



Strategic use of public-private cooperation in the Nordic region

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Nordic co-operation

Nordic co-operation is one of the world's most extensive forms of regional collaboration, involving Denmark, Finland, Iceland, Norway, Sweden, and three autonomous areas: the Faroe Islands, Greenland, and Åland.

Nordic co-operation has firm traditions in politics, the economy, and culture. It plays an important role in European and international collaboration, and aims at creating a strong Nordic community in a strong Europe.

Nordic co-operation seeks to safeguard Nordic and regional interests and principles in the global community. Common Nordic values help the region solidify its position as one of the world's most innovative and competitive.

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Executive summary

Denne rapport er blevet udarbejdet i samarbejde mellem COWI A/S og Anvendt KommunalForskning (AKF) efter opdrag fra Erhvervs- og Byggestyrelsen. Danmark har i 2010 haft formandskabet for Nordisk Ministerråd, og denne rapport vil indgå i Nordisk Ministerråds videre arbejde med offentligt-privat samarbejde (OPS). Ud over selve rapporten er der blevet produceret en kort film om OPI (offentlig-private innovationspartnerskaber). Filmen, som er optaget og redigeret af Diktator Film, er tilgængelig på Erhvervs- og Byggestyrelsens hjemmeside samt på Nordisk Ministerråds hjemmeside.

Den offentlige sektor i de nordiske lande står over for udfordringer i forhold til at løfte opgaver på velfærdsområdet. Der bliver flere og flere ældre og færre i den erhvervsaktive alder. Det skaber et behov for nye og bedre velfærds løsninger. Udgangspunktet for rapporten er, at offentligt-privat samarbejde (OPS), herunder også OPI, kan være en del af løsningen på de udfordringer, som de nordiske lande står overfor. Men OPS og OPI er ikke uden vanskeligheder og udfordringer, hvilket nødvendiggør viden og erfaringsopsamling på området. Denne rapport er et skridt i denne retning.

Rapporten analyserer OPS i de fem nordiske lande: Danmark, Sverige, Norge, Finland og Island. Analysen består af to dele. Første del kortlægger de fem nordiske regeringers erhvervspolitiske initiativer for at udbrede brugen af OPS og OPI (kapitel 3). Anden del præsenterer resultaterne fra 11 detaljerede casestudier af perspektivrige OPI-projekter i Norden med fokus på centrale velfærdsområder såsom sundhed, forebyggelse, uddannelse, ældre, handicappede og hjemmepleje (kapitel 4). Samlet er det rapportens intention at give et overblik over forskelle såvel som ligheder i de nordiske regeringers måde at arbejde med OPS og OPI på, og på den måde inspirere til dialog og inspiration på tværs af de nordiske lande.

Begrebsmæssigt sker der fra rapportens første til anden del en indsnævring i fokus for analysen. Erhvervs- og Byggestyrelsen har ønsket en relativt bred kortlægning af de nordiske regeringers erhvervspolitiske initiativer rettet mod en bred vifte af offentlig-private samspilsformer. I første del af rapporten bruges derfor en relativt bred forståelse af OPS, som bl.a. inkluderer OPP, OPI, joint ventures, institutionelle OPPer mv.

I rapportens anden del indsnævres fokus, hvor ønsket har været at fokusere på erfaringerne med en ny form for OPS, det offentligt-private innovationspartnerskab (OPI). I denne anden del af analysen blev 11 nordiske OPI-cases udvalgt og analyseret. Casene er gode eksempler på, hvordan OPI kan lykkes. Fra de forskellige cases er der blevet fokuseret på resultater og konkrete effekter af det offentligt-privat samarbejde, barrierer og succesfaktorer samt potentialet ved OPI i en nordisk kontekst. Formålet med at udvælge

og præsentere perspektivrige OPI-projekter er at give eksempler på, hvordan succesfulde projekter kan udvikles. Men det er samtidig vigtigt at understrege, at rapporten hovedsageligt præsenterer eksempler på OPI-projekter, hvor samarbejdet har været – eller tegner til at blive – en succes, men ikke giver eksempler på projekter, hvor samarbejdet er mislykkedes, eller hvor projektet aldrig kom videre fra idéstadiet. Sådanne projekter findes naturligvis også og kan være en vigtig kilde til en dybere forståelse af, hvilke barrierer der kan være, og hvad man som henholdsvis offentlig og privat aktør ikke bør gøre i et OPI-projekt.

Begge dele af analysen er baseret på interviewpersoners beretninger fra de enkelte cases såvel som information indhentet fra forskellige departementer og styrelser i de nordiske lande. Desuden er der indsamlet en omfattende mængde skriftligt materiale til at underbygge analysens konklusioner, herunder forskningsartikler, relevant lovgivning, policy-papirer, analyser, vejledningsmateriale, rapporter, casespecifikt materiale mv. Metodemæssigt har analysen bygget på en triangulering af oplysninger og viden indhentet fra forskellige kilder. De fleste danske interview er blevet gennemført ansigt til ansigt, mens interviewene i de fire øvrige nordiske lande er blevet gennemført som telefoninterview.

Cirka midtvejs i projektet blev alle deltagerne i de 11 casestudier inviteret til en workshop hos Erhvervs- og Byggestyrelsen i København, hvor COWI og AKF præsenterede de foreløbige resultater fra projektet. I alt cirka 15 offentlige og private repræsentanter deltog i workshoppen og brugte deres erfaringer med konkrete OPI-projekter til at diskutere fordele, ulemper, barrierer samt policy-anbefalinger for brug af OPS og OPI i Norden.

Rapporten konkluderer, at potentialet ved OPI er lovende. De analyserede cases peger i retning af, at positive effekter kan opnås for både den offentlige og den private part ved et OPI-samarbejde. Den offentlige sektor kan bl.a. opnå effektiviseringer og tidsbesparelser samt bedre kvalitet i velfærdsløsningerne. Den private sektor kan bl.a. opnå øget indtjening, omsætning og beskæftigelse og i sidste ende skabe vækst i den nordiske region. Analysen identificerer også en række barrierer for OPI, herunder især manglende viden på området, usikkerhed omkring udbudsreglerne, en svær adgang til finansiering af OPI-projekter og en manglende institutionel reguleringsstruktur på statsligt niveau.

På baggrund af analysen anbefaler rapporten, at de nordiske regeringer iværksætter en række initiativer til styrkelse af det strategiske arbejde med OPI:

- Anbefaling 1: Skabelse af en klar og entydig juridisk ramme for OPI-projekter.
- Anbefaling 2: En institutionel infrastruktur, herunder en specialiseret OPS/OPI-enhed på regeringsniveau.
- Anbefaling 3: En national kompetenceenhed for udbud med kompetence til at afgive bindende tilsagn i udbudssager.

- Anbefaling 4: Skabe et uddannelses- og trænings program for regionale og kommunale offentligt ansatte, der arbejder med OPS og OPI
- Anbefaling 5: En samlet indgang til de offentlige puljer, som støtter OPI-initiativer og -projekter.
- Anbefaling 6: Øge opmærksomheden omkring OPS/OPI med information om lovgivning, manualer og erfaring gjort i tidligere projekter.

København den 19. januar 2011
COWI og AKF

1 Introduction

The aim of this project is to increase knowledge about public-private partnerships in the five Nordic countries; Denmark, Sweden, Norway, Finland and Iceland, with a focus on the welfare sectors in these countries. Welfare sectors are defined as welfare products or services which address a particular problem and contribute to enhancing quality, efficiency and citizen satisfaction¹. In this project, focus is on the following sectors: children and youth; elderly and handicapped; disease prevention, education; treatment and rehabilitation².

The overall objective of this project for the Danish Enterprise and Construction Authority is to increase understanding of approaches, effects and perspectives in the use of public-private partnerships (PPP), in particular public-private innovation partnerships (PPI)³. This includes the use of public-private partnerships as a strategic tool for new business development for welfare solutions in the Nordic region.

The project consists of the following four elements:

- *A mapping of the policy and regulation* initiatives of the five Nordic governments to support PPP in the Nordic region⁴.
- *An analysis of the effects of PPI* based on eleven PPI case studies from the Nordic countries.
- *A short film* that introduces and explains PPI through some of the conducted case studies.
- *A project workshop* where representatives from the case studies exchanged opinions on the findings in the report as well as contributed with data, insights and participated in the shootings of the film.

The four elements are mutually supportive in the sense that data collection for the policy mapping and the eleven case studies has been used to develop the film and facilitate the workshop. The workshop has provided valuable detailed information and inter-Nordic discussions of the preliminary findings and broader perspectives for PPI in the Nordic countries. Input from the workshop has fed into the finalisation of the analysis of policy initiatives and PPI case examples.

¹ The Danish Enterprise and Construction Authority. 2010. The tender document “Notat” of 28 May 2010 for the tender project “Strategic use of public-private co-operation in the Nordic region”.

² These areas were delineated in the tender documents for this project from the Danish Enterprise and Construction Authority.

³ Please see conceptual definitions of PPP and PPI in section 0 below.

⁴ Note that the mapping of policy and regulation initiatives includes several types of PPP while the case analysis’ part of the study focuses exclusively on PPI projects. This is also the case for the produced short film and the project workshop, which both also focus exclusively on PPI.

This report is the final result of this project, presenting all main elements of the project (except the film, which is presented separately on the webpage of the Danish Enterprise and Construction Authority and the webpage of the Nordic Council of Ministers), including the policy and regulation mapping, the case studies, the workshop content, the findings and conclusions as well as a discussion of policy recommendations based on the findings.

1.1 Background

The Nordic welfare states are facing significant demographic challenges now and in the future. At the same time, while the average Nordic fertility rate of 1.95⁵ does not sustain a population increase, life expectancy of the citizens is increasing. Thus more senior citizens need to be cared for by still fewer young people of taxable age. This development undermines the financial sustainability of the Nordic welfare state and presents a major medium to long-term challenge for the Nordic countries, if the high welfare service levels are to be sustained in the decades to come.

One of the solutions to this challenge could be the implementation of new welfare technologies and innovative solutions which can increase efficiency of service providers and deliver more value for money.

The Nordic welfare states are relatively extensive, and many services are provided by the public sector. On average, the Nordic government expenditure constitutes 47.3 per cent of GDP⁶. In principle, this presents considerable opportunities for testing and applying new welfare technology in well functioning and similar settings across the Nordic countries. Yet, there appears to be lack of knowledge among both public providers and private technology developers about the needs and operational conditions of each other. Few providers of technology solutions possess sufficient insights for customising their products to fit exactly with the needs of welfare service providers. Welfare service providers on the other hand tend to be relatively very risk averse, and to seek solutions that represent safe choices in regard to its many public and private stakeholders.

Service providers in the Nordic welfare states are often highly specialised. As a consequence, knowledge about the needs in the welfare sector is often asymmetrical, and few providers of technology solutions are capable of delivering exactly what the welfare service providers require. One way to overcome this deficiency could be increased communication between service providers and technology providers, and partnerships between public and private actors with a common purpose and an outcome which benefits all partners in a project. Technology providers possess the technological knowhow and can increase profits by entering new markets. Service providers, who are often public, represent immense – but also risky – markets for private technology

⁵ OECD Database (http://www.oecd.org/statsportal/0,3352,en_2825_293564_1_1_1_1_1,00.html)

⁶ OECD Database (http://www.oecd.org/statsportal/0,3352,en_2825_293564_1_1_1_1_1,00.html)

providers. On the other hand, service providers can potentially decrease production costs with the introduction of the right technologies.

Bridging the gap between public and private sectors in partnerships can potentially be a win-win situation, since all partners – including the citizens – can, in theory, benefit from such partnerships. There may also be a growth potential for the private part. While securing a local market platform, an innovative company might increase its turnover as well as organic growth. Experience from a Nordic home market may also lead to export opportunities as most European countries are facing similar demographic transition challenges. The prospective benefits of successful PPIs, both in terms of improved welfare services for the public sector and new market opportunities for the private sector, are thus significant.

1.2 PPP definitions

The term “public-private partnerships” (PPP) is a contested concept. No single authoritative definition of the concept exists, but moreover cross-country differences in the application of the term exist.

In this report, the PPP term is an umbrella term that encompasses various innovative types of public-private collaboration, including, e.g., PPI, institutional partnerships and infrastructure type partnerships such as the DBFO model (Design Build Finance Operate). Key features of many of the new types of partnership arrangements are the innovative division of risk between the involved parties and the fact that cooperation is stretched over a long-term period. The PPP definition applied in this report does not include traditional demand-supply agreements, which are known in relation to buyer-seller relationships. This delimitation was made to focus the analysis on more recent types of PPP that differ from more traditional public-private interactions (outsourcing, privatisation, etc.).

The term “public-private innovation partnership” (PPI) is a type of PPP where public and private actors collaborate in order to develop new and innovative solutions (for example, welfare technologies), see definition in Box 1.1 below

*Box 1.1 PPI defined**PPI defined⁷*

A PPI project is a mutual cooperative arrangement between public and private organisations with the overall objective of innovating and developing public welfare solutions. Specific aims of a PPI can be the following:

- To improve framework conditions and increase the quality of public services.
- To create new business opportunities for the businesses involved.

Key elements in a PPI are:

Continuous transfer of ideas and knowledge between the parties involved.
User involvement in the development of the new solutions.

PPI often proceeds until it is possible to provide the public sector with a new solution. Subsequently, the new solution can be procured through a public tender. PPI may include various types of innovation, including:

- Product or service innovation (for instance, a new digital lock solution in relation to homecare services).
- Process/system innovation (innovative ways of organising the production of public services and products).

In PPI, public and private organisations are development partners. A PPI may be organised in various ways, and often involves user involvement (for example, the involvement of end users such as health care receivers/patients or the professional staff providing such services). Consequently, the organisational structure of a PPI may vary.

Experience with and knowledge about PPI is yet somewhat limited. It is an emerging field, and only few studies on the subject have been made so far.

The concept of PPI is not well established. This study has uncovered that the PPI term appears to be primarily applied in the Danish context. This is not to say that there is no PPI activity in other parts of the Nordic region. Rather the issue is one of terminology and labelling. Although quite a few examples of PPI were identified in the Nordic region, the involved actors did not always label their particular cooperation “a PPI”.

⁷ Source: Adapted from EBST. 2009. Analyse af offentligt-privat samarbejde om innovation. The report is available here (in Danish only): http://www.ebst.dk/publikationer/innovation/Analyse_af_offentlig-privat_samarbejde_om_innovation/index.htm

1.3 Structure of the report

The content of this report is structured in the following way:

- *Chapter 2* provides the overall conclusions from the main analytical parts (i.e. the mapping of PPP policy initiatives and the case study analyses of PPI). The overall conclusions led to recommendations, which are also presented and which are practical suggestions for future political action to the promotion of PPI.
- *Chapter 3* gives an account of PPP policy initiatives in the Nordic region. This analysis is based on the methodology described in chapter 5 and compares findings from all the Nordic countries on policy initiatives, pilot projects, best practices, literature, scientific publications and databases, etc.
- *Chapter 4* presents the key findings from the case analyses of the selected PPI cases (see Appendix 1 for the full version of the case studies), including PPI effects, barriers, drivers for success and the potential of PPI in the Nordic region.
- *Chapter 5* presents the methodology for both the mapping of PPP policy initiatives and the case studies.

Following the analytical chapters and the concluding chapter of this report are three supporting appendices with relevant information such as the case studies, the interview guide and the workshop programme. *The most important appendix is Appendix 1*, where the case studies are represented in their entirety. We, the study team, recommend reading the cases to get a good insight in some very interesting examples of PPI in different welfare sectors.

2 Key conclusions and recommendations

This chapter presents the key conclusions of the analyses of this study. The chapter is concluded with selected recommendations for the continuous development of the PPP/PPI policy area based on our findings. Please note that in Appendix 1, i.e. the case catalogue, numerous recommendations put forward by the practitioners are also available.

2.1 Key conclusions

The following subchapters present the key results from the policy and regulation mapping as well as the results of the cases studies.

2.1.1 Key results from the policy and regulation mapping

The mapping of policy and regulation frameworks for PPP/PPIs in the five Nordic countries demonstrated that the Nordic governments have already embarked on initiatives to support PPI. Policy and regulation initiatives have mainly been witnessed in relation to economic incentives and seed money or information and best practice examples, whereas the Nordic governments have so far been hesitant to launch new laws or binding standards for the use of PPIs in the region.

Cross-national differences

The analysis also revealed interesting cross-national differences in terms of the institutional organisation of the regulation framework, in the use of specific policy instruments, and in the combination of various tools of regulation. In Finland, for example, there is a long tradition for supporting innovation projects and public-private collaboration, whereas such initiatives are not very dispersed in Iceland.

Denmark is probably the country with the most focus on PPI, and over the past two years the Danish government has published several reports and papers on the subject matter and made large pools of money available to innovative projects in the public welfare sectors. Both Norway and Sweden have witnessed a growing interest in PPIs, but to a smaller extent than in Denmark. In both these countries the focus was originally on PPP within the building and infrastructure sectors, although this type of PPP was never used much.

Country mapping: Denmark

Turning to the results from each of the country mappings, starting with Denmark, we found that the interest in PPP and PPI arrangements has been steadily increasing over the past five to seven years. Also, a change in focus from building and infrastructure PPP to PPIs within the welfare sectors has been witnessed.

Initiatives are dispersed across various local, regional and central government organisations. Public funds for PPI projects are for example available both at the national and regional levels. Most PPI projects are initiated locally or regionally, whereas information initiatives and guideline material is generally published by central government ministries.

Country mapping: Sweden

In Sweden, the concept of PPI is less well-known among people in the central administration than the traditional (infrastructure) type PPP. The Swedish Ministry of Finance has a unit which is responsible for infrastructure and procurement, but in contrast to countries such as the UK, Ireland and the Netherlands, this unit does not work actively to promote development of PPP projects.

In terms of economic support and funds, we found that most initiatives are found and projects implemented at the regional and local municipal levels, simply because seed money is available there. When searching for disclosure of information and best practice examples, we generally found a lack of policy papers, guideline material, analyses and overviews of central initiatives and projects in the area, although some policy papers on infrastructure PPPs have been identified.

Country mapping: Norway

The Norwegian government has recently taken some PPP/PPI initiatives. The main focus has been infrastructure PPPs, but within the past few years a gradual change in focus has been witnessed, with an increased discussion of innovative solutions in the welfare sectors, in particular the health and elder-care sectors. Specific initiatives include the launch of an action plan for innovation in the Norwegian health sector, which was followed up by granting of funds to development and innovation projects in the health sector.

Moreover, a five-year regional and local government initiative concerning (private) supplier development has been launched. In terms of information and best practice examples, the Norwegian government has carried out three major road schemes, but has decided not to go forward with the PPP model for infrastructure projects.

Country mapping: Finland

As noted above, in Finland, there is a relatively long tradition for working actively with innovation and public-private collaboration. Such initiatives

have generally not been labelled PPI in Finland, although the government is also increasingly focusing on PPP as a means of achieving innovation here.

An interesting finding is the early and extensive use of government funds and seed money in Finland, and the active role played by Finnish local municipalities in forming various innovative projects and organisations. A number of government documents, including the programme of the current government, mention public-private collaboration, but our research has not identified more detailed guideline material or general information about activities or implemented projects in the public sector.

Country mapping: Iceland

Iceland to some extent stands out with fewer initiatives and little official information regarding PPP/PPI. Our research displayed very few initiatives both in terms of funds and seed money and in terms of information and best practice examples. There have been some initiatives to strengthen the general innovation environment on Iceland, for example through the launch of new legislation on the organisation of science and technology policy and funding of research activities with public and private project participants (although these projects are not PPIs in a narrow sense).

It is important to mention that although PPI initiatives were difficult to identify, Iceland has been quite active in terms of implementing traditional (building and infrastructure) PPP across a range of sectors, including schools, sports and leisure and road construction.

2.1.2 Key results from the case studies

Potential

The following conclusions can be highlighted from the case study analyses of this study. First, our analysis suggests that there is a promising potential in public-private cooperation in the welfare sector. We have identified promising cases of PPI with significant positive effects for both the involved private and public sector actors.

PPI projects can, for example, bring about promising cost and time savings for the public sector, quality improvements in welfare services and increased user satisfaction. PPI also holds the potential to create new business opportunities on both national and international markets, and to positively influence the private sector partner's turnover and revenue.

However, it must be noted that this study only encompasses positive examples of PPI cases, which is why the positive effects of PPI stand particularly strong in this report. Future work in this area should address the downsides of PPI and include examples of negative or failed PPI projects, perhaps giving a more comprehensive picture of the pros and cons of PPI.

Barriers

The case analyses suggest that there are a number of barriers for the success and further dissemination of PPI. A general inexperience with and knowledge of PPI projects and a lack of strategic policy for the area hinder a broader dissemination of PPI in the Nordic region. Further, current procurement rules are experienced to be a barrier by PPI practitioners.

PPI – not (yet) an established field

A final and important conclusion is that PPI is yet not an established field – neither in theory nor in practice. This study has shown that the PPI term itself primarily appears to be applied in the Danish context. This is not to say that there is no PPI activity in other countries in the Nordic region. Many interesting examples of PPI were identified. Rather the issue is one of terminology and labelling.

Although quite a few examples of PPI were identified in the Nordic region, it was seldom the case that the involved actors labelled their particular cooperation a PPI. A PPI project is often something that grows out of a local context, and is typically not a part of a broader strategic policy for welfare sector development.

Today, there are no, or only limited, professional networks concerned with PPI. Further, no systematic knowledge gathering takes place, and there does not appear to be a significant amount of policies directed specifically at PPI activities. This is thus a field “in the making”, and there appears to be a growing focus and interest in this particular subsection of the PPP field.

2.2 Policy recommendations

Today, PPI practice is, as previously noted, rather local and ad hoc. Limited knowledge accumulation and best practice dissemination take place, and little support seems to be available for the practitioners interested in engaging in PPI projects. This is unfortunate, as the findings of this study suggest that the potential of PPI can be significant for both the public sector and for the business environment in the Nordic region. Our analyses suggest that PPI can be a catalyst for business growth, while at the same time improving public welfare services.

In order to advance and disseminate PPI in the Nordic region, a number of policy recommendations can be put forward. The policy recommendations can be summarised in one overall recommendation, which is to adopt a more *central and strategic approach to PPI at the national level, while engaging and supporting partners at regional and local levels where most PPI projects are carried out*. Such an approach may consist of (but is not limited to) the following elements:

- Establish a clear legal framework for PPP/PPI projects
- Compose a specialised PPP/PPI competence unit with cross-ministerial participation
- Compose a national procurement contact point with competences to issue binding decisions related to procurement issues
- Create an education and training programme for regional and local civil servants working with PPI/PPPs
- Establish a single public entrance to seed money for PPI projects
- Raise awareness with information about regulations, guidance material and experience from other projects.

