate that most infrastructure networks should remain in public ownership. Exceptions are private cooperatives such as the road associations or small waterworks cooperatives. However, in some cases a level of

market orientation could be considered when infrastructure is under-utilized and further utilization of it can bring benefits for the society.

Whenever and wherever there is private ownership, it should be left alone; private associations and cooperatives should also remain, because they usually are efficient. However, in all cooperatives, particularly in water cooperatives, a lack of expertise and interest to comply with service requirements, ways to acquire this expertise or other service provision options should be considered.

The framework for infrastructure services, presented in this study, can, and preferably should be unbundled to four actors: Owner, Administrator, Manager, and Supplier(s). These are defined in the text (Section 2.3). The last two functions, and in many cases the last three, can be contracted with private sector firms. There can be a transition period in unbundling, which however is not always necessary. The easiest function to be transferred to the private sector is that of the service supplier. The suppliers span a range of competencies and expertise: engineering planning, design, construction, maintenance, construction supervision, financial management, management companies, public participation, and so on. However, the framework must be viewed broadly and with understanding how different actors and markets interact.

An ownership and governance classification was developed during this study (Section 2.4): (i) traditional department in municipal administration or state ministry; (ii) municipal-owned (MOE) or state-owned enterprise (SOE); (iii) (true) Client-supplier model; (iv) municipal-owned (MOC) or state-owned company (SOC); (v) private-public-partnership (PPP); (vi) private cooperative. There is a partial use of the client-supplier model in the traditional and MOE forms or organization, which use the direct labor force (“in-house workers”) as the first priority often with negotiated contracts. Chapters 2 and 3 contain extensive discussion of the classification, which proved to be robust and, with variations, apply to all the cases found in Finland.

This study examines the OECD “menu” for good governance in MOE/SOE organizations and contrasts that with extant practice in Finland (see Appendix D for more details). This examination shows that the MOE/SOEs in Finland fall short of good governance practice as recommended by the OECD. Regardless of O&G model, a good regulatory framework and its enforcement is necessary. In all restructuring the public decisions makers should weigh the following issues:

1. What are the costs of the restructured governance arrangement, and are the costs determined in the market in response to the cost of services at the required and desired levels?
2. What are the changes in the revenues and benefits resulting from the changes?
3. What is the new market structure and how are the market players likely to act in the new context?
4. Are the actors, citizens and end users protected in the new market context from dominant, unfair or monopolistic behavior?
5. Are we reasonably sure on the above mentioned points to proceed with decision making?
6. Are the new production processes of operations or services streamlined?
7. Can the decisions on investments, pricing personnel, and service levels be made rationally in the new structure?

The above questions can be used as a check list to review the potential impacts of the restructuring decisions on the operating environment and market. If the quantitative answers to the first two questions signal significant uncertainty, appropriate risk management and mitigation measures are necessary. For strategic decisions, answers may not always be possible in money terms. For them the last three questions are important. Last two operational questions are useful once the principal issues have been answered.

7.3 Strengths, weaknesses, opportunities and threats of different O&G

The SWOT analyses were carried out for each sector and O&G model separately (Chapter 5). The traditional and MOE/SOE forms or organization do not have a clear mandate and freedom to manage and experience political interference. That is contrary to good management principles and also differs from OECD's good practice recommendations. The aim of political interference seems to be to confer unfunded benefits to constituency, protect labor, or assign contracts without market competition.

An unresolved issue is the tax-free status of the MOEs. This puts them in unequal and preferential position relative to the MOCs and is a market distortion. Further market distortion is caused by negotiated contracts. Legal development may be warranted to ease or avoid tax liabilities in changing to company form. In the large municipalities the asset transfer tax liabilities can be substantial. It should be investigated if the assets could remain in the municipality balance sheet, and a private contractor could maintain the asset ledger and provide management, and supply and install services under a contract with the administrator. This may require that the administrator is a (municipal) government entity. There can be other options to address this issue.

The traditional and MOE forms of organization often have overlapping supervision by many boards or committees that makes decision-making slow and bureaucratic. Consideration should be given to the elimination of politically mandated boards' altogether. It is emphasized that the corporate framework requires that there is a professional board that oversees the contracted private company or companies. Absence of such professional board is a significant deficiency.