These policy recommendations are presented in more detail below.

Recommendation 1: Establish a clear legal framework for PPP/PPI projects.

A central finding is that there is a need for a clear and dedicated legal framework for PPI in all five Nordic countries. Several of the respondents note that a change of the procurement rules is not necessary, but that clearer guidelines and precedence on the actual working and interpretation of the rules are needed.

Key issues raised in the case studies were, for example: Which procurement method is most suitable for PPI projects? How much dialogue is allowed in the pre-commercial phase before a private partner is disqualified in the procurement phase? In what instances must a public tender be made, and when is it not necessary?

While issues related to procurement have been discussed for some years in relation to PPP and PPIs, the results from the case studies demonstrate that the procurement issue continues to constitute a source of concern for public and private project participants. This finding is relevant for all the Nordic countries and suggests a need for a coordinated attempt to set out a clear and uniform practice in the procurement area. This initiative would involve negotiations and amendments in procurement regulations and practice at the EU level, because procurement regulations in the Nordic region are subject to the EU's public procurement directives.⁸

Recommendation 2: Compose a specialised PPP/PPI competence unit with cross-ministerial participation

A common finding across all five Nordic countries is the lack of a suitable institutional infrastructure to support PPI activities. Research on PPPs in the UK has shown that a strong institutional infrastructure with a specialised competence unit has been a fundamental element of the institutional support for PPPs⁹. Other research has demonstrated that a lack of cross-ministerial

⁸ EU has already launched PreCo, which has the objective of supporting public authorities to enhance innovation in pre-commercial public purchasing processes. See <http://preco.share2solve.org/main/>

⁹ Spackman, M. 2002. Public-private partnerships: lessons from the British approach. *Economic Systems*, 26/3: 283–301.

coordination can be a serious impediment to the formation of PPPs, because there is a need to coordinate key policy and regulation initiatives among government ministries¹⁰.

Thus, to provide a clear institutional framework and support for PPP and PPI projects, we suggest the launch of a specialised government unit with cross-ministerial participation and competences and experience in the field.^{11 12} This unit can issue advice and guidelines for public and private partners in relation to a general initiative or a specific project.

As PPI involves both public and private sector partners, it is important that such a unit attracts experts within these fields from both the public and private sectors. One model, which could secure public as well as private sector commitment, would be to organise the unit as a public-private partnership in line with the organisation of Partnership UK.¹³

It is important that the unit has the legal and operational capacity to go beyond general advice, and to act as an active part in developing specific PPI projects. We suggest that the competence unit undertake the following work and actions:

- Produce and update information about regulations, guidance material and experience from other projects (see recommendation 6)
- Create an education and training programme for regional and local civil servants working with PPP/PPI (see recommendation 4)
- Potentially host the national procurement unit recommended in recommendation 3.

Recommendation 3: Compose a national procurement contact point with competences to issue binding decisions related to procurement issues

A way to effectively address the questions related to procurement, which was often mentioned as a barrier to PPI/PPP throughout the interviews, would be to launch a procurement advisory contact point or hotline with the competences to advise public and private partners on issues relating to the procurement process. It is important that this contact point is not only advisory but hosts experts who can issue binding decisions in concrete cases brought before it.

A similar model is well-tested in Denmark in the area of taxation, where any public or private organisation (or citizen) at a small fee (DKK 200 or EUR 27) can receive a binding decision regarding the tax treatment of a specific tax case. Within the procurement area such a practice could help reduce

¹⁰ Petersen, O. H. 2010. Regulation of public-private partnerships: the Danish case. *Public Money and Management*, 30/3: 175–192.

¹¹ In Finland a similar solution has been sought to provide advice about the public procurement rules. For further information see FORA (2010), *Intelligent offentlig efterspørgsel og innovative offentlige udbud – Erfaringer med offentlig privat innovation af velfærdsydelser i UK, Nederlandene og Finland*.

¹² *Ibid.* A similar initiative can be found in the US, where the Defense Advanced Research Projects Agency (DARPA) works to facilitate PPP/PPI in the defense sector.

¹³ <http://www.partnershipsuk.org.uk/>

the risk for both public and private partners in the start-up phase of a PPI/PPP project. It is important in the concrete formation of such a contact point to learn from experiences in other countries, for example the Netherlands, where experiences with such an organisational unit so far have been mixed¹⁴.

Recommendation 4: Create an education and training programme for regional and local civil servants working with PPI/PPPs

Most PPI projects are embedded at local and/or regional levels of government, which makes it imperative that national policy and regulation initiatives are supplemented by a focus on local and regional skills and knowledge development. During the rounds of interviews, however, it became clear that the general knowledge and competence level of development of PPI projects locally and regionally is generally low and should be further developed to support the uptake of PPIs. This includes a low level of business case understanding, which is important for the understanding of interests, needs and risk perception of the private part.

One way to support the development of competences and skills at regional and local levels would be to develop an education and training programme within innovation and public-private partnerships. Such a programme could contain various modules with a focus on key aspects related to the planning and implementation of a PPI/PPP project, such as legal aspects (sector-specific legislation, general framework legislation, procurement rules), financing and access to funds, project management, user-driven innovation, assessment of market potential, commercialisation etc.

The specific organisation of the function may be at the national, regional or local government level and could also involve private sector project managers or representatives of entrepreneur start-up firms, which could also benefit from training and skills development within PPI/PPP.

Recommendation 5: Establish a single public entrance to seed money for PPI projects

Both private and public actors state that financial risks may be a barrier to entering into a PPI. Investing resources in PPP/PPI assessment will be weighted against the potential for failure of the partnership project idea, and high initial costs may represent a significant barrier. Today, financial support and seed money for PPI projects is administered by multiple public authorities at state, regional and sometimes local levels. The policy and regulation mapping illustrated that this was largely due to the absence of a single policy and common award criteria in the five counties. Various initiatives have been launched along the way, and new ones have been launched on top of old ones which continue to exist.

There seems to be to some degree a departmental logic guiding this institutional set-up: each organisation prefers to administrate its own pool of

¹⁴ FORA (2010), Intelligent offentlig efterspørgsel og innovative offentlige udbud – Erfaringer med offentlig privat innovation af velfærdsydelser i UK, Nederlandene og Finland.

money based on its own criteria and procedures for application. However, for public and private project managers preparing an application for funding, this organisational architecture is unfortunate, because it increases transaction costs and takes time away from developing the project.

The specific design of the support must be developed according to national needs and available funds in each of the five Nordic countries. To enable more firms to participate in PPI/PPP projects, it should be considered to target such financial support to small and medium-sized enterprises, as they face a relatively higher risk than larger and well-established companies.

Furthermore, as some of the interviews illustrate that resource constraints make local and regional authorities reluctant to experiment with PPI, it is also important that funding is also made available for public partners to reduce transaction costs in the start-up phase of new projects.

Recommendation 6: Raise awareness with information about regulations, guidance material and experience from other projects

In several of the case studies, inexperience and a lack of knowledge is highlighted as a barrier for PPI. Further, public and private project managers point out that finding information and guidance material about PPIs is time-consuming and sometimes even impossible, because such material is dispersed across a number of websites at state, regional and municipal levels. In some countries, such as Norway and Finland, private partners have developed their own databases with projects lists and relevant material, but there is a problem with updating the material¹⁵.

Access to information, guidance material and experiences from other projects is important because it forms the basis for systematic knowledge accumulation and learning. The following initiatives could be integrated in this effort:

- A single public resource database containing all relevant material on various forms of PPP and PPI. If implemented in all five Nordic countries at the same time, such a database could form the basis for a common Nordic PPI resource database, where the Nordic governments could make information and experience (good as well as bad) available, advancing a Nordic model of PPI.
- A PPI toolbox including a stepwise guide explaining the timeframe of implementing PPI and all the issues and implications related to the different project phases. It should also include a brief introduction to business cases, procurement rules and examples of best practice.
- General awareness activities through visits and workshops, i.e. face-to-face meetings, with potential stakeholders such as municipalities and hospitals as well as potential stakeholders from the private sector etc.

¹⁵ Ibid. In the Netherlands a public project database called MIKK with more than 200 projects already exists.

Increasing general awareness of PPP/PPI should have the objective of curbing mistrust in private solutions and increasing innovative thinking in the public sector through good examples and information.

3 Mapping of policy and regulation initiatives in the five Nordic countries

This chapter reports the findings from the mapping of the Nordic governments' policy and regulation initiatives to support PPP in general and PPI in particular. The chapter is structured as follows: Section 3.1 presents the findings for Denmark; Section 3.2 presents the findings for Sweden; Section 3.3 presents the findings for Norway; Section 3.4 presents the findings for Finland; Section 3.5 presents the findings for Iceland; and, finally, Section 3.6 provides a discussion of the findings in a cross-national perspective.

3.1 Denmark

During the past five to six years, the focus on PPP has been rapidly increasing in Denmark. In the years between 2004 and 2007, inspired by the UK PPP/PFI (Private Finance Initiative) experience, the Danish government generally focused on the building and infrastructure type PPPs. However, from 2008 onwards the focus has increasingly been redirected to innovative initiatives within the welfare sectors, with most projects witnessed in the health and eldercare sectors. As the only Nordic country, the Danish government had a specialist PPP taskforce operating under the Ministry of Economic and Business Affairs, but this unit was closed down at the end of 2009.

The Danish government has gradually developed an institutional and regulatory framework to support more innovation and PPP. For example, seed money are awarded to innovative projects through pools of money, and a number of reports on innovation and user driven innovation have been published. It is however an important finding that several of the initiatives are not always coordinated, and that many of the documents which focus on how to facilitate an innovative policy environment not always include the public-private collaboration element, and vice versa.

3.1.1 Laws and binding standards

There is no explicit legal framework for PPP and PPI projects in Denmark. Projects are generally implemented within the existing legal framework, such as the EU's procurement directive, the law on municipal governance, and general regulations regarding tax and value-added tax.

Within recent years, the Danish government has made two legal amendments to support uptake of infrastructure PPP projects. The first legal amendment, which was made in 2004, was the requirement that all central government building projects must be examined for PPP relevance. As a result of this requirement, a number of government projects have been tested for PPP relevance, and a few PPP projects have also been commenced. The second legal amendment, which became effective on the 1st of January 2007, was a new law on public-private companies (Law 548) with joint public-private ownership control. This is what the EU Commission refers to as institutional PPPs¹⁶.

The Danish government and the municipalities' interest organisation "Local Government Denmark" have agreed on a binding target for public-private collaboration. According to this agreement, at the end of 2010, 26.5 per cent of the tasks in the local municipalities must have been made subject to private competition. But this number includes both traditional contracting out and general public purchases, i.e. a much broader definition than PPP and PPI. The target is binding for the municipalities' organisation, but there are no sanctions worked into the agreement. Moreover, the agreement is only an average target for the municipalities, which means that some municipalities utilise public-private collaboration much more than others¹⁷.

3.1.2 Economic regulation and seed money

The Danish government has initiated a number of funds to support the start-up of PPP and PPI projects at regional and local levels of government. Major initiatives include the following:

The Danish PWT Foundation – Investments in Public Welfare Technology (ABT-Fonden)¹⁸. Under this initiative, the Danish government funds DKK 3 billion (approximately EUR 400 million) in the period from 2009 to 2015 directed at the development of new and improved public sector welfare solutions with a focus on labour-saving technologies and improved working processes in the public sector.

The Business Innovation Fund (Fornyelsesfonden)¹⁹. The aim of the Business Innovation Fund is to promote growth, employment and export by supporting business opportunities within green growth and welfare as well as providing support for change-over to exploit new business and growth opportunities in less favoured areas of the country. The fund has DKK 760 million (approximately EUR 101.5 million) at its disposal in the period from 2010 to 2012.

¹⁶ European Commission. 2004. Green Paper on Public-Private Partnerships and Community Law on Public Contracts and Concessions. COM(2004) 327 final.

¹⁷ See Vrangbæk, Karsten and Ole Helby Petersen (2010): *Mange kommunale opgaver i udbud – flere på vej*. AKF Nyt, 2010 (3):22–25.

¹⁸ <http://www.abtfonden.dk/>.

¹⁹ <http://www.fornyelsesfonden.dk/>

The Growth Fund (Vækstfonden)²⁰, which is a state investment fund which provides venture capital to entrepreneurial growth companies. Since 1992, the fund has supported more than 4,000 companies with venture capital of DKK 7.7 billion (approximately EUR 1.03 billion).

Moreover, an initiative has been launched by the Ministry of Science and Technology to promote public-private innovation with the aim of providing funding instruments to support research cooperation between public research institutions and private businesses. The funds are administered by a number of bodies, including the Danish Research Council for Independent Research, the Danish Research Council for Strategic Research, and the Danish National Advanced Technology Foundation (Højteknologifonden)²¹. The Danish government in 2010 published a report which evaluated the funding initiatives and concluded that they have been successful in terms of increased public-private collaboration and economic performance of Danish companies that participate in joint research programmes²².

Another example of an institutionalised project financed by government seed money is the “the Good Partnership”, which is a project with participation of both public and private partners. The project is funded by the Danish Enterprise and Construction Authority, and aims at developing new and innovative welfare solutions in collaboration between the public and private sectors. Several seminars and workshops have been held with Danish and international experts, and the Good Partnership has also published an online resource book with best practice examples²³.

As a supplement to the initiatives at state level, the five regions in Denmark host a so-called Growth Forum (Vækstforum) with regional and EU funds aimed at local and regional business development and growth in the regions. In Region Midtjylland, for example, the Regional Council and the Growth Forum in 2008 dedicated DKK 5 million (approximately EUR 671,000) to PPI projects in the region. A number of projects have been supported with seed money from this fund, including two of the Danish case studies in this report; The Intelligent Shirt and the Digital School Project (see Appendix 1). After receiving many applications for funding, the Regional Council and the Growth Forum in Region Midtjylland have in 2010 dedicated further DKK 5 million (EUR 671,000) for PPI projects.

3.1.3 Disclosure of information and best practice examples

The number of published government papers, reports, analyses and guideline material on PPP is huge in Denmark, and more recently some reports have also been published on innovation and PPI. In 2004 the Danish government launched an “Action Plan for Public-Private Partnerships”, with ten

²⁰ <http://www.vf.dk/>

²¹ <http://hoejteknologifonden.dk/>

²² <http://www.fi.dk/publikationer/2010/evaluering-af-virkemidler-offentligt-privat-samarbejde/rapporten-evaluering-af-virkemidler-offentligt-privat-samarbejde>

²³ <http://www.detgodepartnerskab.eu/d/main.viden>, retrieved on 3 November, 2010.

initiatives to support uptake of PPPs in Denmark with a focus on building and infrastructure type PPPs.

The action plan was followed up by a number of reports, guideline papers and a PPP framework contract, which aimed to support local, regional and central government authorities in the development of PPP projects. A key element in the action plan was the launch of seven PPP pilot projects which were to be tested for PPP relevance. Subsequently, some of these projects have been commenced as PPPs (the Danish National Archive and a motorway between Sønderborg and Kliplev), whereas other projects have not been realised.

From 2008 onwards, the Danish government has increasingly focused on growth and innovation of public welfare services through public-private collaboration. The Danish Business Council (Danmarks Erhvervsråd) has published a green paper on user driven innovation, which points out a number of focus areas within the area of user driven innovation and growth in the Danish business sector.

Furthermore, in 2009, the Danish Enterprise and Construction Authority published the first detailed report on PPIs in Denmark. The report presents the PPI model and examines barriers and best practice examples of successful PPI projects with domestic as well as international examples (Sweden, Finland and the UK). Finally, in October 2010 a report on health innovation in the Nordic countries was published by the Danish Enterprise and Construction Authority for the Nordic Council of Ministers.

There has thus been issued a number of documents, guideline material and best practice examples in the Danish context, and the focus has gradually changed from building and infrastructure type PPPs to public-private collaboration for innovation and the development of new welfare technologies.

3.1.4 Summary

The Danish government has published several reports, manuals and white papers on public-private partnership and innovation. However, with a tendency to either treat the topic of PPP *or* innovation, although within recent years a couple of reports which specifically focus on PPI have been published. There is no specific legal framework for PPP and PPI projects in Denmark, but in contrast to its Nordic siblings the Danish government has made a number of legal amendments aimed to support public-private collaboration and public-private partnership.

A number of pilot projects and experimental projects from national side have been launched. Generally, it appears that while legislation, seed money, guidance, etc. are initiated and implemented nationally, whereas concrete PPI projects are mainly regional and local initiatives with the involvement (and the initiative of) regional and local public and private partners. This suggests a policy and regulatory top-down approach complemented by a project-related bottom-up approach to PPI initiatives in Denmark.

3.2 Sweden

In Sweden, PPP and PPI are not familiar terms. In general, public-private cooperation is perceived to signify PPP, whereas the concept “PPI” is not recognised to the same extent. Only a few projects are known more broadly as PPP-projects, namely the New Karolinska Solna Hospital and the Arlanda Stockholm Train²⁴.

There is no administrative unit dedicated to PPI or PPP in the Swedish central administration. The Swedish Ministry of Finance has an infrastructure unit, which is responsible for procurement rules and laws, but the unit is not directly involved in the issue of whether or not PPP should be used and implemented at various levels of government²⁵. Our research and interviews with key respondents in the Swedish central administration indicates that the same is the case for the Ministry of Enterprise, Energy and Communications (Näringsdepartementet)²⁶.

Despite the lack of an overall institutional framework for PPPs and PPIs in Sweden, our findings suggest that there is some activity in relation to PPI. Most of these projects are implemented at the local and regional level of government, where municipalities and regions take independent initiatives with private partners. One reason why PPI is more often used at the local and regional levels, according to the interview persons, is that funds are more accessible from the local and regional authorities than from the central government authorities.

However, the problem with recording these projects is that projects are not labelled PPI in Sweden. This makes the mapping of policy initiatives somewhat challenging, as people outside the established infrastructure PPP field are often not familiar with terms such as PPI.

3.2.1 Laws and binding standards

There are no particular laws related to the use of PPP and PPI in Sweden. PPP is permitted insofar as the partnership does not work adverse to the law on state aid (EC) and the national laws on public procurement. According to the Swedish Agency for Economic and Regional Growth, Swedish public

²⁴ OECD on the Swedish PPP experience: <http://www.oecd.org/dataoecd/18/21/39303611.pdf>
Riksdagen. 2007. *Offentlig-privat samverkan kring infrastruktur – en forskningsöversikt*. Riksdagstryckeriet. Stockholm.

²⁵ Interview Swedish Ministry of Finance – Division for Public Procurement Law, Åsa Edman
Commission established by the Swedish government published a report on innovation procurement in 2010: SOU2010:56. www.regeringen.se

²⁶ Ministry of Enterprise: Alternativ finansiering genom partnerskap – Ett nytt sätt att finansiera investeringar i vägar och järnvägar, Ds 2000:65 Näringsdepartementet <http://www.sweden.gov.se/sb/d/108/a/1870>.

Näringsdepartementet. 2000. Alternativ finansiering genom partnerskap – Ett nytt sätt att finansiera investeringar i vägar och järnvägar. Ds:65

Näringsdepartementet. 2010. Faktablad: En Strategi för ökad tjänsteinnovation. Promemoria 8th July.
Svenskt Näringsliv. 2010. Gör fler affärer med näringslivet. http://www.svensktnaringsliv.se/multimedia/archive/00022/G_r_fler_aff_rer_med_22631a.pdf

procurement legislation (Swedish Public Procurement Act, 28 August 2009) is regulating public purchases made through a PPI project as well.

The Swedish Competition Authority states that there have been problems with different interpretations of the procurement regulation in the municipalities with regard to PPI. This has been confirmed by stakeholders in some of the case studies, which express concern about entering a grey zone when a PPI project is initiated. Nevertheless, the legislation seems to be administered in a fairly lenient way compared to other Nordic countries, where the municipalities are generally more careful to engage in PPI projects out of fear of violations of the procurement regulations (e.g. in Denmark).

3.2.2 Economic regulation and seed money

The financial support to PPI in Sweden mostly takes the form of support to various cluster- initiatives. According to The Swedish Agency for Economic and Regional Growth, the two most noticeable programmes are The Regional Cluster Programme²⁷ and VINNVÄXT²⁸.

The Regional Cluster Programme is the main programme to support PPI. The programme aims to increase the regional competitiveness and growth. In the period 2005–2010 approximately SEK 70 million (app. EUR 8 million) were granted in support of processes to foster clusters with participation of public and private partners. The maximum amount of support is SEK 1.5 million (app. EUR 180,000) and the maximum share of finance is 50 per cent.

According to the Swedish Agency for Economic and Regional Growth, one criterion for receiving support through the programme is that a PPP is established. The programme does not support product development or research, but rather networks, internationalisation, export support and education. The programme supports regional clusters such as the Healthcare Technology Alliance, which supports small and medium-sized enterprises as well as public authorities and organisations.

Other innovation programmes exist in Sweden, but they mainly address scientific research and industry innovation without a particular focus on PPP. These programmes are primarily managed by the Swedish Governmental Agency for Innovation Systems (VINNOVA) and include a number of initiatives, such as Research&Growth (Forska&Väx)²⁹, SMINT³⁰, VINN NU³¹, which are mainly targeting small and medium sized enterprises. The most relevant programme managed by VINNOVA is VINNVÄXT, where the regions can apply for funding for projects. The aim of VINNVÄXT is to promote sustainable growth by developing internationally competitive research and innovation environments in specific growth fields.

²⁷<http://www.tillvaxtverket.se/huvudmeny/programfortillvaxt/regionaltklusterprogram.4.21099e4211fd8a8c87b800016981.html>

²⁸ <http://www.vinnova.se/en/Activities/VINNVAXT/>

²⁹ <http://www.vinnova.se/sv/Verksamhet/ForskaVax/>

³⁰ <http://www.vinnova.se/en/Activities/SMINT/>

³¹ <http://www.vinnova.se/en/Activities/VINN-NU/>

The award of funding is subject to active participation from private and public actors. Regions with the most promising projects are given funding of up to SEK 10 million (app. EUR 0.8 million) for ten years. Hence, some funding options exist for PPI-projects in Sweden, although these funds are not targeting PPI directly but rather indirectly through support to cluster structures.

In terms of funding for infrastructure PPP projects, which to some extent has been issued in for example Denmark and Norway, the interview person in the Swedish National Road and Transport Research Infrastructure (VTI) did not know of funds or seed money to support such projects³². Thus far, our findings suggest that there are no such economic incentives with the purpose of advancing infrastructure PPP projects in Sweden.

3.2.3 Disclosure of information and best practice examples

Systematic collected data on PPI are limited in Sweden and the experience and knowledge at the central level of administration are fragmented. The concept of PPI does not appear to “officially” exist in the Swedish context and when PPI-activities are in fact carried out, they are usually not labelled PPI.

Moreover, the desk research indicates that there is a limited amount of Swedish scholarly publications on PPI. The identified publications almost exclusively concern PPP infrastructure projects. Thus, when analysing PPI in Sweden the definition mostly stirs up links or references to infrastructure projects. Interview persons have suggested that publications on PPP are limited in number because the number of projects is relatively limited as well.

In relation to PPI, it appears that there are many projects implemented throughout Sweden, which are variations of models that could be broadly conceived of PPI projects within the welfare sectors. However, it is difficult to get a full overview due to terminological differences and to the lack of systematic data. For example, there is no general government website where material is collected, and there are no project trackers (lists of projects) or other indicators of PPP and PPI activity.

Some policy papers have been identified. These policy documents treat (infrastructure) PPP at quite a general level. There are also a few initiatives in the area of PPI and examples of publication which describe best practice within the area.

Two important publications include 1) “Strength through cooperation” by the Swedish Chamber of Commerce (Svenskt Näringsliv) and the Swedish Municipal cooperation (Svenska Kommunförbundet), and 2) “Public Private

³² See VTI Publikation. 2007 (no. 588). Statens väg- och transportforskningsinstitut? – En svensk modell för offentlig-privat samverkan vid infrastrukturinvesteringar.

<http://www.vti.se/EPiBrowser/Publikationer/R588.pdf>;

VTI Publikation 2007 (no. 601). Offentlig-privat samverkan kring infrastruktur – en forskningsöversikt. <http://www.vti.se/EPiBrowser/Publikationer/R601.pdf>;

SOU. 2006. Andra vägar att finansiera nya vägar. page 33

Vägverket Publikation. 2004. Väginfrastrukturens framtida finansiering. page 154

Partnership” (Offentligt Privata Partnerskap) by Sweden’s Municipalities and Parliaments (Kommuner och Landsting)³³. These publications are collections of best practice examples and experience of PPP/PPI gathered from different Swedish municipalities.

In relation to both PPI and infrastructure type PPP, interviews and desk research indicate that there is no overview of the projects being implemented, indicators to help future implementation, databases or similar. Our findings suggest that databases are kept for projects in the relevant programmes, but that no national, regional or local indicators have been developed to register PPP and PPI projects in Sweden. Within the Regional Cluster Programme, a database is kept with information on the projects. Likewise, VINNOVA is also keeping a database of the funded projects in their programmes.

Documentation regarding PPP in Sweden is primarily provided by the Ministry of Enterprise, the Competition Authority, the Swedish Rail Administration and the Swedish Road Administration. There has been no mentioning of pilot projects by interview persons or in the documents studied. Some reports and guidelines have been published on the use of and experience with PPP. The number, though, is limited and the publication activity centres primarily around 2006–2008.

Subsequently, the attention to this subject appears to quiet down. This corresponds with statements from a representative from the Ministry of Finance, who indicated that there was some focus on partnerships a few years ago, but that the debate and attention has quieted down again.

3.2.4 Summary

PPP and PPI are not used or recognised widely in the Swedish central and municipal administrations. During interviews and data gathering, public officials were generally not familiar with the terminology and it was generally difficult for them to point to examples of PPP or PPI. Two projects stand out clearly to interviewees when talking about PPP, namely the New Karolinska Solna Hospital and the Arlanda Stockholm Train.

PPI projects are generally implemented on a municipal level with a bottom-up approach. There is seed money available for such projects, but funding is only awarded to few projects, and primarily at the regional level through the Regional Cluster Programme.

An interesting finding is that there is a growing focus in Sweden on innovation, but that initiatives to support innovation are largely operating without an element of public-private partnership. This finding suggests that there is still a potential for policy initiatives that combine a focus on innova-

³³ Svensson, Lena. 2007. Offentligt privata partnerskap – Erfarenheter från samverkan i fyra kommuner. Sveriges Kommuner och Landsting.

Svenskt Näringsliv and Svenska Kommunförbundet. 2003. Kraft genom samverkan. Exempel på projekt mellan kommuner och näringslivet. Report Nr. 2.

tion and public-private partners in a Swedish context. This is further discussed in the concluding section of this chapter (see Section 3.6).

3.3 Norway

In the last couple of years, the Norwegian government has taken some initiatives concerning PPI and PPPs in Norway. PPP projects and especially large-scale PPP construction projects such as schools, hospitals and road infrastructure have been discussed intensely, and a number of papers have been published in Norway concerning PPP. The main focus has been on PPP within infrastructure or building projects (such as roads, rails and schools), and with less focus on PPIs and the “softer” welfare sectors.

More recently, there has been a change of focus, though, because of the challenges Norway is facing in the health and care services. Accordingly, with a growing elderly population and a decreasing number of people in the active working age, there has been an increased interest in utilising PPIs and other innovative solutions in the health and eldercare sectors. For example, several policy papers regarding innovation in the health sector have been published.

3.3.1 Laws and binding standards

There are not developed any specific laws for PPP and PPI projects in Norway. Therefore, different forms of PPP initiatives fall in under already existing legislation. The Agency for Public Management and e-Government (DIFI) is responsible for the strengthening of the knowledge base concerning how public procurements should be carried through generally, but not PPP and PPI procurements in particular.

The procurement of such projects is subject to the law on public procurement³⁴ and the EU’s public procurement directive. In 2003 the Ministry of Trade and Industry ordered a report written by the consultancy firm KPMG concerning PPP, which discusses how PPP projects must conduct in relation to the law of public procurements. The legislation covers the procedure until the contract is signed. The legislation does not cover anything after that.

3.3.2 Economic regulation and seed money

In 2007 the Norwegian government published a plan of action which outlined how innovation could be promoted in the Norwegian health sector.³⁵ A 5-year priority plan by the Ministry of Trade and Industry and the Ministry

³⁴ Lov-2006-06-30-41 Lov om offentlige anskaffelser.

³⁵ The Ministry of Trade and Industry. 2007. Avtale om samarbeid om behovsdrivet innovasjon og næringsutvikling i helsesektoren 2007–2011. http://www.helsedirektoratet.no/vp/multimedia/archive/00072/Samarbeidsavtalen27__72179a.pdf. Retrieved on 1 November 2010.

of Health and Care Services concerning innovation and development of industries in the health sector was launched in the government budget for 2007 as well as in the National plan of action (2007–2010).

The plan of action focuses on information and communication technology and medical equipment. Important collaborators are the regional health trusts, the Research council of Norway (Forskningsrådet), Innovation Norway (Innovasjon Norge) and the Public Health Department. The agreement is made with the intention of increasing innovation and utilising the public resources linked to innovation in the health sector. With this plan of action in mind research institutions have been given increased granting. In 2008 the Research council of Norway granted the health sector NOK 409 million (EUR 53,000,000).

Through the Ministry of Trade and Industry and public research development contracts (so-called OFU contracts – Offentlig Forsknings- og Utviklingskontrakt), Innovasjon Norge funds PPI-projects.³⁶ Innovasjon Norge is a state agency that promotes nationwide industrial development and is responsible for the OFU contracts. An OFU contract is an obligated and purposeful collaboration between the private and the public sectors.

The collaboration is entered by a customer partner (in the public sector) with a specific request, and a supplier in the private sector with qualifications and competences to meet the public partner's needs. Innovasjon Norge partly funds the private partners' expenses within the project, and also consults and gives advice throughout the project. It is estimated that Innovasjon Norge through the OFU contracts has granted the health sector NOK 60 million (EUR 7,764,000). For each OFU contract, Innovasjon Norge normally supports with one third of the project's total capital value.

The 1st of January 2010 the Norwegian Association of Local and Regional Authorities and the Confederation of Norwegian Enterprise (KS and NHO) launched a 5-year programme concerning supplier development.³⁷ The aim of the programme is to improve the government and the municipal service levels and to increase the Norwegian industries' competitiveness. One of the programme's goals is that the project ends in an OFU contract, under which the private partner receives funding from Innovasjon Norge, as mentioned above.

The Norwegian Health trust has established the so-called InnoMed on behalf of the Ministry of Health and Care Services. InnoMed's objective is to contribute to increase effectiveness and quality in the health sector through development of new and innovative solutions. The solutions are developed in close collaboration between the users in the health sector, Norwegian companies, recognised research communities, and environments to support such innovation. InnoMed is financed by the Norwegian health trust and Innovasjon Norge.

³⁶ <http://www.innovasjon Norge.no/Tjenester/Programmer/FOU-kontrakter-OFU/OFU---Offentlige-forsknings--og-utviklingskontrakter/>

³⁷ <http://www.nho.no/offentlig-sektor-og-naeringslivet/sammen-om-leverandoerutvikling-article21612-289.html>

3.3.3 Disclosure of information and best practice examples

The Norwegian Association of Local and Regional Authorities, Confederation of Norwegian Enterprise, the Ministry of Local Government and Regional Development and the Ministry of Trade and Industry in 2004 launched an information and guidebook about PPP.³⁸ The target group is public buyers who need more information about what PPP is and how a PPP project should be implemented. The report focuses on building- and infrastructure type PPP projects³⁹.

In terms of best practice examples, there are some official examples in Norway. As earlier mentioned, in 2001 the Norwegian Parliament agreed to carry out three road extensions as PPP pilot projects. The aim with the pilot projects was to investigate whether Norway could achieve value for money by utilising the PPP model.

The Norwegian Public Roads Administration was responsible for planning and the impact assessment of the project, and is also controlling the quality and performance of the road service. The Norwegian Public Roads Administration also has an own specialist within the field of PPP. The Institute of Transport Economics (TØI) and Dovre International in 2007 carried out a thorough analysis of the three projects.⁴⁰ The evaluation gave mixed conclusions, as it was concluded that technical innovation was achieved to a minor extent, while it was also found that the pilot projects had not given substantial building cost savings.

A number of private companies, including Skanska, Statsbygg, OTL, SINTEF and TERRAMAR, have together established a PPP web portal.⁴¹ The purpose of the website is to spread knowledge and information about PPP both to the public and the private sectors. The website refers to building and infrastructure type PPP-projects, but not PPIs within the welfare sectors. The portal also contains links to tools and guidance that give examples of projects both in Norway and internationally⁴².

In 2008 the Ministry of Trade and Industry launched a policy paper to the Norwegian Parliament, which maps out the government's innovation policy.⁴³ It is the first report ever to the Norwegian Parliament that deals with innovation. The government will in dialogue with the private sector consider how public procurements to a greater extent can promote innovation. Moreover, the already mentioned programme for supplier development (KS and

³⁸ The Norwegian Association of Local and Regional Authorities, Confederation of Norwegian Enterprise, the Ministry of Local Government and Regional Development and the Ministry of Trade and Industry. 2004. Veileder OPS. Preliminary version.

³⁹ Ibid.

⁴⁰ The Institute of Transport Economics (TØI) and Dovre International. 2007. Evaluering av OPS i vegsektoren. <http://www.toi.no/getfile.php/mmarkiv/Bilder/T%D8I%20rapport%20890.pdf>. Retrieved on 1 November 2010.

⁴¹ <http://www.nsp.ntnu.no/ops-portalen/>. Retrieved on 1 November 2010.

⁴² Ibid.

⁴³ The Ministry of Trade and Industry. 2008. St.meld.nr.7. Et nyskapende og bærekraftig Norge. <http://www.regjeringen.no/pages/2133768/PDFS/STM200820090007000DDDPDFS.pdf>. Retrieved on 1 November 2010.

NHO) has launched several pilot projects. None of the projects are completed yet (the programme started in 2010).

3.3.4 Summary

Generally, information about PPP and PPI is limited in the Norwegian context. PPI have mainly been initiated by the national government through the Ministry of Trade and Industry which finances several research institutions and Innovasjon Norge. The Ministry of Trade and Industry gives a fixed amount to these institutions, which finances several projects locally and regionally. Generally, the Ministry of Trade and Industry is also the most active government body in terms of disclosing information.

More recently, the Norwegian government has activated some initiatives and has put more focus on innovation for welfare services. The focus is mainly on the health and eldercare sectors, where funding is issued to different research institutions, which contribute to PPI projects and other innovation projects. The Ministry of Trade and Industry's policy paper on the government's innovation policy, which in 2008 was delivered to the Norwegian Parliament, is the first document addressed to the Norwegian Parliament that deals with innovation.

3.4 Finland⁴⁴

Finland has a relatively long tradition for PPI at local and regional levels, although in many cases this term has not been used explicitly. The current government has emphasised partnerships as part of its innovation policies, and there are several examples of strategy papers and planned initiatives aimed at facilitating partnerships. The Finnish government has also allocated economic resources to national funds aimed at supporting innovation projects. The funds to some extent favour projects with public-private collaboration.

There is no specific PPP or PPI unit at the national level, and no explicit legislation to facilitate PPP or PPI collaboration. General competition and procurement rules remain the most important regulatory framework within this field. Finland has implemented a handful of traditional PPP projects particularly within road construction and the education sector.

⁴⁴ The overview is based on desk research and responses from Professor Juhani Lehto (University of Tampere) and Professor Jari Vuori (University of East Finland). Mikko Martikainen from the Ministry of Employment and the Economy in Finland has reviewed the results and provided additional input. It has been a significant challenge to collect and verify information from Finland as many sources are only available in Finnish. Literature searches have not revealed articles in English language on PPP or PPI in Finland.

3.4.1 Laws and binding standards

There is no specific legislation to facilitate such collaboration. General competition and procurement rules remain the most important regulatory framework within which PPP and PPI projects are being developed.

3.4.2 Economic regulation and seed money

The Finnish government has used economic incentives in terms of seed money and government funded pools for innovation and technology development in general. There is no specific funding for PPP or PPI, but several of the general funding programmes include partnership building as a criterion for awarding funds. The government program for the current Finnish government illustrates the general strategy as it conveys a commitment to support research and development within the public and private sectors, and at the regional level. Key instruments for promoting these general objectives include implementation and funding of strategic centres for science, technology and innovation. The centres of expertise program based on cluster networks especially aims to strengthen the innovation base in the regions and promote cooperation between business and the education and research communities.⁴⁵

Two national public funds are important for facilitating innovation and partnership projects:

- The Finnish Innovation Fund (Sitra) was established as early as 1967. It is an independent public fund which under the supervision of the Finnish Parliament promotes the welfare of Finnish society. Sitra funds a range of activities related to research, innovative experiments, business development and investing in internationalisation. Several projects include partnership arrangements⁴⁶;
- The Finnish Technology Development Fund (Tekes) is another example of government funding for research, development and innovation activities in Finland. Teke facilitates collaboration among a number of different institutional actors, for example small and large businesses, industry and academia, and public and private sector and non-governmental organisations⁴⁷.

Both Sitra and Tekes promote innovation through partnerships. With regard to most of their programmes, a funded project should have private enterprise partners in order to receive funding. This is the case even in sectors such as health care, where the public sector is dominant and where many innovation activities currently take place within public networks. The issuance of seed

⁴⁵ The Finnish Government Programme 2007: <http://www.vn.fi/tietoarkisto/aiemmat-hallitukset/vanhanenII/hallitusohjelma/en.jsp>

⁴⁶ <http://www.sitra.fi/en/>

⁴⁷ <http://www.tekes.fi/en/community/Home/351/Home/473>, retrieved on 4 November 2010.

money for PPPs and PPIs in Finland has a strong emphasis on the private partners' role in innovating activities.

A major instrument for Tekes is the establishment of Strategic Centres for Science Technology and Innovation (SHOKs)⁴⁸. These centres are multidisciplinary strategic clusters that involve different sectors of industry and society. Each centre consists of the coordinating function, a non-profit limited company, jointly owned by the shareholders, and a virtual research organisation. The company's shareholders include relevant companies, universities and research institutions. In this sense, PPP is an integrated part of the SHOK setup.

The centres provide a permanent cooperation and interaction forum for companies and research organisations. Within each Strategic Centre, some EUR 40–60 million annually are invested in research.

The operating centres include:

- Energy and the environment: CLEEN Ltd
- Forest cluster: Forestcluster Ltd
- Information and communication industry and Services: TIVIT Ltd
- Metal products and mechanical Engineering: FIMECC Ltd
- Built environment innovations: RYM Ltd
- Health and well-being: SalWe Ltd

Technology, service providers and end-users cooperate within these research programmes, which promote demand and user orientation of innovation processes. The centres also act as gateways to international cooperation and as venues for training and recruitment. The centres facilitate long term strategic research and contribute to speeding up the innovation process. In addition to the centres' shareholders, public funding organisations have made a commitment to provide long term funding for the innovation activities.

3.4.3 Disclosure of information and best practice examples

There are no government reports or papers with PPP/PPI as the sole topic in Finland. Yet, PPP/PPI is mentioned in many papers as an important organisational alternative to either pure public or private activities. The government programme of the present Vanhanen/Kiviniemi government mentions PPP specifically with regards to three areas:⁴⁹

- Local social, health and education services: The government promotes partnerships between the public, private and third sector in the provision of services among other types of market oriented initiatives.

⁴⁸[http://www.tekes.fi/en/community/Strategic_Centres_for_Science__Technology_and_Innovation_\(SHOK\)/360/Strategic_Centres_for_Science__Technology_and_Innovation_\(SHOK\)/1296](http://www.tekes.fi/en/community/Strategic_Centres_for_Science__Technology_and_Innovation_(SHOK)/360/Strategic_Centres_for_Science__Technology_and_Innovation_(SHOK)/1296)

⁴⁹ The Finnish Government Program 2007: <http://www.vn.fi/tietoarkisto/aiemmat-hallitukset/vanhanenII/hallitusohjelma/en.jsp>, retrieved on 1 November 2010.

- Road building: The government supports the use of a PPP financing scheme for parts of the Helsinki-Vaalimaa motorway E18, which is to be completed by 2015.
- Innovation policy: The government supports and funds strategic centres for science, technology and innovation (SHOKs). It is an explicit aim to strengthen the innovation base in the regions and promote cooperation between business and the education and research communities.⁵⁰

The innovation policy focus is further elaborated in the “Innovation policy strategy” by the Ministry of Employment and Economy. This document contains sections on regulatory development and operating models for user driven innovation (including PPP)⁵¹. It also contains a section on plans for “City development”, which also emphasizes partnership projects as an important tool.

A number of other government documents, particularly from the Ministry of Employment and Economy mention PPP as a strategic issue⁵². However, there are no official guidelines, recommendations or information material for private and public actors on the use of PPP and PPI, which go into more detail than the general policy documents.

In terms of best practice examples and pilot projects, some road constructions and education sector projects are often promoted as particularly useful examples of PPP in Finland. In health services, the special orthopaedic hospital Coxa (Tampere), owned by a PPP company is also given as an example of a building and infrastructure type PPP. There is no systematic collection and publication of case examples or experience within the public sector, but the construction industry has launched its own initiatives aimed at collecting and promoting best practice cases.

3.4.4 Summary

Several elements are particularly noteworthy about the Finnish case. First, the explicit government commitment to innovation policies where partnerships constitute a key part of the organisational strategy is notable. The overall government strategy is elaborated in several strategy papers and initiatives at the ministerial level. The Ministry of Employment and Economy is particularly important as a strategic actor, and is the main government body for funding programs for innovation, although there is no dedicated PPP/PPI unit within the Ministry or in Finland in general.

⁵⁰ The Finnish Government Program 2007: <http://www.vn.fi/tietoarkisto/aiemmat-hallitukset/vanhanenII/hallitusohjelma/en.jsp>, retrieved on 1 November 2010.

⁵¹ http://www.tem.fi/files/27544/TEM_48_2010_netti.pdf – Part 2 of the report contains an action plan with planned policy initiatives for 2010 to 2013 concerning user driven innovation and PPI (page 55 to 99).

⁵² E.g.: <http://www.tem.fi/index.phtml?C=98139&l=en&s=2683&xmid=4282> (a general strategy)

A second interesting point is the extensive and early use of government seed money for developing innovation infrastructure through the Sitra and Tekes Funds. Both programmes promote innovation through public-private collaboration, and both serve as facilitators for specific partnership projects. The Strategic Centres for Science Technology and Innovation (SHOKs), which are established by Tekes, are also key examples of innovative examples of attempts to create an organisational infrastructure to facilitate collaborative innovation projects.

A third relevant point is that several municipal authorities in Finland appear to be active in entering into public-private collaborations aimed at organisational innovation. This reflects the key position of local municipalities in Finland, and a tradition for seeking innovative solutions across institutional boundaries in collaboration with other municipalities or with private actors. This has partly been fuelled by the limited size of many Finnish municipalities.

3.5 Iceland

The search for PPP and PPI related initiatives at corporate and governmental level indicates that few initiatives have been started up and that hardly any projects within the welfare sectors have so far been implemented in Iceland. It is important to stress the premises of the findings, though, because access to information about such initiatives has been limited due to language barriers and limited response from Icelandic government officials during the course of research for this project.

The discussion and findings regarding the Icelandic country case are therefore mainly based on reports and research papers that describe the PPI situation in Iceland from a more general innovation and business environment perspective in which PPI plays a smaller role. Despite these limitations some public-private collaboration initiatives have been identified.

An OECD report from 2006 on policy mix for innovation in Iceland concludes that the Icelandic policy mix for innovation has recently undergone changes. New policy instruments have been launched with increased focus on public funding of business R&D, establishing the financial and legal framework for public-private collaboration on venture capital funding, and advisory services directed at start-up and entrepreneurial firms⁵³.

3.5.1 Laws and binding standards

There have been a few changes in laws and binding standards to promote public-private collaboration on Iceland. It is a central finding, though, that these amendments do not directly encourage PPP/PPI initiatives, but support

⁵³ OECD. 2006. Policy Mix for Innovation in Iceland. Organisation for Economic Cooperation and Development.

partnerships in a more indirectly manner. These initiatives are often sector specific and/or directed at specific projects. One example is the DeCode Genetics project⁵⁴. In 1998 the Icelandic Parliament passed a specific law (the Act on a Health Sector Database⁵⁵), which gave a private company the rights to construct a centralised database of national medical records and link to genetic and genealogical databases for commercial purposes⁵⁶.

Furthermore, in relation to strengthening the general innovation environment in Iceland (not PPI specifically), a new legislation on the organisation of science and technology policy and the funding of research and technological development on Iceland was enacted by the parliament in 2003. The legislation is composed of three separate laws:

- Law on the Science and Technology Policy Council under the Office of the Prime Minister.
- Law on Public Support to Scientific Research under the Ministry of Education, Science and Culture.
- Law on Public Support to Technology Development and Innovation in the Economy under the Ministries of Industry and Commerce.

One of the main results of the change in legislation was the establishment of the new Science and Technology Policy Council (STPC). The overall goal of the STPC was to strengthen research, scientific training and technology development and thus support the economic competitiveness of Icelandic businesses including innovation related measures.