MOEs are clearly a significant source of cash for cities and municipalities. In times of economic resource scarcity and uncertainty, this source can be ever more valuable in the future. Whether it is a good policy to finance other sectors with technical networks is another and wider issue. One may present a philosophical question that what is the difference between tax and paying for water or mobility? The latter at least gives something tangible in return. But this question will be one of the key issues in discussion on the role of municipal sector their task in the provision of multiple basic services.

A general weakness in most infrastructure sectors is the lack of asset data and management systems and the lack of awareness of asset condition and costs. As a result a common perception is that there is a maintenance backlog that needs to be rectified; otherwise the costs of rehabilitation will be unnecessarily high when the breakdowns occur.

The research favors the adoption of the true client-supplier model, which is embedded in the MOC/SOC form of corporatization. Both the client-supplier and MOC/SOC forms of organization have several variants, which combine manager and supplier and even administrator and manager roles. These variants depend on local political context, but apparently are successful.

7.4 Main technical and socio-economic risks, including business and investor risks

The main technical risk is the lack of maintenance in the existing networks and underinvestment in rehabilitation and modernization. The roots of this technical risk can be traced to the existing governance models and pricing regimes that are not based on reliable cost estimates. The lack of maintenance and rehabilitation may result in not meeting the standards for example for water quality or sewage treatment.

Retirement of managers can result in loss of competencies and tacit knowledge about the system and its operations. This risk is greater in properties and cities that do not have up-to-date data and asset management systems. Disappearance of labor protection with incorporation will cause resistance and disagreements and may delay restructuring and good governance.

Accounting transparency, public control and political neutrality are important requirements for restructuring to succeed. Accounting transparency will affect, and possibly eliminate cross-subsidies to other sectors. This will have impacts on municipality's budget and be a source of disputes and possibly affect taxes and pricing of infrastructure services. That risk has also other side. Cost-based pricing (long-run marginal costs) required by the Act on Water Services (119/2001), should change the pricing regimes and also result in greater investments in infrastructure.

Investor risk appears small. Infrastructure investments could be a welcome diversification in portfolios because their correlation with other classes of investments appears small (Chapter 4). The investor risk is related to the existence of competent infrastructure manager with good data and asset management systems, and to the adherence and acceptance of the principle 'beneficiary pays'.

The revenues that can be received from infrastructure and services the infrastructures convey are mostly stable. Cubic meters of water consumed or vehicle kilometers travelled do not change in pace with stock market returns. This means that cash flows associated with the basic services on the infrastructure are low-risk. They are also substantial, because basic needs or high-level hierarchy needs are always satisfied almost irrespective to their price. A recent example comes from the increase of fuel prices, resulting in even more revenues to the state and yet affecting very little to transport demand. Hence, there is great business potential even if the returns for investors would be regulated one way or the other.

The discussion on infrastructure finance has been very much oriented towards project financing issues, although the network financing is what really matters in the long run. It could be made more sustainable than what it is today. For the waterworks, it should not be difficult to find institutional investors that could partly solve the investment and maintenance backlog and yet collect acceptable returns on the investment. This would mean, however, that pricing should be based on economic rationale without risking the safety. In some cases, this would mean increasing prices in order to cover the investments, both the investors' capital investments and utilities' physical investments.

Technology already enables road and street use pricing and even a combination of traditional road use pricing and insurance and taxation. Entities that could exercise this type of road and street pricing could be built as joint companies of municipalities and private investors. It would fall natural for municipalities to control the social and equity aspects of pricing while allowing the investors collect reasonable returns. These returns should not materially exceed risk-free returns, if at all.

7.5 Business and investment opportunities in service provision

According to the results of this study, the greatest business opportunity would result from allowing open entry to market and competition in contracting. This would mean abandonment of negotiated contracts and evolution of functional markets. The scope of business opportunities will increase in all aspect of service delivery, from management, to engineering and economic studies, asset management systems, engineering and maintenance works, and the labor to do all that.

For private financing, without state guarantees, a well-defined revenue stream against which to borrow is necessary. Otherwise private financing will not be significant. Thus restructuring as a MOC or SOC is an important advance and would open opportunities to help the infrastructure financing. For the waterworks, ports, and airports private financing opportunities will be possible in near term.

In the road sector, without a defined revenue stream but with the state guarantees, it may not matter much if the borrower is the state or the Finnish Transport Agency, because the guaranteed loans will also appear in the state's balance

sheet (contingent liability).[15] For the national roads, establishment of the revenue stream is technically relatively straightforward. For urban road and streets the collection of road user and access charges is more complicated, but not infeasible. Technically road/street charging for use and access is possible – and desirable socially and economically.