3.5.2 Economic regulation and seed money

The use of economic regulations and seed money to encourage PPI has played a smaller role in Iceland. The number of examples of the use of economic regulation is thus low. One example, though, is the public initiative by the Centres of Excellence Program⁵⁷, which was launched in 2008 and the first projects selected in 2009. The program is a research program, which uses public-private cooperation in the applications as a compulsory criterion for the award of funding. Funding through the program can be provided up to seven years and with a maximum of ISK 80 million per year (EUR 527,000). The program is funded by The Iceland Centre for Research (RANNIS).⁵⁸

⁵⁴ Gammeltoft, S. 1999. Decode Genetics – En Islands saga. BioZoom, No. 2. Biokemisk Forening.

⁵⁵ Icelandic Parliament. 1998. Act on a Health Sector Database no. 139/1998 (Passed by Parliament at 123rd session, 1998–99). Article 1. <http://ministryofhealth.is/laws-and-regulations/nr/659#allt>

⁵⁶ Winickoff, DE. 2006. Genome and Nation – Iceland's Health Sector Database and its Legacy. Innovations pp.80-105.

⁵⁷ <http://cordis.europa.eu/erawatch/index.cfm?fuseaction=prog.document&uuiid=6D58A702-D6C8-9917-B246BB86C81C21DC>, Retrieved 1 November 2010.

⁵⁸ <http://www.rannis.is/english/home/>
Retrieved 17 December 2010.

Seed money has also been used to promote public-private partnership/innovation projects. The *Seed Forum*⁵⁹ is a more recent initiative that aims to help small, unlisted technology-based firms – often spinouts from R&D projects in universities, research institutions or other forms – to achieve growth objectives (*e.g.* exceed EUR 10 million in turnover) and become listed on the stock market. The objective of the Seed Forum initiative is thus to facilitate matchmaking opportunities between small Icelandic companies and global companies and investors. The 1st Seed Forum Reykjavik was held in spring 2005, and since then more than 60 Icelandic companies have so far participated in various Seed Forums.

3.5.3 Disclosure of information and best practice examples

As mentioned above, information related to PPI is limited in Iceland. As a result of this, it has not been possible to track down any policy documents, guideline materials or similar which deal specifically with PPP and PPI initiatives in Iceland. Some information on the general policy environment for innovation can be extracted from publications by the OECD and the European Commission⁶⁰.

One of the key challenges that are pointed at is maintaining and improving the functioning of the investment market. Moreover, it is pointed out that innovation has to become a priority in the coming years with increased support to R&D, supportive framework conditions, and stimulation of public-private collaboration.

A survey from Statistic Iceland in 2004 found that only 0.5 percent of respondents in the manufacturing sector and 4.8 percent of the respondents in the service sector perceive Universities or other higher education institutes as the most important source. In the case the government or private non-profit research institutes being the most important source of information, the number are 6.9 per cent and 3.2 per cent, respectively.⁶¹

In terms of best practice examples, a number of building and infrastructure type PPPs have been implemented in Iceland, including for example the Lækjarskóli primary school, a road tunnel at Hvalfjörður, Reykjavík Arena, and Reykjavik concert and conference hall. However, while PPP activity has been proliferating within the building and infrastructure areas, it has not been possible to track down any best practice examples of successful PPI projects in Iceland.

One promising project with participation of public and private partners was the Educational Gateway Project, a collaborative project between the Ministry of Education, Science and Culture and the private company Hugur

⁵⁹ <http://www.seedforum.is/>

Retrieved 17 December 2010.

⁶⁰ European Commission, Enterprise Directorate General. 2009. INNO-Policy TrendChart – Innovation Policy Progress Report, Iceland. European Commission.

⁶¹ Statistics Iceland 2004. (CIS-3). Quoted from OECD. 2006. Policy Mix for Innovation in Iceland. Organisation for Economic Cooperation and Development in Table 2.

Ltd. Hugur's role in the project was to construct and operate the Educational Gateway. The aim of the project was to give schools ready access to information and services accessible on the Internet, and also to give a more detailed level of information related to schooling, course offerings at all school levels, foreign collaboration, contents from teachers' professional associations, etc.

To facilitate the success of the gateway, schools and teachers were invited to collaborate with the Educational Gateway on innovations in schooling. The private partner Hugur's role in the project was to construct and operate the Educational Gateway. Unfortunately, the project did not survive the finance crisis, but representatives within the Icelandic government express that a re-launch of the project is planned.

3.5.4 Summary

As the mapping of PPI orientated initiatives suggests, there is not the same level of activity in Iceland in relation to establishing the administrative and economic incentives to promote and support PPI as in some of the other Nordic countries. As put forward in the report from the Nordic Council on Health Innovation in the Nordic countries⁶², the health sector might be an exception. It is important to stress the premises of this conclusion. As mentioned, it has been very difficult both to identify public-private innovation projects outside the health sector and to find information regarding legal, administrative and general disclosure information on the subject.

3.6 Cross-national findings and perspectives

The examination of the policy and regulation initiatives of the five Nordic governments has revealed a number of similarities, but also interesting national differences in the regulation frameworks for PPPs and PPIs.

3.6.1 General absence of a legal framework for PPI in the Nordic region

An important similarity across the five countries is the absence of a dedicated legal framework for PPP and PPI projects. Denmark stands out as an exception in this respect with two legal amendments to support public-private collaboration. The first was a PPP testing requirement for all state level building projects above a minimum threshold limit of DKK 100 million (EUR 13,424,000), and the second was a law on institutional public-private partnerships with joint public-private ownership control. However, neither Denmark nor any of the other Nordic governments have issued legislation aimed specifically at PPIs, which means that PPP/PPI projects are

⁶² Nordic Council of Ministers. 2010, Health Innovation in the Nordic Countries – Public Private Collaboration. The Nordic Council.

implemented within the existing national and EU legal framework, such as the EU's procurement procedures, supplementary national procurement guidelines, and other relevant national and sector legislation.

3.6.2 Increased use of seed money and financial support

All five countries have witnessed the launch of financial support and seed money to support various initiatives and projects with a focus on innovation and public-private collaboration, but there are also important differences in the specific approaches of national governments as well as the distribution of initiatives at national, regional and local levels of government.

In Finland, the government has issued seed money for PPPs and PPIs within the existing government funds for innovation and technology development. In Norway and Sweden, new funding initiatives have been launched in recent years to support innovative projects with participation of public and private partners.

The Danish government is the one of the five which has dedicated the largest pool of money to innovative projects in the welfare sectors, but these funds cover a broad range of projects and activities and PPI projects only receives a minor share of the total resources in the various funds. In Iceland, seed money and economic support to PPI projects have played a minor role, but there have been some initiatives to financially support public-private collaboration, mostly within research and development activities.

3.6.3 Information and best practice examples

PPPs and PPIs are to a varying degree supported by an information and best practice infrastructure in the five countries. In Sweden, some policy papers have been identified, but there is generally limited information available on the subject matter, and there is no official list of documents or activities in the area. In Denmark, in contrast, a large number of reports, guidance material, analyses, etc. dealing with various aspects of PPPs have been published in recent years. There has been a change in focus, though, with a gradual shift in focus from building and infrastructure PPPs to user driven innovation, the development of new welfare technologies, and PPIs.

The Norwegian government has also published various material and information, but to a smaller extent than the Danish. A policy paper from 2008 launched a Norwegian innovation policy, so also in Norway a move from infrastructure PPP to PPI within the welfare sectors can be identified. The Finnish government is generally very committed to innovation policies with partnership elements, but the research has not revealed any dedicated policy papers of reports with PPP/PPI as the solitary purpose.

It has not been possible to track down any policy document or information material published by the Icelandic government on PPI. This supports the general finding that the Icelandic government has generally taken few

initiatives directed at the development of PPI, although it is relevant to mention that Iceland is the Nordic country with most infrastructure PPP projects when size is taken into consideration.

3.6.4 Summary

International research has repeatedly concluded that working successfully together in PPPs requires a well-developed institutional infrastructure. However, a key cross-national finding is the general absence of a coherent and well-defined institutional framework to support and guide the implementation of PPP/PPI projects in the five Nordic countries. For example, none of the Nordic governments have a dedicated PPP or PPI unit where general competences and knowledge are collected, and where public and private partners can receive guidance and advice⁶³.

Furthermore, various public funds and seed money are administered within several policy initiatives, and in Denmark, Sweden, Norway and Finland also across various state, regional and local government authorities. This increases transaction costs and makes applications for seed money time-consuming and complex for public and private partners alike.

Thus, while a number of policy and regulation initiatives have been taken in the Nordic countries to support PPP/PPIs, there is clearly room for further initiatives which could improve the regulation framework for such projects in all five countries. Possible initiatives towards this end are discussed in Chapter 2.

⁶³ As previously mentioned, the Danish government did in fact have a PPP-unit for around five years, but 1 January 2010 chose to close down the funding for the unit.

4 Effects of public-private innovation partnerships (PPI)

This chapter presents the findings from the PPI case analyses conducted as part of this study. The main objective is to show the potential of PPI, in particular the potential effects and benefits of PPI for the public and private sector partners involved in such projects.

The chapter is organised in the following way: First, the PPI cases analysed are presented (the case analyses are available in full length in Appendix 1). Second, the identified effects of PPI are presented⁶⁴. The section includes the identified effects for the public as well as the private partners involved in PPI. Third, the most important barriers for PPI are described. Fourth, important drivers for successful PPI are presented. Subsequently, an account of the overall potential of PPI according to the interviewed stakeholders is given. Finally, the chapter summarises the key points.

4.1 Presentation of cases

As mentioned in chapter 1, eleven case analyses have been carried out as part of this study. The cases are geographically dispersed across the Nordic region; including cases from Denmark, Norway, Sweden, and Finland (see Figure 4.1).

⁶⁴ In this study, the term “effects” refers to the results, output and outcome of PPI projects.

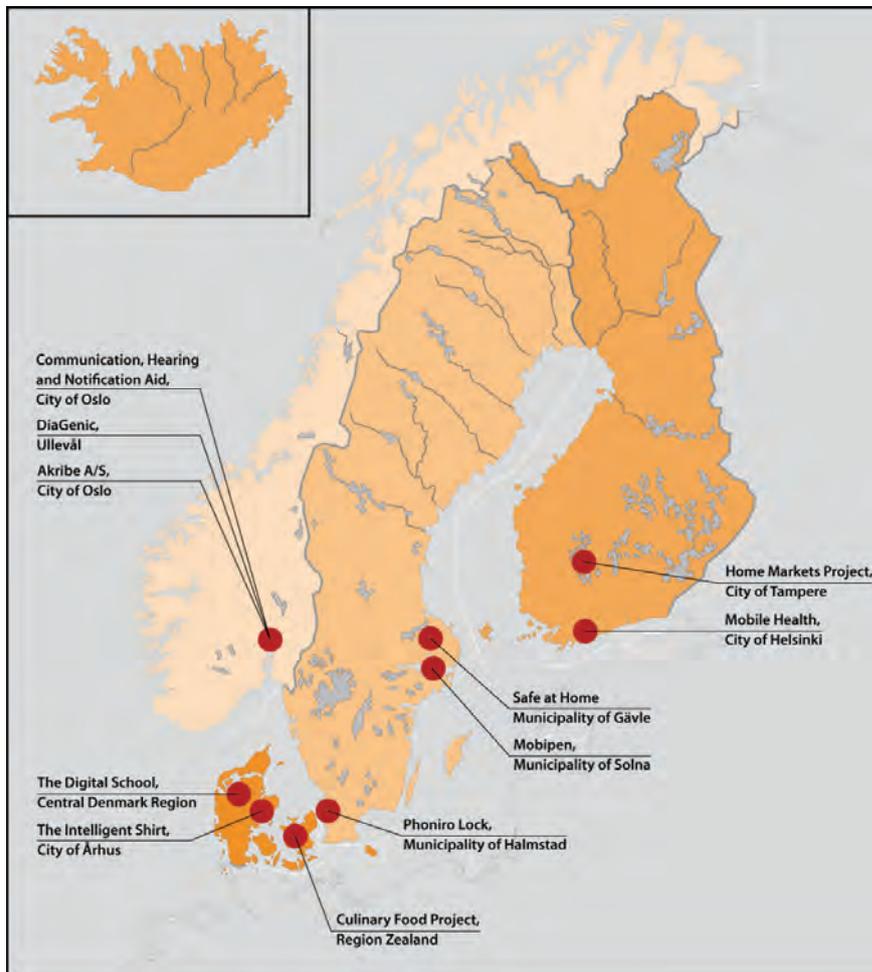


Figure 4.1. Geographic location of analysed PPI cases

In Table 4.1 below, a short description is given of each of the analysed cases (full length descriptions are available in the case collection in Appendix 1).

Table 4.1 Presentation of PPI cases**Phoniro Lock (Sweden)**

The project concerns the development of a new digital key system for the homecare service providers in Halmstad. The solution has led to a significant reduction in transport time for the healthcare workers.

Mobipen (Sweden)

Mobipen is a digital pen carried by homecare staff. It creates reliable data on homecare routines, allowing the service provider in the Municipality of Solna to alter the services according to the needs of the citizens.

Safe at Home (Tryggt Kvarboende) (Sweden)

The project concerns the development of different technologies integrated in the homes of senior citizens. The technologies include TV and computer solutions enabling the citizen to interact and get information about the homecare service, including the selection of food, etc.

Akribe A/S (Norway)

The project concerns the development and test of a database with practical procedures for nurses. The database documents and ensures the quality of nursing procedures and contains all basic procedures as well as extensive research-based theory.

DiaGenic (Norway)

DiaGenic's patented method is based on identifying disease-specific gene expression signatures from easily available sample material such as blood. Through funding from Innovasjon Norge and collaboration with Ullevål University Hospital, DiaGenic has managed to develop a diagnostic test for breast cancer.

Communication, hearing and notification aid (Norway)

The Norwegian Labour and Welfare Administration is planning to conduct a new procurement of communication, hearing and alerting aids. The project is a pilot for a programme that NHO (the Confederation of Norwegian Enterprises) and KS (the Norwegian Association of Local and Regional Authorities) have started up. This 5-year programme is a public-private innovation partnership concerning supplier development.

The Digital School (Denmark)

The aim of the project is to utilise private sector expertise to develop new digital solutions to relieve primary and secondary school teachers of administrative and communicative burdens, providing sufficient time for their core task of teaching.

The Intelligent Shirt (Denmark)

The Intelligent Shirt project concerns the development of a smart electronic textile with the purpose of preventing physical wearing-down of workers in the homecare sector. The aim of the project is to reduce the amount of sick days and work-related injuries among eldercare workers.

The Culinary Food Project (Denmark)

The aim of the project is to develop new prototypes for improved hospital food products, helping patients recover faster from operations and diseases, while increasing patient satisfaction with the hospital food.

Mobile Health (Finland)

The mobile health project has developed and tested a service which captures personal information on exercise habits via mobile phones, and provides feedback on progress and achievements, also via the phone. It serves as a personal trainer and a motivational factor for exercising.

The Home Markets Project (Finland)

The project has developed an internet-based service model which can combine services provided by the municipality and private technology providers. The core of the project is the development of an electronic platform, where private and public partners can interact.

The cases analysed vary on a number of parameters. There is geographical variation, variation in the welfare sector represented, variation in size, variation in type of cooperation and variation in the maturity of the project, i.e. which project phase a project is in at the present point in time (please see Table 4.2 for an overview of the variations in the cases analysed).

Table 4.2 Cases according to selected case parameters

Project title	Welfare sector	Type of innovation	Total project size (EUR)	Project phase
Phoniro Lock	Elderly and disabled	Product innovation	100,000	Completed/commercialisation
Mobipen	Elderly and disabled	Product innovation	300,000	Completed/commercialisation
Safe at Home	Elderly and disabled	Product innovation	150,000	Completed/commercialisation
Akribe A/S	Education	Process innovation	1,000,000	Completed/commercialisation
DiaGenic	Prevention	Product innovation	6,000,000	Completed/commercialisation
Communication, hearing and notification aid	Treatment and rehabilitation	Process (systemic) innovation	-	Ongoing/pre-specification stage
The Digital School	Education/children and young people	Product innovation	170,000	Ongoing
The Intelligent Shirt	Prevention	Product innovation	300,000	Ongoing
The Culinary Food project	Prevention	Product and process innovation	604,000	Completed
Mobile Health (Healthy Borough Helsinki)	Prevention	Product and process innovation	-	Completed, commercial options are now considered
Home Markets Project	Elderly and disabled	Process innovation	-	Completed and integrated as an ongoing public service

The cases analysed have one important thing in common. They are all examples of successful public-private innovation partnerships that concern the development of innovative products *or* projects or processes with the overall potential to improve the welfare services provided by the welfare state.

4.2 Effects/results of PPI

The analysis of Nordic PPI cases shows that a variety of positive effects of PPI can be identified. The table below summarises the most important effects identified for the public and private partners.

Note that the PPI cases analysed are at different project stages (pre-specification, development, implementation, etc.), and therefore the type of effects for each case varies. For example, in cases where the project is still in the development phase, effects such as increased turnover or exports of new products are not available.

Table 4.3 Overview of the most important PPI effects

PPI project results/effects	
For the public sector	For the private sector
Time savings	Increased turnover
Improved service quality/work procedures/user satisfaction	Increased earnings/revenue
Efficiency improvements/cost savings	Increased number of employees
Positive attention/branding	New products/new prototypes (innovation)
Better control/management of service provision	New customers/access to new markets
Improvements of safety	Export potential
Further partnerships	Further partnerships and spin-offs

4.2.1 Key effects of PPI on the private partner

Increased turn-over

For the private partner, the study shows that PPI can lead to increased turn-over and increased earnings. The study includes examples of companies that have had a significant increase in turnover due to their participation in a PPI project. One example is the *Phoniro Lock* case (see Box 4.1). The private partner's turnover increased from EUR 100,000 to EUR 3 million over a 2–3-year period. Approximately 50 per cent of the turnover came from the sale of the product Phoniro Lock.

Box 4.1 Phoniro Lock (Sweden)

The Phoniro Lock project is a public-private innovation partnership between the municipality of Halmstad in Sweden and the company Phoniro. The project concerns the development of a new digital key system for homecare service providers.

Thanks to this new solution, it is estimated that the time saved per healthcare worker in the municipality is approximately 30 minutes a day. Furthermore, the solution has led to a significant reduction in the transport time of healthcare workers, since they do not need to go back and forth to pick up keys at the central.

The project has also had important positive effects on the private company Phoniro AB. The number of employees has increased from 3 to 20 in the period 2005–2010. Furthermore, the company's turnover has increased from EUR 100,000 to EUR 3 million in the period 2007–2009. The company is now expanding its business in this sector, and new PPIs have been initiated with promising business results for the future.



Another example is the *Mobipen* case. Here, the private partner has increased its turnover by 500 per cent within the past six years – from SEK 4 million to SEK 20 million (EUR 448,000 to 2,241,000).

Employment rate

A PPI project can also have a positive impact on a company's employment rate. Again, some positive examples can be highlighted. The private company in the *Safe at Home* case expanded from two to seven employees over a three-year period. The employment rate in the private company increased by almost the same factor as the turnover (500 per cent), and continues to increase. Similarly, the private company in the *Phoniro Lock* case has increased its number of employees from 3 to 20.

New products

Evidently, many of the PPI projects investigated have brought about new products and new prototypes that can be used in the provision of welfare services. The *Culinary Food Project* led to new prototypes of hospital food, which have been tested and are now in production and being sold (see Box 4.2 below).

Phoniro Lock has brought about a new, digital, software-based lock solution, which is also in production and being sold on the market. This is also the case for the *Mobipen* product, which is a new digital documentation solution in the eldercare sector. *DiaGenic* developed a diagnostic test for breast cancer, and the experience from this process has been used for introducing new products on the market. The *Intelligent Shirt Project* has brought about a prototype of a new digital shirt that can measure physical strains on the body of the homecare staff. There are many such examples of product innovation.

Process innovation

The case collection also contains examples of how PPI can lead to process innovation. The *Akribe* case is such an example. The Akribe project resulted in a digital database which improved and made more efficient the work procedures in Norwegian health institutions (e.g. by reducing unnecessary replication of work). The *Home Markets Project* similarly resulted in process innovation in the form of the development of a service integrator that coordinates care packages for the elderly by combining municipal and private service delivery. The service integrator is a new way of organising services supporting the home living of the elderly.

Box 4.2 The Culinary Food Project (Denmark)

The Culinary Food Project concerns the development of new food products for patients in the hospital sector. The project is a public-private innovation partnership (PPI) between Region Sjælland (Region Zealand), VIFFOS (National Competence Centre for Food and Health)



and a number of private partners. The consultancy company Gemba facilitated and managed the innovation process throughout the project, and the Danish Technical University (DTU) contributed with knowledge and analysis.

The aim of the project was to develop new prototypes for improved hospital food products. For example, by developing new products and methods of cooking fish, vegetables or meat, hospital food would contain more nutrition, proteins and vitamins. The aim was to help patients recover faster from operations and diseases, while increasing patient satisfaction with the hospital food.

For the private partners, the project constituted a key venue for gaining access to new information about user requirements and needs, which could subsequently be turned into new products. The project was successful for the public sector partners in terms of developing new food products and increasing patient satisfaction in the hospitals in the region.

New markets

By entering into PPI projects, private companies can gain access to new customers on new markets. An example of this is the *Mobipen* case. The private company in the project had not worked with the homecare sector before, but the CEO of the company was convinced to change its previous product to meet the needs in the homecare sector. Now, the company has started to develop products for related service areas within the health sector through a traditional business model. This includes products for hospices and other solutions for centres and homes. The company also sells the *Mobipen* product to numerous other municipalities.

Safe at Home is another example of a PPI that has opened new markets. Based on the achievements and experiences from this project, the private company won a contract with Sweden's third largest municipality, Uppsala. In the *Akribe* case, the product (i.e. the digital database) is now used by approximately 200 municipalities in Norway, 14 health trusts and all Norwegian nursing colleges.

New business

In some instances, companies do not exist prior to a PPI. Hence, a PPI can also act as a catalyst for the establishment of new businesses. An example of this is the *Phoniro Lock* case. The company Phoniro was founded in 2005 by a group of entrepreneurs affiliated with the Technocenter at Halmstad University. The company was founded with the aim to develop a digital lock system as a solution to a specific problem faced by many municipalities.

Export possibilities

From national markets, successful PPI projects can lead to new and promising export possibilities. For instance, Phoniro has developed into a mature enterprise, which markets its product in Sweden as well as on other national markets. The Mobipen is installed in 50 municipalities in Sweden, two municipalities in Norway, and is also being implemented in New York City. DiaGenic's diagnostic test for breast cancer is similarly being sold to hospitals around Europe, and the plan is to also get the test approved by the health authorities in the U.S. to access that market.