7.6 Value added and unutilized potential

There is limited restructuring taking place in the roads/streets sector, especially the small and mid-sized municipalities, through the adoption of the *true client-supplier model*. But, the city of Turku is the only exception that has advanced to identify revenue financing using earmarked fees for infrastructure development. Several of the larger cities are contemplating their next move in the stalled MOE to MOC process as a result of the EU ruling in the Destia case. The interviews indicated that many of the actors are beginning to realize that outsourcing is not an evil monster and that a functional private market can be effective in achieving the abstract goals of good and reliable service at fair price, cost-efficiency, and fairness.

For the water sector, this study emphasizes that municipal owners should concentrate on ownership policy and take their role as owners, not as operational managers of waterworks. When selecting board members, management and engineering expertise should be highlighted. Legislators could help improve waterworks efficiency by promoting transparency and requiring uniform reporting practices. Making key information publicly available would enable benchmarking and planning of development activities. Waterworks managers should make long-term investment plans and systematically manage their assets.

The port sector is about to go through substantial institutional and structural changes. All traditional municipal ports and port enterprises will be restructured into company ownership model (either into MOCs or private limited companies) within a transition period of few years. Competition in the sector is constantly tightening and ports have to find ways to improve their efficiency and profitability. Most important ways to achieve this seem to be specialization to certain cargo

[15] If the winning contractor(s) of a large project acquires private financing from the market it is a matter of who can offer competitive rates and other conditions, and whether the winning contractor(s) is willing to have private entities, such as a pension fund, as a silent shareholder in the project company. For the pension funds, road project company shares may be an attractive diversification of its portfolio. There may issues about the distribution of risk.

types, cooperation with private sector companies, equity investors' participation into ownership and management, and mergers with other port companies. The number of physical ports is likely to remain roughly the same, but mergers and joint ventures will decrease the number of port companies.

For the railways the new administrative environment is likely to lean toward greater private sector participation in infrastructure services. The chief problem is the excess track, which needs to be downsized to be consistent with the passenger and freight demands and the taxpayer subsidies that now are needed to maintain the railway track and services. The great and formidable issues are in the passenger and freight services. They pay only a fraction of the infrastructure costs, which do not even cover track maintenance. Thus, pricing of all transport services is likely to be a prominent issue in the near and long term.

For the airports, the Finavia's SOC model seems to be a good fit for Finland. During the years of high growth it was easier to make with good management decisions for the airports. The recent uncertainty, airline consolidation in the EU countries, union strikes, and EU economic crisis will be a testing ground for Finavia and its ability to respond to the challenges.

Restructuring ownership and governance of infrastructure networks and practices along the lines suggested in this research will take time – but it will also yield numerous benefits to the citizens, monetary and non-monetary. Below is the list of these broad-based benefits:

- recognition of the importance of customers and customer well-being
- customer and service orientation
- introduction of cost saving and service improving innovations & efficiency
- changing work, planning and implementation processes for greater productivity
- improvement in asset management
- providing incentives to interest the private sector to innovate and to finance infrastructure
- assembly of substantial cost savings for the same level of service.

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Appendix A: Interview questions

C-Business – yhteiskunnan teknisten verkostojen omistaminen, hallinto ja toiminta

HAASTATTELU

Arvioitu haastattelun kesto on noin 2 tuntia.

Haastattelu nauhoitetaan ja litteroidaan analyysiä varten. Haastateltavalle lähetetään pyydettäessä sähköpostitse nauhoitus, litterointi ja mahdollinen analyysi, jotta haastateltava voi halutessaan muuttaa haastattelun sisältöä. Haastateltavalle luvataan, että yksittäisen vastaajan mielipiteitä ei julkaista.

1. Mitä tuotetta/palvelua organisaatio tuottaa ja keille?
2. Kehitättekö uusia palveluja tai tuotteita, miten?
3. Tuotteen/palvelun korvautuvuus, kilpailevat tuotteet/palvelut?
4. Tuotteen/palvelun laadun mittaus ja varmistus?
5. Miten palvelu/tuote hinnoitellaan?
6. Miten palvelu tuotetaan ja toimitaan kuluttajalle/asiakkaalle käytännössä? Mitkä ovat tärkeimmät toiminnot palvelun tuottamisessa?
7. Mitkä ovat organisaation ydinosaamiset?

   Kehitetäänkö niitä, miten?

   Ydinosaamisen johtaminen?

   Vastaavatko ydinosaamiset markkinatarpeita?

   Pohditaanko ydinosaamisten ulkopuolella olevien asioiden ulkoistamista?

8. Mitkä toimijat ovat toiminnassa mukana suoraan tai välillisesti (kunta, yksityiset toimijat, ym.)? Mikä juridinen asema kullakin toimijalla on (liikelaitos, valtionyhtiö, ym.)? Mikä asema kullakin toimijalla on (omistaja, johto, palveluntarjoaja, rahoittaja, ym.)?
9. Ostetaanko organisaation tarjoamat tuotteet/palvelut kilpailun perusteella vai suorana hankintana neuvottelun perusteella?
10. Mikä on tuottajan, tilaajan ja käyttäjän markkina-asema ja neuvotteluvoima?
11. Miten organisaation tulos mitataan ja kuka mittauksen tekee?

    Onko vuosittaisia suorituskykymittareita, joita seurataan?
12. Miten rahavirta kulkee? Kuka maksaa kustannukset (kuluttaja, kunta, valtio, muu mikä)? Miten kustannukset jaetaan eri tahojen kesken? Valtion/kunnan tuet? Kuka saa rahat? Poikkeaako malli investointi- ja käyttökustannusten suhteen?
13. Mitä ongelmia ja haasteita on havaittu

    omistus- ja hallintorakenteessa?

    tuotteen/palvelun tuottamiseen liittyvissä rahavirroissa?

    tuotteen/palvelun hinnoittelussa?
14. Miten näitä ongelmia ja haasteita on yritetty korjata? Miten sinä parantaisit tilannetta?
15. Muita kommentteja

Appendix B: Publications from the C-Business project

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Appendix C: Definitions of financial ratios

Adjusted income statement:

Net sales (turnover)
+ Other operating income
= TOTAL OPERATING INCOME
- Materials and supplies used
- Outsourced services
- Personnel expenses
- Adjustment to entrepreneur's salary
- Other operating expenses
+/- Increase/Decrease in finished goods and work-in-progress inventories
= OPERATING MARGIN (EBITDA)
- Depreciation according to plan
- Reductions in value of fixed and other non-current assets
- Exceptional reductions in value of current assets
= OPERATING RESULT (EBIT)
+ Income on shares/similar rights of ownership and other investments
+ Other interest and financial income
- Interest and other financial expenses
+/- Foreign exchange gains/losses
- Reductions in value of investments in fixed and other non-current and current assets
- Direct taxes
= NET RESULT
+ Extraordinary income
- Extraordinary expenses
= TOTAL RESULT
-/+ Increase/Decrease in depreciation difference
-/+ Increase/Decrease in voluntary provisions
+ Adjustment to entrepreneur's salary
+/- Changes in market value
+/- Other adjustments to profit
= RESULT FOR THE FISCAL PERIOD

Free cash flow, FCF
Equation 1: FCF
Operating profit (loss)
+ Shares/Similar rights of ownership in associated companies
- Operating taxes
- Tax effect of financial expenses[16]
+ Tax effect of financial income[17]
= Operating cash flow
+ Depreciation
= Gross cash flow

[16] Tax effect of financial expenses = Financial expenses multiplied by tax rate.
[17] Tax effect of financial income = Financial income multiplied by tax rate.

- Change in working capital[18]
- Gross investments[19]
= Free operating cash flow
+/- Other expenses (after taxes)
= Free cash flow

Return on assets, ROA

Equation 2: ROA

$$\text{ROA} = \frac{\text{Net result} + \text{Financial expenses} + \text{Taxes (12 mths)}}{\text{Average adjusted balance sheet total}} \times 100,$$

where

Return on investment, ROI

Equation 3: ROI

$$\text{ROI} = \frac{\text{Net result} + \text{Financial expenses} + \text{Taxes (12 mths)}}{\text{Average invested capital of the fiscal period}} \times 100$$

where

Average invested capital = Adjusted shareholders' equity + Long-term liabilities + Short-term interest-bearing liabilities + Other short-term interest-bearing liabilities to corporate group companies.[20]

Return on equity, ROE

Equation 4: ROE

$$\text{ROE} = \frac{\text{Net result (12 mths)}}{\text{Average adjusted shareholders' equity of the fiscal period}} \times 100$$

Return on capital invested by municipality, ROCIM

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[18] Change in working capital = Change in inventories and work-in-progress plus change in short-term trade receivables minus change in short-term trade payables.