Partnerships

Another notable effect for private as well as public sector PPI partners is that participation in a PPI can lead to further partnerships. Further partnerships are for example expected to follow from the *Safe at Home* case. The project has attracted great interest from new markets both regionally, nationally and internationally, and stakeholders assess that further partnerships are likely to be developed from this partnership. Phoniro also expects to engage in further PPI projects in the future.

In the *Mobile Health* case, the Healthy Borough Programme has established a platform for collaboration and has initiated several promising sub-projects (see short description of the *Mobile Health Project* in Box 4.3 below). In this particular case, the ongoing forum for dialogue and project generation between private firms, voluntary associations and different public agencies is considered a major benefit in itself.

Box 4.3 Mobile Health, Healthy Borough Programme (Finland)

The Mobile Health Project is a sub-project of the Healthy Borough Programme in Finland. The Healthy Borough Programme is a public-private collaboration project involving the City of Helsinki and the facilitation unit Forum Virium. The Healthy Borough Programme is initially scheduled to run from 2008 to 2011 and has developed a series of public-private innovation sub-projects, including the Mobile Health Programme.

The Mobile Health Project has developed and tested a service which captures personal information on exercise habits via mobile phones, and provides feedback on progress and achievements, also via the phone. It serves as a personal trainer and a motivational factor for exercising.

The Mobile Health Project has been evaluated by researchers at MIT. The evaluators concluded that the project has created a service which adds value to its users, has a commercial potential and contributes to better population health. For the public partners, the Healthy Borough Programme has a significant potential in achieving the goals of better prevention and health promotion in the area.



In addition to leading to new partnerships, collaboration in existing PPI projects can be expanded over time. In the DiaGenic case, for example, it is expected that the established cooperation with the involved hospital will continue in the years to come, even though the project has formally ended. The communication and information sharing between the public and private partners is still active, and it is expected that the partnership will continue to bear fruit in the future.

In summary, a key issue for the private sector is the access to valuable knowledge about the needs and demands of the users of welfare services. Public organisations engaged in the provision of welfare services have valuable first-hand knowledge about the type of services and products which are expedient for the citizens. Private companies can gain access to capitalise on such professional knowledge by entering into PPI agreements – and ultimately create new businesses and export possibilities as a result. This access to specialised know-how about welfare services has been reported by all the entrepreneurs in the studied cases to be crucial for their product and business development.

4.2.2 Key effects of PPI on the public partner

Considerable time savings

As indicated in Table 4.3 above, PPI also has potential beneficial effects on the public sector. A successful PPI can lead to new products and processes that result in considerable time savings in the public sector (which ultimately also implies economic savings). For example, a case representative from the *Digital School Project* estimates that this particular project has a potential of releasing about 2,610 full-time positions in the primary and secondary school sector in Denmark.

Another case in point is *Phoniro Lock*. The Phoniro Lock solution is estimated to have increased the efficient work time of the homecare staff by 5–8 per cent. Before, every homecare staff member spent 30 minutes every day handling keys. Time spent on key handling has been reduced significantly. In the Home Markets case, opening a centralised point for guidance and information services is expected to lighten the burden of advisory tasks for the municipal units.

Improved service quality

Another positive effect of PPI for the public sector is improved service quality and increased user satisfaction. For example, the *Culinary Food Project* led to new food products that have increased patient satisfaction at the hospitals in the specific region. In the case of the *Mobipen* project, the quality of the homecare service has improved, as the level of information has been enhanced considerably, allowing for more reliable and efficient work management. Also in the *Akribe* case, the quality of working procedures in hos-

pitals has improved as a consequence of the use of the developed digital database.

Significant efficiency improvements

PPI projects can bring about significant efficiency improvements and cost savings for the public sector. For example, in the *Mobipen project*, it is estimated that the municipality saves SEK 1–2 million per month (EUR 112,000–224,000). Similarly, in the *Phoniro Lock* case, realised time savings entail significant cost savings in the provision of eldercare.

Another example is the *Safe at Home* case, where the cost of communication at the homecare agency has gone down. Similarly, the digital database in the *Akribe* case has made the hospitals more efficient, due to time savings. The home markets project has in a similar way improved the productivity of the care sector.

Better documentation and control

Other positive effects for the public sector include better documentation and control of provided services (for example, in the *Mobipen* case, the level of information about the provided homecare services has increased, and allows for more reliable and efficient work management), safety enhancement for citizens thanks to the use of new and improved technology. PPI projects may also lead to positive attention and branding of the public sector (as well as the private sector partner).

In the *Mobipen* case, the partners won a prize for the best electronic system in the health sector in Sweden in 2006. This branded the product and led to further sales. The *Phoniro Lock* case has also resulted in positive branding and awareness, in other municipalities as well as in the media.

4.3.2 Summary

In summary, the study suggests that PPI projects, when successful, can result in promising effects for both the public and private partners. Win-win situations can emerge, with both sectors benefitting from collaboration. The interviewed PPI practitioners believe that significant positive effects are affiliated with PPI, for both the public and private partners. When asked, all of the interviewees suggest that to “a high extent” or “a very high extent”, there are positive effects of PPI for the public sector. The same is the case in relation to the effects for the private sector (only one respondent suggests that there are “moderate” positive effects).

4.3 Barriers

The promising effects of PPI are not always realised. Table 4.4 below gives an overview of some of the most important barriers to PPI identified in this study.

Table 4.4 Identified barriers to PPI

Inexperience with PPI
Lack of financing/funding
Organisational resistance
Procurement rules
Lack of national strategy/clarification on PPI
Lack of business-case development capacities in municipalities
General low level of knowledge of potentials of PPI in municipalities
The size of the involved companies (small = high market risk)

The barriers can be divided into two overall categories:

- macro-level barriers, which concern general framework conditions
- project-level barriers

The following two sections will elaborate on the barriers on both levels.

4.3.1 Macro-level barriers

Procurement rules

At the macro level, existing procurement rules were identified as a barrier by interviewed case representatives as well as by workshop participants. The procurement rules are seen to be complex and unclear. For those who are in the position of embarking upon a new PPI, it is not always clear what is and what is not allowed within the current regulatory framework in relation to a procurement process concerning not yet developed products. This is, for instance, mentioned in the *Safe at Home* case, where stakeholders argue that it is sometimes not clear how the municipality can proceed in a targeted development process without violating public procurement rules.

Moreover, public procurement rules can complicate and slow down PPI processes. It takes considerable time and administrative effort to clarify and adjust to the judicial aspects of partnership projects. Furthermore, procurement rules do not reduce risks for the private partner, as it is uncertain whether there will be a buyer of the product/service after the development phase. This issue was pointed out in the *Phoniro Lock* case. If a small and newly started enterprise embarks on a year-long development of a product, venture capital is needed, but venture capital is not available if the risk is too high and the market (the municipality) is not there once the product has been finished.

4.3.2 Project-level barriers

Inexperience with PPI

A common project-level barrier is inexperience with PPI. Generally, the level of knowledge of the potentials of PPI in municipalities is low. For example, in the *Mobipen* case, the most important barrier to the partnership was a lack of previous municipal experience with this sort of cooperation.

Lack of business case development capacity

It was also pointed out by project participants that there is a lack of business case development capacity and understanding in municipalities. Resources are spent on core tasks such as delivery of welfare services and not on service innovation and potentials for business development and capitalisation of welfare professionals' know-how. This was indicated in the *Phoniro Lock* case, where the project faced habits, a work culture, knowledge and organisational barriers that did not contribute to the development of the best product. Thus, even though there may be profitable knowledge and know-how in welfare organisations, they do not necessarily have the resources and capacities required to utilise this knowledge. It was also pointed out that there is a lack of a national strategy for PPI and a lack of clarification of what PPI is.

Financial leverage

Engaging in PPI projects furthermore requires some extent of financial leverage (e.g. time and resources spent on personnel working on PPI projects). A lack of financing/funding opportunities is mentioned as a barrier by project participants. The initial financial hurdle of a PPI project is experienced as a barrier. For instance, in the *Phoniro Lock* case, the project was dependent on goodwill from the municipality in terms of financing, which was hard to find at the early stage of development.

In the *Digital School* case, it was experienced as a barrier that seed money only covered costs related to the development of the project after money had been awarded (since significant resources were spent on the preparation and submission of the application for funding). The transaction costs of applying for funding are also mentioned as a barrier in the *Intelligent Shirt* case. In the *Digital School* case, it was also perceived as a barrier that the awarding authorities expected too concrete specifications of what the innovative outcomes would be and how these outcomes would be realised. In innovative processes, the outcome is not always known in advance.

In relation to seed money, it is also stressed that it may be a barrier when such funding only supports the private partners' activities, as the public partner can have difficulties finding the full amount necessary in the existing budgets (the *Intelligent Shirt*). Lack of funding for the further development of a product has also been mentioned as a barrier (*Akribe*).

Cultural and organisational differences

General cultural and organisational differences between public and private organisations are also described by stakeholders as a barrier for cooperation. Project participants point out issues such as bureaucracy or the nature of public organisations, a reluctance to work with private companies, administrative structures in public sector partnership organisations and different cultures and timeframes of decision-making in public and private organisations. In the *Akribe* case, for example, a negative attitude towards commercial actors in the health sector is pinpointed as a barrier.

Private partners sometimes perceive the public partners as slow and bureaucratic. Public and private firms do not always speak the same language, or have the same time horizon (*Mobile Health*). In the *Safe at Home* case, for example, the speed of the dissemination and implementation of new solutions in the public sector was emphasised as a barrier, as the dissemination of good practice in the municipalities is key to sustaining growth in the company and limit the costs associated with parallel development of the same solutions in different municipalities.

Moreover, the public sector can sometimes, as highlighted in the *Akribe* case, be a competitor in the sense that the public partner can establish competitive products, making it difficult for the private sector to be included in the market. The barriers perceived to be due to organisational and cultural differences are not surprising, since public and private organisations come from inherently different systems with different institutional logics.

Move from development to commercialisation

At the project level, the move from development to commercialisation can be difficult, if not enough thought has been given to this transformation already at the beginning of a PPI project. For example, in the *Culinary Food Project* case, the most important barrier was this move from the development phase to the actual selling and commercialisation of the products. There is a need to focus on ex post development phase (commercialisation) already in the early development phase. Moreover, an inconsistency may exist between the good intentions in the development process and the subsequent commercialisation of a product.

For example, in the *Culinary Food Project*, it was mentioned as a barrier that the public sector often focuses on price rather than quality in public tenders for food products. One project representative suggests that tools should be developed to facilitate the transition from a publicly subsidised project in the development phase to a commercially viable product – for instance, a structured and stepwise guidance tool. Representatives from the *Mobile Health* case suggest that a structured and stepwise guidance tool that can lead through the legal, fundraising and business aspects of the transition would be helpful.

Size of the private sector partner

Another project level barrier can be the size of the private sector partner. Generalist commercial and pedagogical competences are not necessarily present in small companies. In the *Mobipen* case, for example, it was pointed out that a small, innovative company may have difficulties undertaking tasks and responsibilities such as heavy administration, capacities in teaching end users about the product and sales capacities. Often, a small innovative company is constituted by a small number of highly specialised technical staff, who have little or no experience with business cases, marketing, commercialisation, teaching or pedagogical understanding, the welfare sector they are operating in (e.g. homecare) etc. In the *Mobipen* case, the risk for the private partner in the development phase was also experienced to be great due to uncertainties about the protection of intellectual property rights, which the company did not have the competences to deal with at an early stage⁶⁵.

Sector- and project-specific barriers

Finally, there are sector- and project-specific barriers such as regulations and institutional structures in a specific sector area. For example, in the *Culinary Food project*, it is pointed out that the way public authorities purchase food products – through large wholesale dealers with a fixed product portfolio – constitutes a barrier for private companies to enter the public market with new products. Another example, highlighted by a representative from the *Mobile Health* case, is that health sector regulation can lead to high administrative costs in the application phase and when administering the programmes.

At a general level, a majority of the interviewed PPI practitioners assess that to a high or very high extent barriers exist for PPI (64 per cent).

4.4 Drivers for success

As with any project, some factors may enhance the performance of a PPI partnership. In the table below, some of the drivers for success identified in this project are highlighted.

Table 4.5 Drivers for success

Organisational entrepreneurs with strong commitment/ownership
Shared understanding of risks and costs
Funding/seed money
Clear goals
Aligned (mutual) incentives
Focused management
A good project idea

⁶⁵ EU patent application procedures are emphasised by some case practitioners as a barrier to commercialisation because they are time-consuming and costly, and because the product must be described in great detail before being awarded a patent when the product is still being further developed (the Intelligent Shirt). This barrier relates to how a product can be commercialised.

Commitment of key persons

First, the commitment of key persons involved in a PPI project is important for project progress. There has to be someone who believes in the project and drives it forward (committed organisational entrepreneurs) on both sides with commitment and goodwill. The importance of key individuals is stressed as a driver in the *Digital School* case as well as the *Intelligent Shirt* case. According to a representative from the private partner in the *DiaGenic* case, the people behind the project are the key to success of PPI.

In the Norwegian *Communication, hearing and notification aid* case, openness and dialogue concerning needs and product development are emphasised as being key to success. In the *Mobile Health* case, it is also mentioned as an important driver that the partners perceive a willingness to enter into dialogue and to understand the needs and opportunities for both public and private actors.

Political support

If one PPI project partner is a political organisation, political support is also important for a PPI project, as it ensures that the project progresses as intended. For example, in the *Mobipen* case, important barriers were overcome due to the presence of committed key persons, and because people at the political level believed in the project. A central figure in the municipal administration and political backing are important if the project is to succeed, according to *Mobipen* representatives. According to the stakeholders in the *Phoniro Lock* case, the project would never have been realised if the city council had not delegated the project to one person who had this as her only responsibility.

Shared understanding of risks and costs

Further, a shared understanding of risks and costs among the stakeholders is important. The involved organisations must have a good understanding of each other's premises for cooperation, e.g. that the public sector partner has a good understanding of the venture business, while the private sector partner has a good understanding of the political reality of public organisations (*Safe at Home*). Correspondingly, it is highlighted in the *Phoniro Lock* case that the quality and knowledge of business cases is also an important element. Business models have to be sound and detailed from the start, with the potential of improving along the way.

Willingness to take risks

Another key driver for success is the willingness to take risks. This – some stakeholders have pointed out – may be difficult for public organisations. In the *Culinary Food* project, an important driver for success is emphasised to be the private partners' willingness to take on risks related to time spent and raw material invested in the testing process.

Funding

Funding is another very important driver for success. In the *Culinary Food project* case, it is emphasised that the successful initiation of the project was due to the financing from several partners. Similarly, in the *Digital School* case, the successful initiation of the project would not have been possible without the financial support from a PPI fund, according to the interviewed public sector partners. Funding, support, and counselling from a state agency that promotes nationwide industrial development were also stressed as important drivers for success in the *Akribe* case.

In relation to financing, dedicated resources for the project (personnel and finance) are also a key factor for success. This includes internal guidelines and/or organisational support within the public sector. In one of the analysed PPI projects, a framework agreement was concluded to guide the development work step by step. This as well as a communication plan yielded good results (*Safe at Home*).

Clear goals, objectives and milestones

Clear goals, objectives and milestones are important for the project to be focused as early as possible. Having clear goals is also mentioned as a significant driver for success by the stakeholders of a number of cases (*Home Markets* and *Mobile Health*). It is important that the involved parties have a common understanding of both the general and the more specific goals at the outset.

Expectation management

This is related to expectation management, which is another significant driver for success. The involved parties must be knowledgeable about each other's priorities as well as risks, incentives etc. However, it is also important that priorities are flexible and adjustable as the project progresses. Further, the incentive structure in the agreements must be set up to clearly align targets with award- and sanction structures. In the *Mobipen* case, for instance, the mutual incentives created for both parties in the project and inherent in the business case were major drivers for success.

Focused management

Moreover, focused management is also an important driver for success. The project must have the right organisation for the different phases of the project. The setup has varied greatly from case to case, but most importantly, the project management and organisation need to be clearly defined.

Good project idea

A good project idea, i.e. a project that has beneficial effects for both the public and the private sector partners, is an important driver for success. It could, for example, be a money-saving opportunity for the public partner, while an opportunity for entering new markets or increasing turnover for the private partner. In the *Phoniro Lock* case, for example, a key driver for success was pinpointed to be the money-saving opportunity for the municipality. A related aspect is the perception of necessity by the public sector, i.e. that some sort of “burning platform” drives the project forth.

For instance, this could be a specific problem in the public sector that needs to be solved under budgetary constraints. The *Mobipen* and the *Phoniro Lock* cases are good examples of this. The municipality had a very specific problem with key handling, and this acted as a burning platform or catalyst for the *Phoniro Lock project*.

Another good example is the *Akribe* case. In this case the product was highly demanded, and a main key to success was identified to be the presence of a good idea. Changing demographics and a constrained resource environment can also constitute a burning platform for PPI at a more general level. Representatives from the *Home Markets project*, for example, point out that this has been a strong driver for their project. Involving users and employees, rather than being exclusively technology-driven, can further facilitate the good project.

Both public and private partners in the *Culinary Food Project* point out that user-driven innovation was important because it actively engaged many stakeholders in the organisations, which rooted the project in the respective organisations. Also in the *Intelligent Shirt* case, the involvement of users is stressed as an important driver, as it legitimises a project internally in the organisation. User involvement is also highlighted as an important driver in the *Akribe* case, even after the formal closing of the project.

4.5 Potential

The interviewed PPI practitioners are generally of the opinion that the potential of PPI is promising. A summary of interviewee statements suggests that the majority of the interviewed PPI practitioners believe that the potential of PPI is great – both in relation to advancing welfare services in the Nordic region in general and in relation to bringing about new business opportunities for Nordic companies, see Figure 4.2 and Figure 4.3 below.

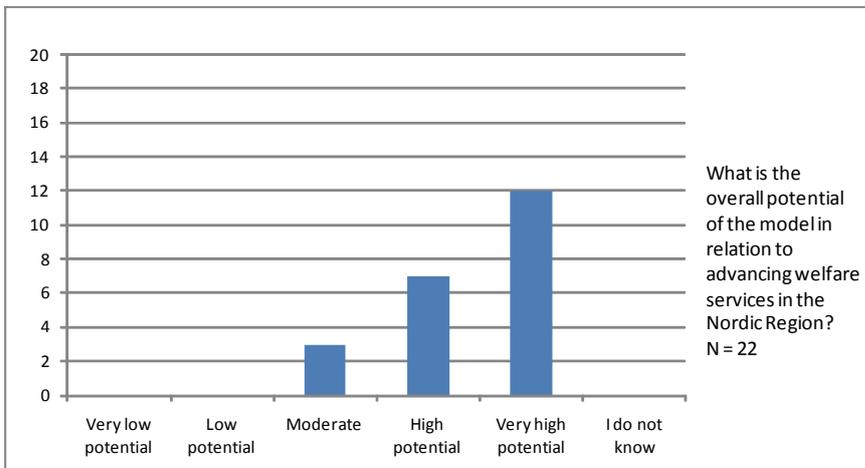


Figure 4.2 Potential of PPI to advance welfare services in the Nordic region

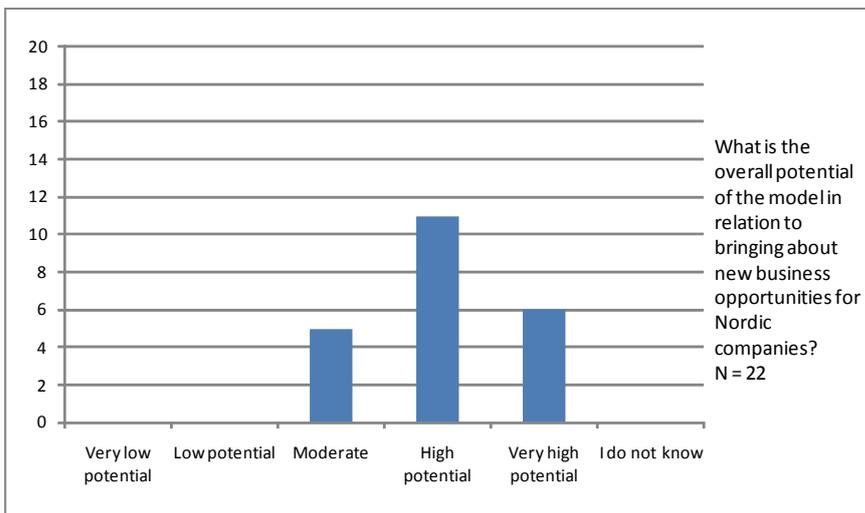


Figure 4.3 Potential of PPI in relation to new business opportunities for Nordic companies

Although not statistically significant in any sense, the above figures are interesting, as they show an extent of agreement among the interviewed practitioners that the potential of PPI is promising. This highlights an interesting tendency in the assessments of the field itself.

PPI may entail large savings in regions and municipalities as well as a possibility for local and regional growth. Changing demographics, a growing demand for welfare services and a constrained resource environment mean that the potential of PPI will not decrease in the future. It is important that the public sector organisations acknowledge and utilise their potential. As noted earlier, it may be a barrier that public organisations do not always realise and utilise the (business) potential of the professional know-how and knowledge that is tacit in the organisation. For example, representatives from the Phonirol Lock case suggest that one of the great potentials is to get hospitals and municipalities to realise the potentials of innovation in the healthcare sector.

The Nordic region may be particularly well suited for PPI projects because of the strong welfare states and a concentration of know-how of the needs and demands of the users of welfare services (good knowledge infrastructure). The many similarities between the Nordic countries facilitate sharing of best practice and learning. Similar markets may imply common testing fields and common accumulation of knowledge. Further, the Nordic countries face similar demographic pressures and long-term financial constraints, which create a mutual need for innovation within welfare areas.

4.6 Summary

Chapter 4 highlights some of the key results of the conducted case analyses of PPI projects in the Nordic region with special focus on the effects of PPI, the barriers for PPI, key drivers and the general potential of PPI.