[19] If Statement of changes in the financial position is available, then Gross investments = Cash flow from investments.

If Statement of changes in the financial position is not available, then Gross investments = Depreciations and reductions in value plus change in fixed and other non-current.

[20] In business, a group, business group, corporate group, or (sometimes) alliance is most commonly a legal entity that is a type of conglomerate or holding company consisting of a parent company and subsidiaries. An associate company (or associate) in accounting and business valuation is a company in which another company owns a significant portion of voting shares, usually 20–50%. In this case, an owner does not consolidate the associate's financial statements. Ownership of over 50% creates a subsidiary, with its financial statements being consolidated into the parent's books. Associate value is reported in the balance sheet as an asset, and dividends from the ownership are reported in the income statement.

Equation 5: ROCIM

$$\text{ROCIM} = \frac{\text{To the municipality}}{\text{From the municipality}} \times 100$$

where

To the municipality
= Profit (loss) before closing entries and taxes + Compensation from share capital invested by the municipality + Interest paid to municipality,
From the municipality
= Support and aid from municipality + Shareholders' equity + Loans from municipality + Depreciation difference and voluntary provisions (for instance for future investments).

Risk, Market beta

Equation 6: Beta

$$B = \frac{\text{Cov}(Ri;Rm)}{\text{Var}(Rm)},$$

where Ri is company's share value (ROI for the unlisted companies), and Rm is market profit.
Cost of equity, Re

Equation 7: Re

$$Re = Rf + |B| \times (Rm - Rf)$$

where Rf = risk-free interest rate, B = company's market risk, Rm – Rf = market risk premium. Market risk premium is the expected rate of return above the risk-free interest rate.

Cost of debt, Rd

Equation 8: Rd, ICR

$$\text{Interest coverage ratio, ICR} = \frac{\text{EBIT}}{\text{Interest expenses}}$$

Table C1. Interest coverage ratio.

Interest Coverage Ratio	Rating	Typical default spread	Market interest rate on debt
>8,5	AAA	0,35	3,93
6,5–8,5	AA	0,5	4,08
5,5–6,5	A+	0,7	4,28
4,25–5,5	A	0,85	4,43
3–4,25	A-	1	4,58
2,5–3	BBB	1,5	5,08
2,05–2,5	BB+	2	5,58
1,9–2	BB	2,5	6,08
1,75–1,9	B+	3,25	6,83
1,5–1,75	B	4	7,58
1,25–1,5	B-	6	9,58
0,8–1,25	CCC	8	11,58
0,65–0,8	CC	10	13,58
0,2–0,65	C	12	15,58
<0,2	D	20	23,58

Weighted average cost of capital, WACC

Equation 9: WACC

$$\text{WACC} = \frac{E}{E+D} \times \text{Re} + \frac{D}{E+D} \times \text{Rd} \times (1-\text{T}),$$

where

E = shareholders' equity, D = liabilities, Re = cost of equity, Rd = cost of debt, T = corporate tax rate.

Appendix D: OECD guidelines on corporate governance

OECD Guidelines on Corporate Governance of state-owned Enterprises (SOE), adapted to Municipally-owned Enterprises (MOE) and companies (MOC)

Summary

The OECD guidelines for SOEs deal with six issues:

1. *Ensuring an Effective Legal and Regulatory Framework for SOEs and MOEs*
2. *The Municipality Acting as an Owner*
3. *Equitable Treatment of Shareholders*
4. *Relations with Stakeholders*
5. *Transparency and Disclosure*
6. *Responsibility of the Boards.*

A brief summary of these guidelines, viewed in the Finnish context, is presented first followed by an assessment of the Finnish MOE/MOCs (and SOEs) on the basis of the research results.

Ensuring an Effective Legal and Regulatory Framework for SOEs and MOEs

The legislation and the regulations governing the operation of the MOE/SOEs in Finland's infrastructure sector are in line with those applicable to commercial companies with the notable exception of the Bankruptcy Law, Competition, and Payment of Taxes. The list of exceptions for SOE/MOE/MOCs also includes Transparency and Board function. It is concluded in the research that the SOE/MOC/MOE should adhere to the reporting requirements of the companies (as SOCs already do), enhance the professionalism of the Boards with private sector representatives and by giving the Boards the responsibility to hire (and fire) the General Manager of the entity. The practice that permits the MOC/MOEs to borrow from the banks under a municipality guarantee should not be permitted. In Finland, at the state level (SOEs) this guideline is observed.