The analysis suggests that, when successful, PPIs can have very promising effects for both the public and private partners involved in the partnership. The different types of effects identified can be organised according to the relevant project phase (see Table 4.6)

Phases	Project cycle	Project cycle		Post-project
		Development phase	Test and implementation phase	
Pre-project				
Idea phase				
Project results				
Public partner	Identification of needs Review /evaluation of service performance Compelled to think about best practice and how to improve	Public partner Insight into innovation mechanisms Control the innovation to improve the final product and tailor it to the identified needs	Public partner Time savings Improved service quality /work procedures /user satisfaction Efficiency improvements /cost savings Positive attention branding Better control /management of service provision Improvements of safety	Public partner Further partnerships
Private partner	Creation of business model /opportunity Access to knowledge of needs and demand	Private partner Access to knowledge /data Product innovation Chance to develop a unique state-of-the-art product	Private partner Increased turnover and earnings Increased number of employees New products / new prototypes (innovation)	Private partner New customers/access to new markets Positive attention/branding Export potential Further partnerships and spin-offs
Barriers	Uncertainty about legal constraints Uncertainty about future markets Lack of business case development capacities in municipalities General low level of knowledge about potentials of PPI in the municipalities Lack of national strategy, work plan or clarification of PPI	Potentially difficult to involve end-users in the development Lack of funding as the development process is often expensive (venture capital or other type of funding) Organisational resistance High risk to small company Procurement rules when contract is signed	Sufficient buy-in to sustain marketing phase Organisational resistance High risk to small company Procurement rules when product is to be purchased	Lack of sales and management capacity in business Dependence on "rigid" public markets Costly tailoring of service product with new customers
Drivers for success	Dedicated key personnel /ownership Aligned (mutual) incentives A good project idea A sound business case	Shared understanding of risks and costs Continued dialogue between partners Access and good cooperation with end-users for specification of needs Funding/seed money Clear goals/milestones Aligned (mutual) incentives Focused management	Continued dialogue between partners Access and good cooperation with end-users for testing	Public partner "support" to business marketing (e.g. through fairs and recommendations) Sales competences in business

Table 5.6 summarises the project results, barriers and drivers for success in the different project phases of a PPI project. In the idea phase, project results and drivers for success are less tangible. One example of a project result in this phase is the identification of needs in the municipality and access to the knowledge of this need (the private partner).

Idea phase

In the idea phase, the drivers for success are aligned incentives and a good project idea. The major barrier or obstacle in the idea phase is a general uncertainty by all parties about legislation, the business case, trust in the partners etc.

Development phase

The development phase kicks off when an agreement is made to enter into a partnership project. In brief, the results of the development phase could be control of an innovation process (the public partner) and access to knowledge or data (the private partner). Barriers are linked to these results, as knowledge and data are not always readily at hand, has and have to be collected from e.g. homecare staff or elderly people. This may constitute a significant barrier to a small company.

Moreover, the company starts incurring high costs and potentially organisational resistance by the public service provider, which was not foreseen by the parties in the idea phase. The drivers for success in this development phase are funding and a common understanding of priorities and risks between the partners.

Test and implementation phase

In the test and implementation phase, the actual foreseen results are realised from the product or service developed. The public part, for example, can save time, increase efficiency and reduce costs etc., while the private partner increases its turnover and number of employees as the buy-in is secured from the public partner. One barrier is the procurement rules which might prevent the final product from being sold if e.g. similar products have been developed in parallel and can be purchased at a cheaper price. The drivers for success in this phase are similar to the previous phase.

Marketing phase

In the marketing phase, the results do not pertain to the public partner. Rather, the private partner has opened up new markets with a unique state-of-the-art product, which may be ready for export. The partnership can facilitate these market openings and export potentials through the networks that the public partner has. That is also a result of the partnership.

However, one barrier is also the rigidity with which the public procurement often works. Therefore, being successful in one part of the country does not necessarily entail success with other partners or administrative

units. Several of the cases have incurred heavy costs adapting their products to the demands and standards of other municipalities when trying to market their products. Also, commercialisation can be costly. These are some of the barriers to small companies with public customers. The drivers for success in this phase are human capital that can commercialise the product as well as public partner support to help the business gain market shares.

5 Methodology

This section describes the methodology applied both in relation to the mapping of PPP policy initiatives (Chapter 3) and the effect analysis of selected PPI cases (Chapter 4).

5.1 Methodology for policy and regulation mapping

The policy regulation mapping analysis encompasses all newer types of partnerships that aim at establishing collaborations between public and private actors (see definition of PPP above).

The methodology for revealing regulation strategies in the five Nordic countries consists of desk studies, literature search and contacts to academics and public officials from relevant ministries or agencies in the five Nordic countries. The country experts were asked a set of standardised questions developed to capture information about the variety and combination of regulation mechanisms in the five countries (see Table 5.1).

Table 5.1 Questions for national country experts (academics and public officials)

1	Are there any scientific review articles, books or chapter in books, which might help us to get a better overview of PPP in your country?
2	Is there a designated national (public administration) unit, which works with expanding PPP in your country?
3	Is there any specific legislation regarding PPP in your country?
4	Are there any national policy papers or action plans on PPP in your country? Are there any official reports, white papers or administrative reports on the topic?
5	Economic policy measures: are there subsidies, tax rules or other economic incentives to promote PPP?
6	Are there any official guidelines, recommendations or information material for private and public actors on the use of PPP?
7	Official indicators and knowledge collection: Are there official local, regional or national indicators and systematic information collection on PPP projects in your country?
8	Are there examples of projects that are being officially promoted as “best practice” or “demonstration projects” for the promotion of PPP in your country?

Literature on policy and regulation often distinguishes between various tools of regulation which can be utilised to promote certain policies⁶⁶. The tools of a government can be categorised broadly as; (i) laws and binding stan-

⁶⁶ See for example Baldwin, Robert & Cave, Martin. 1999. *Understanding Regulation – Theory, Strategy and Practice*. Oxford: Oxford University Press, or, Salamon, Lester M. (ed.). 2002. *The Tools of Government. A Guide to the New Governance*. NY: Oxford University Press.

dards (so-called command-and-control); (ii) economic incentives and seed money; (iii) disclosure of information, guidance and best practice examples⁶⁷.

This categorisation has been applied within research on public-private collaboration and thus provides a well tested theoretical framework for the mapping of policy and regulation initiatives to support partnerships between the public and private sectors (see Table 5.2)⁶⁸.

Table 5.2 Policy and regulation tools

Policy and regulation tools	
Laws and binding standards (command-and-control)	The EU Procurement Directive National procurement regulations and practices of interpretation Minimum targets for private involvement in public welfare services Requirements about partnerships for certain types of projects Relevant framework regulations (e.g., tasks that can only be solved by public authorities) Specific sector regulation
Economic incentives and "seed money"	Economic support to reduce transaction costs in the development phase of new policy programmes "Seed money" to support specific projects or initiatives (e.g., pool of money dedicated to PPI projects) National financing of regional or local projects or initiatives Access to loans and financing for projects
Disclosure of information and "best practice" examples	Guidance material, step by step guides, framework contracts, etc. General reports and analyses of market potential for PPI Pilot projects and display of best practice Systematic collection of experience and performance analyses (e.g., project database and value-for-money evaluations)

All three general regulatory categories can in principle be designed to target public or private actors (or both at the same time). This framework has been applied in the mapping of PPP policy initiatives in the Nordic region. Below, a brief outline of each of the three conceptual categories is given.

Command and control mechanisms targeting the *public sector* include a range of general legislative framework measures for public service as well as specific rules aimed at facilitating and structuring collaborative relations with private actors. Competition and tendering rules are key examples of formal legislation. Mandatory assessment of partnership options and targets for the use of outsourcing also belong within this category.

Command and control mechanisms may also target *private actors*. This would include general business promotion policies and more specific rules and demands within particular policy sectors. Examples include specific

⁶⁷ Vedung, Evert. 1998. Policy Instruments: Typologies and Theories, in Marie-Louise Bemelmans-Videc, Ray C. Rist & Evert Vedung (eds.), *Carrots, Sticks & Sermons. Policy Instruments & Their Evaluation*. New Jersey: Transaction Publishers.

⁶⁸ See for example Petersen, Ole Helby. 2007. *Reguleringen af offentlig-private partnerskaber (OPP) i Danmark*. Tidsskriftet Politik, 10(3): 39-51, and Christensen, Lasse Ring & Ole Helby Petersen. 2010. *Reguleringen af udlicitering og offentlig-private partnerskaber (OPP) i de danske kommuner*. Politica, 42(2): 235-257.

requirements on accounting principles, openness, quality declarations, environmental management or social responsibility.

Economic incentives and “seed money” for the *public sector* include instruments like special public funds for PPP projects and various means to reduce transaction costs such as co-financing of initial exploration of PPP viability, favourable loan guarantees or exemption from general steering rules. The most important economic instruments targeting the *private sector* include price setting of standard services, where a higher price may temporarily induce private actors to enter the market.

The expansion of private health care delivery in Denmark is an example of how this might work in practice. Other economic incentives aimed at the private sector include support for information campaigns and marketing for groups of firms and explicit requirements for allocating public funds.

The final category in the table is *disclosure of information and “best practice” examples*. This category includes a variety of measures aimed at facilitating PPP via development of information infrastructure. This includes general information campaigns as well as more specific attempts to facilitate PPP, e.g., through development of legal and administrative tool kits (standard contracts, assessment tools, etc.). Systematic collection and dissemination of “good practice” examples are other instruments. Further examples include e-based databases, web portals, newsletters and information meetings.

5.1.1 Limitations and concerns

In spite of the systematic framework for investigating regulative measures, it remains likely that a number of national details and specific measures fall outside the analytic inquiry allowed within the timeframe of this project. Regulation is inherently complex and subject to national interpretations and variations in the use of terminology.

The use of national experts should reduce the margin of error, but will not fully eliminate problems of differences in interpretation and analytical focus. The reliance on national experts also makes the project vulnerable in case of delayed or limited response. The Finnish and Icelandic cases represent particular challenges, as legal and administrative documents are often not available in English.

5.2 Methodology of effect analysis – case study approach

The case analyses are based on semi-structured qualitative interviews. For each case, two interviews were carried out; one interview with a public sector project manager and one interview with a private sector project manager.

Interviewing representatives from both sectors ensures a more adequate and comprehensive case account.⁶⁹

The selected interviewees are key individuals (project managers) in the chosen PPI projects who have practical case experience and who are able to answer detailed questions about the projects and the effects of the projects. The duration of the conducted interviews was approximately 45 minutes. Prior to the interview, the interview guide was forwarded to the interviewees. The interviews were primarily conducted as telephone interviews. The interviews were not tape recorded.

The following parameters guided the selection of PPI cases that were included in the analysis (case selection criteria):

- Flagship-cases representing promising results and impacts
- Cases representing the Nordic geography⁷⁰
- Variation in project phases
- Variation in represented welfare sector area.

It is in particular important to note that the cases selected are the most promising cases identified during the course of this study. Therefore, the cases do not represent average PPI projects, but rather the promise of what PPI projects can be if undertaken successfully. This project can therefore not provide generalisations about the general effects of PPI, but simply provide interesting best practice case examples that highlight a potential. Moreover, case studies are by definition particular and non-generalisable to other settings. Nevertheless, the case studies are in-depth studies of one part of a reality or phenomena which generate knowledge and may inspire and serve as the good example to others.

During the process of finding cases, the following stakeholders were contacted in each country with a view to identifying relevant and successful cases;

- National economics and business affairs, ministries and agencies
- Relevant sector ministries
- Municipal and regional interest organisations
- Interest organisations and other public bodies
- Relevant industrial and commercial interest organisations
- National experts and other key stakeholders.

⁶⁹ In two of the analysed cases, it was not possible to conduct an interview with both partners within the set timeframe. Further, in one case, there is no private partner to interview as the project is currently in the pre-specification stage. Finally, in two of the cases, three case representatives have been interviewed.

⁷⁰ Iceland is, however, not represented among the selected 11 cases. This was due to difficulties with identifying and getting access to Icelandic PPI cases within the delineated welfare sector areas.

5.3 Project workshop

A workshop was held in Copenhagen on 6 October 2010. The initial findings from the case studies and the policy mapping were discussed and qualified by the workshop participants. The workshop participants are listed in Appendix 3. The input from the workshop is included in the findings of this report.

5.4 A final note on methodology

The findings of this project are primarily based on input (information and estimations) provided by project participants, including case representatives, representatives from public authorities in the Nordic countries as well as representatives from key organisations such as industry associations, etc. Therefore, the findings of the case analyses are contingent upon the validity of the input from the various actors involved in this study.

Appendix 1 – Eleven PPI Cases

A1 Case 1: Mobipen (Sweden)

A1.1 Project characteristics

A1.1.1 Background

The municipality of Solna has privatised many of its services to its citizens. One such service was the homecare service provided to elderly people. After privatisation had taken place, only 60–70 per cent of the ordered homecare service was actually delivered, the rest was unaccounted for or wasted. Thus Solna acknowledged the need for a control mechanism to ensure that the municipality was getting the service that it was paying for.

The project started with a meeting between Solna and Catrel in 2004. An agreement was made and a contract signed to deliver the product Mobipen to Solna within a short timeframe (implementation in 2006). The contract between Solna and Catrel was a standard business agreement regarding the product Mobipen, where Solna received the right to use the product Mobipen to a specified price. This created the necessary incentive structure for Catrel, who quickly developed the prototype software for testing and evaluation. Solna supported the development process in order to optimise the final product by facilitating meetings with the homecare staff.

The cost of the product was about EUR 300,000 incurred by Solna. This amount did not cover the development costs incurred by Catrel and represented an inexpensive solution to Solna. An estimate from Catrel AB is that around SEK 40 million (approximately EUR 4,48 million) was spent to develop the solution (with SEK 500 /manhour (approximately EUR 56)). Both Catrel and Solna had an interest in exporting the Mobipen to other municipalities, since Catrel needed to cover development costs and Solna needed Catrel for the future support and updates on the Mobipen software already purchased. Therefore, both parties had an interest in promoting the product.

A1.1.2 The partners

The Mobipen project is a public-private innovation partnership (PPI) between the Municipality of Solna and the company Catrel AB. The project concerns the development of a new digital documentation solution, the Mobipen. Solna (50,000 inhabitants) is located near Stockholm.

Catrel AB is a software producer. Catrel was introduced to Solna through a customer who had previous experience with the homecare sector. The company had not worked with the homecare sector before, but the CEO of

the company was convinced to change their previous product to meet the needs in the homecare sector in Solna.

A1.1.3 The product

The Mobipen offers the homecare industry a smart and simple solution to successfully completing documentation. The homecare staff have access to a digital pen and use it to document their actions every time they visit a patient. After completing the day's work, the homecare staff return to the head office. To transfer the information stored in the pen, it is placed in a small docking station. The docking station transmits the information from the pen into the Mobipen care database.

Inside the Mobipen care database all information is translated from handwritten characters into computer-written characters, and the information is transferred into the patients' individual files. The Mobipen registers the handwriting of the homecare staff, the time of entry into the patient's home (scanning at the door), tasks performed (cross-out) etc. The Mobipen creates reliable data on different routines, which allows the service provider to alter the services according to the needs of the citizen.

A1.1.4 Development process

A process was initiated between Solna and Catrel with regular meetings and workshops (once a week). The process was guided by a steering group in which the top management of both the municipality and Catrel were represented. In January 2005, the development started. In June 2005, the public administrators in Solna had a chance to test the product, and in November 2005, the homecare staff tested it.

In March 2006, the product was fully developed and the implementation started. In the development process, Catrel learned about the needs and obstacles in the homecare sector through reference groups and tests with homecare staff. The innovative solutions in the software introduced in the Mobipen (a subcontractor delivers the ball pen to Catrel) were developed in close cooperation with the Municipality of Solna and the homecare service provider.

A1.1.5 Risks

The most important risks in the project development phase were related to the technology. Several features had to be invented from scratch. In relation to the implementation of the Mobipen, homecare staff is generally not used to new technology. They traditionally enjoy a large amount of freedom without managerial control. For the homecare staff in Solna, it took some time to get used to the technology and the idea behind it.

In addition, the project was publicly criticised to the extent that the homecare staff union also criticised the Mobipen, because of the inherent control mechanism in the product. The business model also became a risk, as agreements with other municipalities were made on the basis of a pilot

product that did not necessarily fit the local context in the homecare service in other municipalities. Since the product thus had to be developed and customised before the municipalities bought the product, the financial risk increased. In addition, Catrel also incurred large marketing costs from travels in Sweden and meetings.

A1.2 Project results

In this subchapter, we are elaborating on the project results for both the private and the public partners.

A1.2.1 The private partner

The positive results of the project are significant. Catrel has increased its turnover by approximately 500 per cent in six years, from approximately SEK 4 million to SEK 20 million (approximately EUR 448,000 to EUR 2,241,000). Approximately 95 per cent of the turnover comes from the homecare sector. The impact from the cooperation with Solna is thus very important to Catrel. The employment rate in the company has increased by almost the same factor as the turnover, and is still increasing.

Catrel has started to develop products for related service areas within the health sector through a traditional business model. This includes products for hospices and other solutions for centres and homes. The Mobipen is now installed in 50 municipalities in Sweden, 2 municipalities in Norway and is also being implemented in New York City.

The mutual interest in the proliferation of the Mobipen, as well as the mutual understanding between Solna and Catrel, catered for the sale of the product to other municipalities, including the branding, reviewing by public sector staff etc. In that process, Solna was a very good reference.

A1.2.2 The public partner

The amount that Solna saves is estimated by stakeholders to be SEK 1–2 million (EUR 112,000 to EUR 224,000) per month compared to the situation before the Mobipen. The savings are largely due to improvements in the quality of the homecare service, as the level of information has improved considerably, allowing for more reliable and efficient work management.

After the product development in Solna, the product enjoyed indirect support from Solna at trade fairs at which the product was displayed. At the largest health fairs in Sweden, Vitalis, Solna and Mobipen won the 2006 prize for the best electronic system in the health sector. This award helped brand the product and resulted in an immediate sale to 5-6 municipalities.

A1.3 Barriers

The stakeholders state that the most important barrier to the partnership was that there was no previous experience in the municipality with this sort of cooperation. However, that barrier was overcome because of key persons in the municipal administration, and because people at the political level believed in the project. Another barrier pertaining to the public sector was the Swedish law on public procurement, which did not provide clarity or reduce risks to the private partner.

Also, there were important barriers to the partnership related to the small size of Catrel. A small, innovative company does not have the manpower to undertake tasks and responsibilities such as heavy administration, training activities, marketing, development etc. Thus, the small size of a company is a barrier in itself.

In the Mobipen case, the training of staff in the use of the product was a significant challenge and a barrier to the success of the product. Training is very time-consuming, and Catrel AB had only little previous experience with this type of pedagogical exercise.

Moreover, the homecare staff generally had little experience with technology solutions like the Mobipen (PDAs, mobile phones etc.). It was a pedagogical challenge to make them see the Mobipen as a tool in their work and not an obstacle. In addition, Catrel encountered a problem with understaffing once the implementation in Solna had begun and the market expanded quickly. The risk for Catrel in the development phase was also great due to its relatively small size.

A1.4 Drivers for success

A central figure in the municipal administration and political backing is an important asset if the project is to succeed. In the Solna administration, one active project manager drove the project forward and believed in the technical solution from the start. Moreover, the project was supported politically.

Another major driver for success was the mutual incentives created for both parties in the project and inherent in the business model. Through an identified need in the homecare service, incentives were created to support the development of a high-quality product with a potential for export. Catrel, on the other hand, was given the chance to improve, develop and test the product with people from the homecare sector and to get a small “test” market, where the product could mature.

A1.5 Regulation

The key legislation pertinent to this project was the possibility to privatise services and the public procurement rules. The former allowed Solna to privatise homecare service, while the latter somewhat impeded the devel-

opment of the Mobipen solution. Otherwise, no legal measures or policy initiatives that helped this particular project to kick-off have been identified.

A1.6 Potential

According to one stakeholder, the potential of the PPI model used in Solna is good, but could be improved with better legislation that provides more clarity as to what a municipality can and cannot do while procuring products which have not already been developed.

The potential was generally seen by the interviewed stakeholders to be great in terms of implementing similar products in other Nordic countries. But with regard to the Mobipen solution, Denmark is a difficult market for this product, since Danish homecare staff have been using PDA technology for some time.

A1.7 Recommendations

Two main recommendations are proposed by the stakeholders with regard to PPI in the Nordic region:

- It is recommended that legislation is implemented with a view to protecting the immaterial rights of SMEs in particular. Small companies are very vulnerable before a patent is established in the early phases of development.
- A central contact person in the municipal administration is key for the success of a PPI project. It is therefore recommended that a central person with plenty of commitment is selected to support a PPI project through the idea and development phases.

A2 Case 2: Phoniro Lock (Sweden)

A2.1 Project characteristics

A2.1.1 Problem identification

In 2003, the Municipality of Halmstad identified a major problem in the homecare service. The issue was raised by the Geriatric Care Department in Halmstad Municipality at a seminar arranged by the Healthcare Technology Alliance (Hälsoteknikalliansen). The homecare staff had too many keys. Moreover, the handling of the keys was divided among many homecare staff members, including substitutes, and as a consequence, patients' locks had to be changed frequently. Moreover, the homecare staff spent a lot of time fetching keys at the service central during the day, and emergency service was slow.

As a solution to the problem, Halmstad organised a seminar with researchers, companies and municipalities. The Healthcare Technology Alli-

ance, a non-profit, publicly funded cluster organisation, facilitated and organised the seminar. The seminar led to a public-private innovation partnership between Halmstad, the homecare service providers and Phoniro, when a group of entrepreneurs started to look into a solution. In 2004, a development project was created between the Halmstad Geriatric Care Department and the company Phoniro, and the project led to the product Phoniro Lock.

A2.1.2 Development process

The Phoniro project started in 2004 at “Technocenter”, an incubator environment for potential businesses from all education programmes at Halmstad University. A group of entrepreneurs started to work on a solution, and one company focused on an early prototype of the Phoniro Lock system. The entrepreneurs had previous knowledge of Bluetooth technology and founded the company Phoniro in 2005.

In a partnership between Halmstad Municipality and Phoniro, the testing of the prototypes started. The development process involved the homecare staff through interviews and focus groups. The homecare staff were also included in the testing of the product. It took three years before the final product was ready to be marketed. The final product consisted of a door lock that can be opened both by normal key and by the presence of a mobile phone. The lock functions with Bluetooth technology and the homecare staff can then access the home without using normal keys just by pressing a personalised code.

In October 2006, the first hundred units were ready. The capital value of the first prototypes is estimated by Phoniro to be EUR 100,000.

A2.1.3 Financing and support

Phoniro received money from the county council’s (Landstinget) fund for procurement of technology, and product development in the form of seed money to finance their work to produce a prototype. Apart from that, the company raised risk capital to continue the development of the product. The municipality financed its own expenses, mainly incurred by the one person working with the project, and the participation of the homecare staff in different focus groups, interviews and testing.

Health Technology Alliance, a publicly financed cluster, provided organisational support. They organised the contact between Phoniro and Halmstad. Initially, the project organisation was network-based and there was no contract between Halmstad Municipality and Phoniro. At the end of the testing phase, fifty units were bought by the municipality to finance the project’s final stage. At Halmstad Municipality, one person was employed as project manager.

A2.1.4 Project status

The project has now ended. Phoniro has developed into a mature enterprise with a solid product which is marketed in Sweden and on international mar-

kets. The company has gone from three to twenty employees and has bought another company which produces safety alarms. Phoniro uses its network connections to market similar products, such as a safety phone, in other Swedish municipalities. Moreover, the company has started to look to the Danish market.

A2.2 Project results

In this subchapter, we are elaborating on the project results for both the private and the public partners.

A2.2.1 Public partner

It is estimated by Halmstad Geriatric Care department that the efficient work time of the homecare staff has increased by 5-8 per cent. Before, every homecare staff member spent 30 minutes every day handling the keys.

Moreover, there is a net saving on the cost of petrol when homecare staff does not have to drive back and forth to get keys at the central office. Other problems included losing the keys, long response time on medical alarms as well as the general safety of the homecare staff and the citizens. With the Phoniro solution, data is created upon entry to the citizen, and records can be kept of the timeliness etc. of the homecare service. This makes it possible to document to e.g. relatives whether the citizen has received homecare on time.

According to the project manager, the homecare staff have received the Phoniro Lock very well, and it has made communication between the staff easier. Before, the staff only had one mobile phone per group, but now they have one each. The public partner in the project is positive about the potential of future cooperation with a private company. Further, developing the product in the real context has had good effects, including the inclusion of the homecare staff, who are mostly women, while the development of technical solutions is often done by men.

A2.2.2 Private partner

According to Phoniro, the turnover has risen steadily from EUR 0.1 million in 2007 to approximately EUR 3 million in 2009. Approximately 50 per cent of the turnover is from the sale of Phoniro Lock. The number of employees has risen from three in 2005 to 20 in 2010.

Another result of the partnership is positive branding and awareness among other municipalities as well as in the press. The product has been marketed and sold in Denmark and Norway as well.

A2.3 Barriers

At the beginning the project was very dependent on goodwill from the municipality in terms of financing, which was hard to find at the early stage of development. Finally, the project was financed by the county council's fund

for procurement of technology and product development. Phoniro financed the prototypes. Thus, there was an initial financial hurdle for Phoniro AB to overcome.

According to the stakeholders, public homecare management in the municipalities had little financial leverage, and there was limited understanding of the scope of a development project. Moreover, it is the experience of the stakeholders in the Phoniro Lock case that it is quite hard for companies to market products to municipalities.

Another problem identified by the stakeholders is the national legislation. The problem is public procurement of a newly developed product. If the often small and newly started enterprise embarks on a year-long development of a product, venture capital is needed. But venture capital is not available if the risk is too great that the market (the municipality) is not there once the product has been finished. In this case, that was not a big problem, since Phoniro Lock was a unique product at the time of procurement. Now, however, competitors exist in the market.

One important barrier mentioned by the stakeholders is that the homecare organisations are not used to thinking innovatively or taking on projects with a view to developing new solutions. The project had to face habits, a work culture, knowledge and organisational barriers which not always worked to the benefit of the development of the best product.

The homecare service providers are often busy managing their own organisation and are not always aware of the advantages or possibilities of a new product, nor of the implications for their organisation.

A2.4 Drivers for success

One of the key drivers of success identified in this partnership is the money-saving opportunity for the municipality. The municipality will not engage in the development of a new product with a private enterprise unless there is a very good chance of saving money in the medium to long term, regardless of the efficiency improvements the product may entail.

Another important element is the quality and knowledge of business models. Municipalities and enterprises often lack the right knowledge about new business models. It is important that business models are correct from the start, with the potential of improving along the way.

According to the stakeholders, the Phoniro key project would never have been realised if the city council in Halmstad had not delegated it to one person who had this as her only responsibility. Moreover, it is important to have seed money, which is available in Sweden to some extent. However, according to stakeholders, it was almost impossible to get more at later stages in the project.

A2.5 Regulation

There is no legislation targeting PPI in particular. However, the public procurement legislation is relevant for this type of project. In Sweden, a new procurement option is underway, innovation procurement, which is supported by VINNOVA, the Swedish Governmental Agency for Innovation Systems. This option allows for procurement of genuinely new products, as was the case with Phoniro Lock.

A2.6 Potential

One of the great potentials identified by stakeholders in the Phoniro Lock project is to get hospitals and municipalities to realise the potentials of innovation in the healthcare sector. They need to seek answers to their problems on a long-term basis, and allow their knowledge of the sector to benefit innovative and potential producers. They are the most important factor for innovation for innovation and commercialisation, and it is important that this is looked at as a possibility.

There is a great potential in eldercare in Sweden. According to stakeholders, eldercare in Sweden is underdeveloped in terms of applying technical solutions. The potentials are likely to be equally great in the rest of the Nordic countries, where the problems facing healthcare seem to be the same.

Often strong home markets are key to a subsequent export success. The proper legal, financial and organisational support needs to be put in place to support PPI. According to stakeholders, the low-hanging fruits are many. In Sweden, there is currently a lack of policy initiatives promoting PPI.

A2.7 Recommendations

The following main recommendations are proposed by the stakeholders with regard to PPI in the Nordic region:

- Innovation should be part of the work in any healthcare organisation. Needs should be identified along the way, together with the solutions. It is important for municipalities to seek out the market for the product they want before initiating a process of developing a new one. In order to clarify needs and possibilities in the market, as well as the potentials of developing a new product, seminars or open consultation meetings should be held, as it was done in this case. In this way, the need to initiate a development process can be investigated with a view to creating a genuinely new and innovative product, as well as creating business opportunities for a local enterprise.

- It is very important that the agreement between the enterprise and the municipality decreases the risk sufficiently for the company to raise capital in the right amounts for the development process. It is therefore recommended that the public part in future PPI projects is aware of this fact.
- A higher level of governance (city council) needs to be involved in PPI projects to anchor the processes centrally and to secure stability and continuity. It is often at the central level of municipal governance that the broader perspectives are realised and acknowledged. Because the focus on the strained budgets is so common in Sweden, the opportunities in technology development are often overlooked, claim the stakeholders from Health Technology Alliance.
- There needs to be good financial solutions for the project such as seed money. According to stakeholders, it would be a good idea to develop best practice agreements for municipalities, so that the chance of municipalities violating public procurement rules is diminished and the risk to the private partner is reduced.

A3 Case 3: Safe at Home (Sweden)

A3.1 Project characteristics

A3.1.1 Project partners

The Safe at Home project (Tryggt Kvarboende) is a public-private innovation partnership between OpenCare, Gävlegårdarna and Gävle Municipality. The project concerns the development of different technologies integrated in the homes of elderly citizens.

The municipality of Gävle's Office of Technology and Business Division (project owner) initiated the project because of a need to rationalise and streamline the internal work processes in the organisation and create more effective management. The overall objective of the project was to find solutions for a more efficient handling of certain services in the municipality's homecare service, allowing more time for interaction with citizens.

The municipal organisation which is responsible for the business campaigns and the creation of new business opportunities in the municipality assisted the municipal homecare with consultancy, obtaining financing for the project and creating a business opportunity perspective for the project. The municipal real estate company "Gävlegårdarna" and the company OpenCare were involved in the project as private partners. Moreover, the county council was involved. Gävle Municipality is the primary funder of the project with approximately EUR 150,000.

A3.1.2 Product description

The project consists of several sub-projects. The technologies include television and computer solutions enabling the citizen to interact and get information about the homecare service, including the selection of food, name and picture of homecare staff, time of arrival of homecare staff etc. The television-based technology is well-known by many elderly people and thus provides them with easy access to information, which is important to them with regard to planning and safety.

A portal solution has also been developed to provide relatives with more information about the services provided, including delivery times, medicine and homecare personnel. The technology enables the family members to get an insight into the everyday lives of their elder relatives, including a possibility to check and follow up on the service provided.

A3.1.3 Project management

The project is managed under a framework agreement between the municipality care and OpenCare. It offers the municipality the opportunity to purchase the number of hours they need every month and creates opportunities to work against the sometimes moving target.

A steering committee was composed of representatives of Gävle-*legårdarna*, the municipal homecare, the business department, the technical and office/park environment department and primary care in the county. In addition, a working group was composed of representatives from the partner organisations and a project manager from the industry sector. The working group met about 10 times per year, and the steering committee approximately six times per year. Project groups met approximately every 14 days depending on the work intensity.

A3.1.4 Project status

The current status of the project is that several services are ready for adoption in the municipality. There are many requests for new developments of the products to meet the needs. “Homecare” and the “relatives” support portal’ will be implemented in the municipal healthcare sector and released in an operational phase.

The project will continue to work towards a portal with additional services and functions (customer-citizen portal). The project is likely to expand with several development areas such as location-based services and a wider use of GIS (geographic information systems). The municipality also wants to connect more of its other activities to the solutions already developed (housing, home adaptation, prevention and planning unit, etc.).

A3.2 *Project results*

In this subchapter, we are elaborating on the project results for both the private and the public partners.

A3.2.1 *The private partner*

The project has affected the revenues of the private entrepreneurs positively. Based on the achievements and experiences in Gävle, OpenCare has won a contract with Sweden's third largest municipality, Uppsala (and Knivsta) to build their customer portal for the health and social care sector. The experience gained was key in this regard.

In addition, OpenCare's earnings have been positively affected by the secure income over a three-year period as has the opportunity to develop "superior" prototypes of their product. Moreover, it is important for a small enterprise to have a strong reference in the domestic market. OpenCare has expanded from two to seven employees in three years. For the municipality the portal for nursing staff has improved the quality in the daily work because of secure and available information about the schedule of the visits from the municipal homecare service.

A3.2.2 *The public partner*

For the municipality, the costs of communication at the homecare agency, in the form of questions concerning visiting hours, have gone down. It is difficult to ascertain the effects of the increased quality and perceived security by the citizens resulting from the improved information before homecare visits. However, according to stakeholders, the feedback is good.

The service, which allows ordering of prepared food, means shorter processes. The relatives' support portal is now used in the municipality's work with family support, resulting in major efficiency and quality improvements. Moreover, the cooperation has had a good branding effect on the marketing of the product.

The project has generated positive attention in the form of visits, newspaper articles and nomination to the Svea Prize.⁷¹ These are positive and important drivers for the development work's continued success for the product. Moreover, the work has attracted great interest from new markets both regionally, nationally and internationally.

According to stakeholders, further partnerships are likely to be developed from this partnership. The partnership focused on making the integration of existing solutions in an open integration platform. This means that any company may join the development work in line with business development. Stakeholders believe that the partnership model can give customers more choice in the future, and the systems help adapt products to local conditions. Throughout the project, it has become clear to stakeholders how this model

⁷¹ The Svea Prize is a prize founded at the Quality Fair 2007 to stimulate IT innovation. The prize in 2009 was SEK 100,000 (approximately EUR 11,200) and an art piece by Kjell Engman. In 2009, Karlstad Municipality won the prize with the project "Smart Workplace".

addresses the need and general trend in welfare service – citizens' demands play an increasing role in the way services are carried out.

A3.3 Barriers

In terms of barriers, stakeholders argue that it is sometimes not clear how the municipality can proceed in a targeted development process without violating public procurement rules. The law of public procurement makes the procurement of the product difficult for the public operator as long as the process is diffuse.

Another barrier identified by the private partner of the partnership is that implementation of the new solutions, as well as the dissemination of the results by the public partner takes time. The private partner argues that from a marketing point of view, the process is slow because of a low level of learning between public organisations (municipalities). The dissemination of best practices in the municipalities is key to sustaining growth in the company and limiting the cost associated with parallel development of the same solutions in different municipalities.

A3.4 Drivers for success

A good understanding of venture business and of the political reality of the municipality is required by both private and public partners. This includes building mutual trust and securing long-term institutional commitment and stability. To this end, a framework agreement to guide the development work step by step has yielded good results in this project. Also a communication plan has been a necessary and useful tool.

A3.5 Regulation

The most important law pertinent to this partnership in Sweden is the law on public procurement. The law makes it difficult to assess the target when all requirements are difficult (impossible) to predict in the procurement phase. It is only when the system (service) is implemented or developed that the requirements are clear and the procurement can be made on a valid basis. Moreover, the stakeholders identified the law on the freedom of choice of service operator to be the latest and most important legal development.

A3.6 Potential

According to the stakeholders, the potential of this type of partnership is great in Sweden. In particular, the potential can be met with increased cooperation between industry and local government. Sweden already has a good infrastructure to carry out the new universal service obligations. The stakeholders believe that the potential in the Nordic region is equally good.

A3.7 Recommendations

Four main recommendations are proposed by the stakeholders with regard to PPI in the Nordic region:

- Clear and simple conditions for public operators need to be established in order to ease the construction of partnerships with industry and to enable customer-involved development processes that follow business requirements and needs.
- An understanding of conditions in smaller entrepreneurial private companies is required. These companies are driven by commitment, but are also dependent on billing and earning money to continue to develop new solutions.
- It is important to create economic conditions that support long-term development, which includes a number of stakeholders in the public sector. It requires dedication, persistence and an interested municipality to produce the working models and processes required to sustain product development.
- There is a need to create innovative forms of public procurement that are compatible with public-private innovative development of healthcare services.
- The driving force of the business partners must be commitment and understanding and not only financial incentives.

A4 Case 4: Home Markets (Finland)

A4.1 Project characteristics

A4.1.1 The partners

The project is known as the “Home Markets” project. The City of Tampere (200,000 inhabitants) has entered into a partnership with the private company Mawell Oy to develop an electronic “service integrator” for eldercare. Mawell Oy is a Finnish-based company providing IT and healthcare solutions in the Nordic region.⁷² The service integrator, “kotitori”, coordinates packages of care for the elderly by combining municipal and private service delivery. The kotitori also provides advisory services and a marketplace for extra services for the elderly.

⁷² Including Medivire Hoiva Oy – services for the elderly. Koskiklinikka –Tampereen Lääkärikeskus Oy – medical services. MediNeuvo Oy –call centre” – health. MedOne Oy –manpower – health professionals. Pirkanmaan Osuuskauppa – home services. TeliaSonera Finland Oyj-national Telco. YIT Oyj – construction company. Daxtum Oy – ICT services. Suomen Terveystalo Oyj –healthcare service company. Nexamed Oy – ICT solutions.

A4.1.2 The product

The project has developed an internet-based service model which can combine services provided by the municipality and privately bought services (supplementary services). The core of the project is the development of an electronic platform to find both public and private services from one single “service booth”, which is also able to generate a package of municipally supplied and private extra services for the elderly.

The kotitori concept is a new way of organising services supporting home living as a joint venture between the public and the private sectors. Kotitori (the service integrator) does not deliver services itself but obtains them from its network of public and private providers. The integrator contracts with private providers and has important functions in monitoring and sanctioning the performance of the private delivery organisations. The overall aim is to provide a faster and more proactive and flexible access to services, both publicly and privately produced, for the clients of homecare services in Tampere.

A4.1.3 Project organisation

The City of Tampere defines the main (contractual) framework for the project. It acts as purchaser of municipal services and determines the coverage level, quality and operational features. In addition the city takes on the formal role of coordinator of the service package. The practical coordination is delegated to the kotitori, which runs the electronic marketplace, composes the range of services, controls the production process, and is responsible for customer service and administration.

The kotitori manages regular homecare services for 400 homecare clients and the supporting services for the entire municipality (total of approximately 2,000 clients). Support services comprise safety and security, shopping and short-term homecare, among others. The kotitori also develops homecare processes and operations as well as IT systems together with the municipality and service producers.

A4.1.4 Project status

The initial development phase was from 1 February 2006 to 31 March 2007. The implementation phase ran from 1 April 2007 to 31 October 2009, and the project is currently an integrated part of the City of Tampere’s organisation of eldercare provision.

A4.2 Project results

In this subchapter, we are elaborating on the project results for both the private and the public partners.

A4.2.1 Private partner

The private partner Mawell Oy explains that the project has been a very successful pilot for developing integrated public-private service functions for the elderly, which can be marketed in other parts of Finland, and in the rest of the Nordic countries (particularly Sweden). The company sees a significant business potential, as many municipalities are currently struggling with a problematic combination of growing demand (more elderly), lack of resources and poor efficiency/effectiveness within the eldercare sector. The Home Markets project provides an example of how to address these issues in a flexible, public-private collaborative structure.

The individual care providers' incentive is the creation of a market platform with high visibility for the private providers. The benefits for the private providers have further been described as follows:

- Professionals can focus on client work while the integrator will see to the main part of routines and advisory tasks
- Good and efficient marketing channel
- Information service for producers
- Improved comparability of services, increase in healthy competition
- Joint training and development amongst the network's service producers.

A4.2.2 Public partner

The City of Tampere gets a more integrated care service, and a flexible way of including private providers into delivering care for the elderly. The project has developed a multi-provider application for the City of Tampere of the purchaser/provider model for services enabling elderly people to remain in their homes.

At a general level, the benefits of the programme for the public partner have been to generate new information and new ways to organise and produce social welfare services at a national level in a way that, from the public point of view, is financially sustainable and economical, improving the customer focus and needs-orientation of the present service forms. The public partner also states that the project has contributed to improve the productivity of the care sector and to promote the development of care enterprises in the Tampere region.

In more detail the public partner describes the benefits as follows:

- Facilitates focusing on core tasks (organising services for those who need them)
- Knowing what kind of services people need and want makes it easier to order needs-based services
- Improved life-control and wellbeing of citizens; elderly people will cope at home better and longer either independently or with support

- Improved opportunities for evaluation and development of service production and delivery (own production vs. outsourcing)
- Easier availability of private services will curb the cost pressure caused by population ageing and increased service demand
- Opening a centralised point for guidance and information services will lighten the burden of advisory tasks for the municipal units
- Business development: promoting the growth of the service industry, supporting the development of care and home service businesses, stimulating enterprise.

A4.3 Barriers

The private partners have experienced very few barriers in developing the project. There has been some uncertainty about taxation rules (whether VAT should be paid for all private services), but this aspect has largely been solved.

The private partner emphasises that the city must have a relatively large size in order for the volume to be large enough for this structure to work. Finland has a number of small municipalities which would not be suitable for this solution. National differences in organising care for the elderly could represent a barrier for the potential export of the concept to other Nordic countries.

There is no information on perceived barriers from the public partner.

A4.4 Drivers for success

The partners point to clear target setting from the beginning and formulation of the targets into contracts. The incentive structure in the contract must be set up to clearly align targets with bonus and penalty structures. In this case, the public partner was very clear on what they wanted to achieve and was good at transforming this into agreements and subsequently contracts with the private partner.

There is a clear “burning platform” for this type of project, as many municipalities, according to the informants, are experiencing a combination of changing demographics, creating a growing demand for eldercare, a constrained resource environment, and unknown efficiency/effectiveness among both public and private service providers. This situation is characteristic of many Finnish municipalities as well as municipalities throughout the Nordic region. This is a strong driver for the project.

The company responsible for the kotitori function has experience from other types of IT and care delivery projects in Finland and Sweden.

A4.5 Regulation

The private partner has not experienced regulatory issues except for the lack of clarity of VAT rules, as mentioned above. There is no information on perceived regulatory issues from the public partner.

A4.6 Potential

Both the public and the private partners view the potential as very significant. This is based on the perception of a strong need for developing innovative solutions to the growing challenges of providing eldercare within a financially constrained environment, and in the face of changing demographics with a generally ageing population.

The private partner sees the “Home Markets” project as an important pilot project for developing integrated service solutions that can be marketed elsewhere in Finland, and in the rest of the Nordic countries. Sweden is particularly relevant for the company.

A4.7 Recommendations

The recommendations from this case are as follows:

- It is very important that the public partner is clear in setting targets. It is recommended that targets are included into the contract between the partners
- It is recommended that incentive structure (bonuses and penalties) are clearly aligned with the project targets
- It is recommended that the market for the product or service is sufficiently large before the PPI project is initiated.

A5 Case 5: Mobile Health (Finland)

A5.1 Project characteristics

A5.1.1 Background

The Mobile Health Project is a sub-project of the Healthy Borough Programme in Finland. The Healthy Borough Programme is a public-private collaboration project involving the City of Helsinki, the facilitation unit Forum Virium, which was established as a non-profit firm by a group of private firms particularly within the IT and telecom sectors, and a number of private firms and private third-sector voluntary organisations. The Healthy Borough Programme initially runs from 2008 to 2011 and has developed a series of public-private innovation sub-projects, including the Mobile Health Programme, which is the focus of this case study.

A5.1.2 The partners

The project was established by the Helsinki City Administration and Health Services based on initial suggestions from Forum Virium. The aim for the public partner was to improve population health in the Helsinki area, and to develop innovative approaches to prevention and health promotion in col-

laboration with private enterprises and society. The underlying concerns were observations of health inequality, perceived problems in health status and increasing health expenditures. The aim for the private partners was to develop business opportunities particularly in relation to health/welfare and IT/telecom solutions.

On the public side the project involves the districts of Länsi-Herttoniemi, Herttoniemenranta, Roihuvuori and Tammissalo. The other key actors from the City of Helsinki are the Sports Department, Department of Education and the Social Services Department. As the programme proceeds, other departments will also participate in it.

Forum Virium Helsinki initially represented private firms, but is now integrated as part of the city administration, although still with private firms represented on the board. The role of Forum Virium is to facilitate dialogue between public and private partners (firms and third-sector voluntary organisations) in order to identify problem areas and ideas that can be turned into partnership projects. Forum Virium also acts as fund-raising agent for the sub-projects. It explores national and EU level funding opportunities and assists in applying for funds.

The most important private companies participating in the sub-projects are Elisa, Logica, Medineuvo, Medixine, Nokia, Palmia and Tieto. Elisa is the private partner in the Mobile Health Project.

The public partner views the programme as a way to develop innovative approaches to public health problems. The private partners in the sub-projects view the partnerships as a way to develop and test products that may be commercially viable. Private third sector representatives see it as a way to get attention to particular issues and to get private and public actors involved in solving such issues. The role of Forum Virium is to facilitate partnership solutions. It is a core interest of the organisation to develop successful partnership projects.

The public partner bears the main financial risk. The financial risk for private partners is the commitment of time and resources in developing solutions which may not be commercially viable.

A5.1.3 The product

The Mobile Health Project has developed and tested a service which captures personal information on exercise habits via mobile phones, and provides feedback on progress and achievements, also via the phone. It serves as a personal trainer and a motivational factor for doing exercise.

The main objective was to develop more knowledge regarding motivational patterns and to get a differentiated picture of exercise habits. On the technical side the project developed and installed movement sensors on mobile phones, to collect personal information on exercise habits. The information is transmitted to a database. This allows for sophisticated analysis of motivational patterns, and provides a platform for more targeted and differentiated public health interventions.