The Municipality Acting as an Owner

In many MOEs the municipality lacks an ownership policy that would provide guidance to the MOEs. There is insufficient autonomy in day to day operations as the General Manager is normally accountable to the City Council. The reporting system of the MOE (and of MOC) to the City Council, or to the ownership entity, is not well-defined. There is no clear delineation of roles. Representatives of the municipal council(s) can be both members of the MOE Board and also represent the municipality in the General Shareholder Meeting (GSM). How conflicts of interest should be dealt with is not clear.

Equitable Treatment of Shareholders

If municipality is the sole shareholder equitable treatment of minority shareholders is not an issue. If the MOEs are transformed to MOCs to enable borrowing for investments, for example, the City Council should consider developing clear guidelines on how the minority shareholders are going to be treated in the MOEs statutes. This is especially important if the owner is a coalition of municipalities.

Relations with Stakeholders

The City Council, or the Association of Finnish Local and Regional Authorities (AFLRA – Kuntaliitto), should develop a coherent stakeholder and disclosure policy and use its website as an effective information tool for the general public as the ultimate stakeholder in the respective MOEs.

Transparency and Disclosure

The internal audit function should be improved. The City Council as an ownership entity could require the MOEs to follow auditing requirements of companies. Finally, the AM should develop a transparent disclosure policy in consultation with the MOEs and following the OECD Guideline.

Responsibility of the Boards

The Boards are generally weak and have little responsibility for MOE/MOC performance. The Board seems to lack the authority carry out management monitoring and strategic guidance. The appointment of the General Manager of the MOE/MOC, often also the chair of the board, is not merit-based. This weakens the normal accountability mechanisms in the MOE/MOC. Also the nomination and selection criteria of the MOE/MOC Board members should be merit-based.

Research Team Assessment to Observe the OECD Guidelines in the Finnish MOEs

(the word 'state' in OECD document is here replaced by 'municipality')

I. Ensuring an Effective Legal and Regulatory Framework

A. There should be a clear separation between the municipality ownership function and other municipality functions that may influence the conditions for municipality-owned enterprises (MOE), particularly with regard to market regulation

Assessment: Not observed in the Finnish MOEs

Recommendation: All MOE operations should be contestable in the market. MOEs should not be used to prevent private sector entry to the market.

B. Municipal governments, or their coalitions, should strive to simplify and streamline the operational practices and the legal form under which MOEs/MOCs operate. The laws should allow creditors to press claims and to initiate insolvency procedures

Assessment: Not observed in the Finnish MOE/MOCs

Recommendation: In order to improve the quality of governance, reporting, transparency and public disclosure, the AFLRA should impose, over a transition period of a few years, the MOEs/MOCs reporting requirements applicable to companies.

C. Any obligations and responsibilities that a MOE/MOC is required to undertake beyond the general norm should be clearly mandated by laws or regulations

Assessment: Unclear, but probably not observed in the Finnish MOE/MOCs.

Recommendation: The owners and the MOEs/MOCs should engage in a dialogue to identify what could be termed as 'special obligations', what is their cost, and how these obligations should be paid for.

D. MOEs/MOCs should not be exempt from the application of general laws and regulations

Assessment: Partially observed in Finland

Recommendation: The MOEs should pay taxes and be subject to bankruptcy laws (again, a transition period of no more than 4–5 years could be granted).

E. The legal and regulatory framework should allow sufficient flexibility for adjustments in the capital structure of MOEs/MOCs when this is necessary for achieving company objectives

Assessment: Largely observed in the Finnish MOE/MOCs

F. MOEs/MOCs should face competitive conditions regarding access to finance. Their relations with municipality's financial resources should be in line with state-owned enterprises and companies and be based on commercial grounds.

Assessment: Not observed in Finland

Recommendation: The provision that allow the MOEs/MOCs to take bank loans under a municipality guarantee should be reconsidered.

II. The Municipality Acting as an Owner

A. The AFLRA (Kuntaliitto) should develop ownership policy framework that defines the overall objectives of the municipality ownership, the municipality's role in the corporate governance and how it will implement the ownership policy

Assessment: The present policy in Finland is unclear.

Recommendation: The AFLRA should develop a framework policy

B. The Municipality or a coalition of municipalities should not be involved in the day-to-day management of MOEs/MOCs, but allow them operational autonomy to achieve defined objectives

Assessment: Not observed in the Finnish MOC/MOEs.

Recommendation: The cities should take actions to permit a degree of independence for the MOC/MOEs. This would imply changing the regulations for the composition of the Boards to include independent members with private-sector experience and ensuring that the Board appoints the General Manager.

C. The Municipality should let MOE/MOC boards exercise their responsibilities and respect their independence. The same should apply to SOEs.

Assessment: Partially observed in Finland

Recommendation: The composition of the Boards needs to include independent members with private-sector experience and allow the Board to appoint and remove the General Manager

D. The exercise of ownership rights should be clearly identified within the municipality/state administration. This may be facilitated by setting up a coordinating entity, or more appropriately, by the centralization of the ownership function

Assessment: Unclear but probably not observed in the Finnish municipalities.

Recommendation: The ownership function needs to be clarified.

E. The coordinating or ownership entity should be held accountable to representative bodies, such as the City Council(s) and have clearly defined relationships with relevant public bodies, including the audit institutions

Assessment: Probably not observed in Finland.

F. The municipality as an active owner should exercise its ownership rights according to the legal structure of each MOE/MOC

Assessment: Unclear.

Recommendation: According to the OECD guidelines, the (state) municipality has five main responsibilities: a) be represented at the general shareholders meetings and vote with municipality shares; b) establish transparent board nomination processes and actively participate in the Board nominations for the SOE; c) set up reporting systems to allow monitoring and assessment of SOE performance; d) maintain dialogue with auditors and municipality control organs; and e) ensure that remuneration schemes for SOE board members foster the long-term interest of the company and attract qualified professionals.

III. Relations with Stakeholders

A. The coordinating or ownership entity and MOEs/MOCs should recognize and respect stakeholders' rights established by law or through mutual agreements, and refer to the OECD Principles of Corporate Governance in this regard.

Assessment: Partially observed in the Finnish MOC/MOEs.

B. Large MOEs/MOCs as well as SOEs pursuing important public policy objectives should report on stakeholder relations.

Assessment: Probably not observed in Finland

C. The MOE/MOC/SOE Boards should be required to develop, implement and communicate compliance programs for internal code of ethics. These codes of ethics should be based on country norms, in conformity with international commitments.

Assessment: Probably not observed in the Finnish MOE/MOC/SOEs.

IV. Transparency and Disclosure

A. The co-coordinating or ownership entities should develop consistent and aggregate reporting on municipality-owned enterprises and publish annually an aggregate report on MOEs/MOCs.

Assessment: Probably not observed in the Finnish MOC/MOEs.

Recommendation: The AFLRA (Kuntaliitto) should develop for all MOEs/MOCs a coherent ex-ante and ex-post reporting and transparency policy. The report should provide information on the evolution of the MOEs/MOCs and changes in the Boards. It should provide main financial indicators, such as turnover, profit, cash flow, gross investment, return on equity, equity/asset ratio and dividends. The aggregate report should contain sections on significant individual MOEs/MOCs, and available on a website.

B. MOEs/MOCs should have efficient internal audit procedures and establish an internal audit function that is monitored by and reports directly to the Board.

Assessment: Partially observed in the Finnish MOE/MOCs. (Observed in SOEs/SOCs).

C. MOEs/MOCs, especially large ones, should be subject to an annual independent external audit based on international standards. The existence of specific municipality control procedures does not substitute for an independent external audit.

Assessment: Probably observed (at least in several) in the Finnish MOC/MOEs.

D. MOEs/MOCs should be subject to the same high quality accounting and auditing standards as companies. Large MOEs/MOCs should disclose financial and non-financial information according to internationally recognized standards

Assessment: Probably observed in the Finnish MOC/MOEs, but the practice should be improved.

Recommendation: Large MOEs/MOCs should develop a plan to improve internal accounting practices.

E. MOEs/MOCs should disclose material information on all matters described in the OECD Principles of Corporate Governance and in addition focus on areas of significant concern for the municipality as an owner and the general public

Assessment: Probably not observed in the Finnish MOC/MOEs.

V. Responsibility of the Board

A. The boards of MOEs/MOCs should be assigned a clear mandate and responsibility for company performance. The Board should be fully accountable to the owners, act in the best interest of the company and treat all shareholders equitably.

Assessment: Not observed in the Finnish MOC/MOEs.

B. MOE/MOC Boards should carry out their functions of monitoring of management and strategic guidance, subject to the objectives set by the city councils and the ownership entity. They should have the power to appoint and remove the CEO.

Assessment: Not observed in the Finnish MOC/MOEs.

C. The Boards of MOEs/MOCs should be composed so that they can exercise objective and independent judgment. Good practice calls for the Chair to be separate from the CEO.

Assessment: Not observed in the Finnish MOC/MOEs.

Recommendation: The ownership entity should develop clear nomination and selection criteria for the Board members. It should consider a) the size of the boards; b) permit the selection of non-municipality representatives on MOE/MOC' boards to enhance professionalism and business-oriented attitude.

D. If employee representation on the Board is mandated, mechanisms should be developed to guarantee that this representation is exercised effectively and contributes to the enhancement of the Board skills, information and independence.

Assessment: May not be applicable in Finland.

E. When necessary, MOE/MOC boards should set up specialized committees to support the full Board in performing its functions, particularly with respect to audit, risk management and remuneration.

Assessment: Probably not observed in the Finnish MOC/MOEs.

F. MOE/MOC board should carry out an annual evaluation to appraise its performance

Assessment: Not observed in the Finnish MOC/MOEs. (But required and observed in SOE/SOC).

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Title

Ownership and governance of Finnish infrastructure networks

Abstract

This research report investigates and analyzes the pros and cons of different ownership and governance models of infrastructure networks. The report covers most infrastructure networks: transportation networks (roads, streets, railways, airports, harbors) and utility networks (water and sewage, energy and electricity). There is no unifying solution that would fit all sectors in terms of the most efficient ownership model. However, in many sectors reforms are needed towards more elaborated client-supplier frameworks to ensure greater efficiency and cost transparency. Surprisingly, traditional organizational structures do not seem to impact on financial returns of those networks that provide user-financed services.

In Finland technical infrastructure networks are typically owned, administered and managed by the public sector as they are considered public goods and critical assets for the wellbeing of citizens. In many ways the sectors have remained passive and with little interaction towards more innovative service provision solutions or organizational models.

In terms of developing the networks' services and their profitability, the greatest business opportunity would result from allowing open entry to market and competition in contracting. This would mean abandonment of negotiated contracts and proactive evolution of functional markets. The scope of business opportunities will increase in all aspect of service delivery; from management to engineering and economic studies, asset management systems, construction and maintenance works, and the labor to do all that.

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Nimeke

Teknisten verkostojen omistus- ja hallinnointimallit

Tiivistelmä

Tämä tutkimus tarkastelee ja analysoi infrastruktuuriverkostojen omistus- ja hallintomallien etuja ja haittoja. Tarkastelun kohteena olivat erityisesti katuverkot, vesihuolto ja satamat, joissa tunnistettiin suurimmat kehittämismahdollisuudet. Kaikille sektoreille sopivaa, yhtä oikeaa ja tehokasta ratkaisua omistus- ja hallintomalliksi ei löydetty. Monilla sektoreilla on kuitenkin tarve kehittää tilaaja–tuottaja-malleja edelleen kustannustehokkuuden palvelun laadun nimissä.

Suomessa verkostoista vastaa yleensä julkinen sektori niiden strategisen luonteen ja julkishyödykkeen ominaisuuksien vuoksi. Tilanne onkin johtanut muutoshitauteen ja innovatiivisten palveluratkaisujen vähyyteen. Toisaalta perinteiset mallit ovat taanneet omistajilleen hyvää ja vakaata finanssituottoa niissä verkostoissa, joissa rahoitus perustuu pääasiassa tai täysin käyttäjämaksuihin.

Toiminnan kehittämisen ja tuloksellisuuden kannalta oleellista on avoimen kilpailun ulottaminen palveluiden tuottamiseen ja kilpailutusprosessien uudistaminen. Kaikkiaan tämä tarkoittaisi vapaampaa markkinapohjaista toimintaa ilman neuvoteltuja puitesopimuksia. Yritystoiminnan mahdollisuudet kasvaisivat koko palveluketjussa: hallinnoinnista suunnitteluun ja taloudellisiin tarkasteluihin, omaisuudenhallinnassa, rakentamisessa ja kunnossapidossa.

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