A5.1.4 Project organisation

A steering group with public and private partners is central for the programme. The steering group evaluates and prioritises ideas and selects the most promising projects to be implemented. In the Mobile Health Project, the private firm Elisa has worked with public partners to develop a mobile phone-based system for collecting and communicating personal records on exercise habits and health status.

The overall project is funded by the City of Helsinki and the Finnish state. Additional funding for sub-projects comes from the EU (SB7 and regional development funds) and from TEKES (the national Finnish funding agency for technology innovation) and SITRA, another national Finnish funding agency. Private partners contribute with time in the main project and development resources in the sub-projects.

A5.2 Project results

In this subchapter, we are elaborating on the project results for both the private and the public partners.

A5.2.1 Private partner

The Mobile Health Project has been evaluated by researchers at MIT. The evaluators concluded that the project has created a service which adds value to its users, has a commercial potential and contributes to better population health. The private partners point out that the service has induced more citizens to do exercise, and consequently has had a positive impact on public health indicators such as obesity prevention and overall health.

The partners of the Mobile Health Project are now considering how to move the application into a commercial setting. Forum Virium suggests that there is a need to bring in new private partners for the commercial development. Elisa is not at the moment willing to take a major role in this process.

A5.2.2 Public partner

The Healthy Borough Programme has established a platform for collaboration and has initiated several promising sub-projects. For the public partners, the Healthy Borough Programme has a significant potential in achieving the goals of better prevention and health promotion in the area. However, most sub-projects are still in the development phase, and there is a lack of detailed evaluations of ongoing results, as it has proven difficult for the project to find and fund researchers to carry out evaluations of the sub-projects.

One exception, though, is the Mobile Health Project, which, as noted earlier, was assessed by MIT to have a very good business and public health potential. The results of the test phase indicated that more citizens would exercise on a regular basis, and there are positive effects on standard measures of blood pressure, weight control etc.

The public partner views the creation of an ongoing forum for dialogue and project generation between private firms, voluntary associations and the different public agencies as a major benefit in itself.

A5.3 Barriers

Both the public and the private partners list the following main barriers:

Public procurement (competition) rules make the process complicated and slow. It takes considerable time and administrative effort to clarify the judicial aspects.

It is unclear how many of the projects will be funded after the initial project funding runs out. For example, the private partner Elisa has shown limited interest in the commercialisation of the Mobile Health Project, and will not pursue a development of a commercial product. It appears that the key persons at Elisa have changed positions, and that the overall strategy of the firm has moved in other directions. Short strategic horizons and personnel changes thus appear to be a barrier on the private sector's side.

The private partner further emphasises the following barriers: Different cultures and speed of decision-making in public and private partners. Private partners perceive the public partners as slow and bureaucratic. Public and private firms do not always speak the same language, or have the same time horizon. Forum Virium has an important role in acting as an interpreter between the private and public partners.

Finally, diverging interests among private firms can create problems in establishing collaboration. This is handled through agreements for each sub-project, which makes management of the project complicated and time-consuming for the public project manager.

A5.4 Drivers for success

Both the public and the private partner point to a shared commitment as a main driver. Both partners perceive a willingness to enter into dialogue and to understand the needs and opportunities for both public and private actors. Both see a general interest in maintaining a structure for presenting ideas and developing projects. Forum Virium has an important role in facilitating this process, and is thus in itself a driver for success.

The common interest for public and private partners is to develop a product that appeals to the target group. It is very important to get a common understanding of both the general and the more specific goals at the outset, but also to be open to adjustments as the project progresses.

The timing must be right for projects to succeed. There are examples of good ideas that are not taken up because key partners have not yet realised the potential. "Hot topics" create fast tracks for getting project proposals through. It can be an important driver for success to seize the right moment and keep momentum in the project.

A5.5 Regulation

Both public and private partners mention public procurement (competition) rules that make the process complicated and slow. It takes considerable time and administrative effort to clarify and adjust to the judicial aspects of partnership projects.

National funding programmes through TEKES and SITRA are important as seed money for the individual projects.

Health sector rules tend to be more complex than in other sectors, because they have to ensure privacy, safety, etc. This leads to relatively high administrative costs when applying for funds and administering the programmes.

A5.6 Potential

Both the public and the private partners view the potential of the project as significant. This is based on the perception of a strong need for developing innovative solutions to the growing challenges of providing welfare services within a financially constrained environment. In this sense both partners see a “burning platform” for change, which can be used to drive partnership projects.

The private partner points to the success of Culminatium, another large regional project for innovative procurement and dialogue-based partnerships, as evidence of the potential.⁷³

The partners also argue that several sub-projects in the Healthy Borough Programme show promising results. However, the transition from a publicly subsidised project in the development phase to a commercially viable product is difficult. New tools must be developed to facilitate this development. The partners indicate that a structured and stepwise guidance tool that can lead them through the legal, fundraising and business aspects of the transition would be helpful.

A5.7 Recommendations

The recommendations are as follows:

- It is very important that the public and private partners have clear agreements on their roles and targets in the project. The agreements must be formalised and written down, yet with some possibility for renegotiation as the project progresses.
- It is important to have agreements on how to use the product/results once the project has ended. Ownership of products must be determined in advance, and a (tentative) plan for continuation must be developed at an early stage.

⁷³ <http://www.culminatium.fi/en/sivu.php?id=3&uid=66>

- It would be helpful to develop systematic tools to facilitate and structure all phases of the project. From initial brainstorming on ideas, to agreement on specific projects, and to commercial exploitation. The tools must include considerations of the legal framework.
- It is important to bring the private partners in at an early stage (before projects are defined) in order to create an open dialogue and exchange of ideas.
- It is very important to have the end users (third-sector representatives) involved in generating ideas and developing projects.

A6 Case 6: Culinary Food Project (Denmark)

A6.1 Project characteristics

A6.1.1 Background

The Culinary Food Project concerns the development of new food products for patients in the hospital sector. The aim of the project was to develop new prototypes for improved hospital food products. For example, by developing new products and methods of cooking fish, vegetables or meat, the hospital food would contain more nutrition, proteins and vitamins.

Another example is the private company Skeeis, which developed an energy-dense type of ice cream suitable for elderly patients with energy deficits. The energy-dense ice cream is now also sold to private customers through the major Danish supermarkets SuperBrugsen and Kvickly. The aim was to help patients recover faster from operations and diseases, while increasing patient satisfaction with the hospital food.

During the project, prototypes and products were developed and tested in a public kitchen (Det Sunde Køkken) and in a private kitchen (KRAM), which both deliver food to public hospitals in Region Sjælland. User-driven innovation was an important element in the project, as employees in the two kitchens were actively engaged in the process. Also, patient satisfaction with various components of the meals was measured before and after the project, with increased satisfaction documented in the evaluation report written by VIFFOS.

The project was financed by Region Sjælland and Vækstforum (a regional growth initiative) with app. DKK 2.2 million (approximately EUR 295,300), while the private companies, VIFFOS and the two kitchens KRAM Madservice and Det Sunde Køkken financed app. DKK 2.3 million (approximately EUR 308,700), which added up to a total budget of DKK 4.5 million (approximately EUR 604,000). The consultancy company Gemba has facilitated and managed the innovation process throughout the project, and the Danish Technical University (DTU) contributed with knowledge and analysis.

A6.1.2 The partners

The project is a public-private innovation partnership (PPI) between Region Sjælland (Region Zealand) VIFFOS (National Competence Centre for Food and Health) and a number of private partners, including KRAM Madservice, DLG Food⁷⁴, Skeeis, Naturmælk, Danish Crown, Royal Greenland, and e-smiley.

Risks were distributed among the public and private participants, but with the majority of costs paid by the various public sector participants. The private partners partly financed the project by investing time and produce (meat, milk, etc.) in the project, but most resources in terms of time and resources came from the region, VIFFOS and the two kitchens.

A6.1.3 Project organisation

The Culinary Food Project contains three sub-projects, all of which contributed to the development of innovative food products in the hospital sector:

Taste and meal design, which was aimed at increasing knowledge of food and general competences among the kitchen employees to design and prepare high-quality meals with good taste.

Food safety, which was aimed at utilising new and improved cooking methods without compromising food safety.

User-based innovation, which served as a platform for cooperation between food companies and the two kitchens, with the purpose of developing high-quality food products suitable for large-scale production.

A6.1.4 Project status

The project was initiated in 2008 and ran until 2010, when the project was evaluated at four hospitals. The project has been a success, because prototypes have been turned into products that are now delivered to public hospitals, and at the same time patient satisfaction has gone up. Also, according to the representative of VIFFOS, employees and managers in both the public and the private kitchens express increased work satisfaction and more knowledge about taste, meal design and food safety.

A6.2 Project results

In this subchapter, we are elaborating on the project results for both the private and the public partners.

A6.2.1 Private partner

For the private partners, the project has led to the development of new prototypes of hospital food, which have been tested and are now in production and being sold. Throughout the project, from 2008 to 2010, a number of workshops, seminars, etc. were held, and new IT products were developed to manage food safety. This process availed the private partners with new

⁷⁴ Formerly known as Agrova.

knowledge about patients' needs and requirements for hospital food, which could be turned into new products that are now sold to hospitals and other large-scale public kitchens in Denmark.

For the private partners, the project has thus constituted a key venue for gaining access to new information about user requirements and needs, which could subsequently be turned into new products. The market potential of the project is estimated to be high, because the products developed through the project can now be sold to all hospital kitchens in Denmark, as well as other large-scale kitchens, for example in schools or kindergartens.

On the negative side, the private partners note that it is often difficult to turn a good idea which has been developed in collaboration with a public partner, into a product that can actually be commercialised. In this phase of the project, the seed money has been spent, and the project has formally been terminated, which means that the private partner must take onboard all risks at this phase.

A6.2.2 Public partner

The project has been successful for the public sector partners in terms of developing new food products and increasing patient satisfaction at the hospitals in the region. In 2008, when the project was commenced, a user satisfaction survey was conducted at four hospitals in the region. The survey illustrated that user satisfaction was high from the outset, with 91 per cent of patients being either satisfied or very satisfied with the overall quality of the food. In 2010, user satisfaction had increased further on several dimensions, for example:

- Variation of the starter or the dessert: 4.7 per cent more patients are satisfied (average of all four hospitals)
- The main course: 6.9 per cent more patients are satisfied at one of the hospitals (Holbæk hospital)
- Taste of the food, variation among the main courses, variation among the starters and desserts: between 6.5 and 7.8 per cent more patients are satisfied at one of the hospitals (Næstved hospital)
- Taste of the food: 7 per cent more users are satisfied at one hospital (Køge hospital).

Overall, the project has increased patient satisfaction. Also, the public project manager from VIFFOS points out that employees and managers in the public and private kitchens express increased job satisfaction. Further, through the development of new competences among the employees, the project has led to new and improved ways of working with taste, flavours and spices in the kitchens. Finally, the public project manager notes that the public and the private kitchens have experienced a positive spill-over effect from the project, which means that the lessons learnt have also been useful in the daily work in the kitchens.

A6.3 Barriers

The most important barrier in this project concerns the move from the development phase to the actual sales and commercialisation of the products. The private project managers from three of the private companies point out that, from the outset, the project focused on the development of new and innovative products, whereas very little attention was paid to the subsequent sale of the products on the market, which of course is fundamental to the private partners.

As a result, the private partners see a fundamental gap between the innovation partnership, which runs for a limited period and with limited money, and the subsequent utilisation and sale of the products developed during the project.

Another barrier in the project relates to the organisation of how large public organisations purchase raw materials and processed food products. The private sector representatives experienced it to be a major barrier that the sale of food products to hospitals is administered by large wholesale dealers with a fixed product portfolio, which makes it difficult for private companies to sell new products to public sector kitchens.

Moreover, the private sector partners see it as a barrier that the public sector often focuses on price rather than quality in public tenders for food products. While this is due to limited resources in the public sector in general and the hospital sector in particular, it creates a gap between the public sector's good intentions during the innovation partnership, and the actual actions of the public sector as a whole, after the project has been terminated.

A related barrier is the limited resources available in the public canteens. This means that new and innovative food products will not necessarily be purchased if they are better tasting but also more expensive. To overcome this problem, one of the private partners in the project points out that there is a need to include in the development phase also a focus on what resources will actually be available in the kitchens to purchase the new products⁷⁵.

A6.4 Drivers for success

The interviewed public sector project manager notes that the successful initiation of the project was due to the financing from several partners, including public partners, private producers, the two kitchens and VIFFOS. It is important that partners on both sides commit to the project and are willing to invest time and resources through a joint sharing of risks.

Another driver was the active engagement of several private food producers, all of whom entered the project with good ideas which were further developed during the project. The private partners, although they are generally satisfied with the project, thus stress that an important driver for success

⁷⁵ Interview with DLG Food.

was their willingness to take on significant risks related to time spent and raw material invested in the testing process.

Finally, both the public and private project managers note that user-driven innovation was important, because it actively engaged many stakeholders in the organisations, which rooted the project in the respective organisations.

A6.5 Regulation

The private partners point out that regulation can both facilitate and hinder a successful outcome of the project, but note that until now regulations have mainly served as a barrier. The main regulatory problem mentioned by the three private managers who were interviewed for this case study was the fact that public seed money is to a very high extent awarded to the development and innovation of new prototypes. The public system, on the other hand, is not focused enough on the subsequent phases of the development process, which is also costly, and where most or all risks are borne by the private partners.

Thus, whereas the seed money as a regulation principle works well in terms of starting up new PPI projects, the private partners find that regulations are not very supportive for the next phases of the project, which concerns the transformation of a prototype or an idea into a concrete product which can be commercialised on a market. This is particularly relevant for small and/or newly established companies, which may not have the resources to finance the project during the implementation and commercialisation phases.

In terms of procurement regulations, the representative of VIFFOS mentions that this was not a problem for this project, because the activities of each of the private partners were below the threshold limit for public tenders. For the private partners, however, procurement regulations became an issue in the commercialisation phase, because they experienced that public procurement authorities focused more on price than on quality, as noted earlier.

A6.6 Potential

The project has a large potential because the products can be sold to hospital kitchens both in other regions in Denmark, as well as the Nordic region and beyond, as noted by the private company Skeeis, which is now entering the German market. Also, products are not only relevant to the hospital sector, but for example also to elderly people with energy deficits at nursing homes and public meals-on-wheels deliveries to elderly and handicapped people.

Another private producer, DLG Food, notes that perhaps the market potential of their products is even larger within the private sector, such as private companies with staff restaurants and canteens with more flexible budgets than public hospital kitchens.

The project manager from VIFFOS notes that the improved taste and meal design developed as part of the project could also be utilised in other large-scale food production venues, such as schools, kindergartens, etc. Although this has not yet been done, the estimate is that there is a large potential in terms of improving the taste and meal design of food products produced at public kitchen facilities.

Moreover, as a spin-off from the project, the private company e-smiley is now developing digital products for self-checking of food safety, which e-smiley is currently developing further with the purpose of commercialising them in the near future.

A6.7 Recommendations

The following recommendations are made in this case:

- Engage users, employees, managers and all other stakeholders in a process of user-driven innovation to ensure that the lessons learned are also utilised and implemented in the organisation after the project is finalised.
- Public seed money to support PPIs is good, but should not only be awarded to consultants appointed to drive the innovation process or to document the results ex post of the project. Instead, money should be awarded directly to the participating public and private partners to reduce the actual risks of starting up a PPI project.
- When a public sector partner decides to start up a PPI project, all phases of a project – from the start-up and innovation phases to actual commercialisation and sale of the product – should be thought together from the outset to avoid a “gap” between these phases.

A7 Case 7: The Digital School (Denmark)

A7.1 Project characteristics

A7.1.1 Background

A major government analysis of teachers' working time in 2009 concluded that teachers in the primary and secondary school sector spend 49 per cent of their working time on teaching and other duties directly related to the pupils, whereas the remaining 51 per cent are spent on various tasks and duties such as administration, preparation of teaching, meetings, communication with parents, registration of presence, coordination with school management, etc⁷⁶.

⁷⁶ Rambøll Management (2009). Kortlægning og måling af administrative opgaver på folkeskoleområdet.

Furthermore, focus-group interviews conducted by VIA University College with teachers in the five municipalities indicated that reducing the time spent on non-core responsibilities such as administration, communication and meetings would not only provide more time with the pupils, but also make the schools more attractive for the teachers in the future, meeting the municipalities' challenge of employing a sufficient number of primary and secondary school teachers.

In 2009, the five municipalities of Viborg, Lemvig, Skive, Holstebro and Ringkjøbing-Skjern jointly identified a challenge concerning the future employment of a sufficient number of primary and secondary school teachers. The background was the fact that the five municipalities are all located in the so-called "outer areas" of Denmark where, according to the project proposal, employment of a sufficient number of teachers is a growing challenge in the coming years.

The aim of the project was not to replace teachers with digital systems, but to increase job satisfaction and improve the quality of the future school by increasing the time spent with the pupils in the classroom.

A7.1.2 The partners

The Digital School Project is a public-private innovation partnership involving five local municipalities in the mid-western part of Jutland, Denmark, as well as research institutions, primary and secondary school teachers, school managers, producers of teaching materials, private software developers, VIA University College and representatives of teachers, students and industry organisations. The aim of the project is to utilise private sector expertise to develop new digital solutions to relieve primary and secondary school teachers of administrative and communicative burdens, providing sufficient time for their core task of teaching.

The five municipalities applied for DKK 1 million (approximately EUR 134,230) through a pool of money to support PPIs in Region Midtjylland, the Central Denmark Region (the so-called OPI fund). Approximately DKK 250,000 (approximately EUR 33,560) was granted to the first phase of the Digital School Project. Also, the municipalities and VIA University College jointly financed the project with further DKK 1 million (approximately EUR 134,230), in addition to time spent on preparation and planning of the project. In 2010, the five municipalities submitted an application to the Danish government's ABT-fund (anvendt borgernær teknologi, applied technology for better public service) for funding of the further development and implementation of the project.

Because Region Midtjylland, the five municipalities and VIA University College finance the project, the risks in the start-up phase of the project were mainly borne by the public sector partners. For the five municipalities, the risks mainly relate to the many hours spent on planning and starting up the project. However, as the project now moves into the next phase, where the public and private partners engage in an innovative dialogue phase, the pri-

vate partners are gradually bearing the risks related to the development of new digital products in collaboration with the public partners. For the private partners, the risks in the innovation phase are mainly related to the time spent on development of new ideas and digital solutions.

A7.2 Project results

In this subchapter, the results of both the private and public sector are presented.

A7.2.1 Private partner

As described above, the project is currently moving from the idea phase into a second and more concrete innovation phase, where private sector companies are invited to participate in two innovation conferences. The aim of the first innovation conference, which was held in October 2010, is to develop a common understanding of the nature and scope of the challenges facing the school sector.

The second innovation conference, to be held in January 2011, will focus more specifically on the development of new concepts and solutions for the digital school, such as digital teaching material, a web-based platform, etc.

The two innovation conferences are facilitated by VIA University College, Horsens, and financed by Region Midtjylland. Without this funding, the project would not have been able to invite the public and private partners to participate in the innovation conferences.

The funding from Region Midtjylland, according to the manager of the project, was fundamental for the start-up of the project and in bringing together public and private sector partners for the development of innovative solutions for the digital school.

The market potential of the products developed through the project is estimated by the interviewees to be very high. Firstly, because the products may be utilised by primary and secondary schools in all the 98 municipalities in Denmark, secondly because the products can be used in other types of schools, for example sixth form colleges/high schools, and thirdly because they can be exported to foreign markets.

According to one of the project managers, the project has a potential of releasing 2,610 full-time positions in the primary and secondary school sector in Denmark. Moreover, for the private partners, the project has the potential of serving as an incubation lab for the development of new digital products for primary and secondary schools in close collaboration with the public sector partners.

A7.2.2 Public partner

For the public partners, the project has great potential if it succeeds in reducing the time spent by primary and secondary school teachers on administrative duties, as it is expected to release time which can be spent on teaching, and to

increase teachers' job satisfaction. The project is thus expected to have a positive effect both in terms of retaining qualified teachers in the outer areas of Denmark and of providing high quality in primary and secondary schools, in the context of savings on public budgets due to the financial crisis.

The project is still in the development phase and the concrete products and subsequent effects are yet to be seen, but the public project manager mentions a number of potential products which could be developed in the next phases of the project. For example:

- A digital platform from which teachers can search for and download teaching material
- Development of new interactive teaching materials (for example where the degree of difficulty changes continuously according to the pupils' performance)
- A digital platform for "smarter" planning of the school year, learning plans for the pupils, communication with parents and other teachers, etc.

When the innovation conferences have been held in 2010 and 2011, the public partner hopes to utilise the ideas to announce a public call for tenders, where the private partners can deliver bids for various products and solutions for the digital school.

A7.3 Barriers

According to the public sector representatives, there have been a number of barriers in the start-up phase of the project. One barrier is that, in order to be awarded funding, the project must display a very concrete potential for innovation. The project manager representing the five municipalities and the representative of VIA University College, who were both interviewed for this project, stress that the awarding authorities expect too concrete descriptions of what the innovative outcomes will be and how these outcomes will be realised.

The interviewees found these demands challenging, because by definition the case involves an innovative process, where the outcome is not always known in advance. This indicates that there is an incongruity between the regulations for start-up funding of PPI projects, and the inbuilt uncertainty about the outcomes of these innovative partnerships.

Another barrier for the project is that financial support will only cover costs related to the development of the project after money has been awarded. Both public sector representatives note that significant resources were spent on preparation and submission of the application for funding. Thus, funding only covers a part of the actual expenses of the public sector partners, which makes it costly and time-consuming to embark on a PPI project.

A representative of Region Midtjylland, who administers the PPI fund, agrees with the project managers and suggests that a smoother and more

flexible administrative process for PPI funding is established at regional and national levels.

A7.4 Drivers for success

The interviewed public sector partners suggest that the successful initiation of the project would not have been possible without the financial support of Region Midtjylland through the PPI fund. A further driver was the very active engagement of VIA University College, which managed the project in its first phase and submitted the application for funding to Region Midtjylland.

Also, according to the public sector manager of the project, a driver for success is the willingness to take on risks and engage in new activities, when the output and outcome are not always known in advance. The success of the project depends on specific persons who are willing to take responsibilities, risks and invest considerable amounts of time in the project, as well as on external funding, although the application process for funding was considered to be too complex and time-consuming for the public sector partners.

A7.5 Regulation

As noted above, the administrative procedures related to applications for funding of PPIs are considered by the project managers as well as representatives of Region Midtjylland to be too complicated and costly. Thus, although the overall aim of supporting PPI projects through various pools and funds is well-received locally, the process of gaining access to this money is considered to be too time-consuming and complicated.

Furthermore, representatives of the project and Region Midtjylland note that the procurement procedures represent a potential barrier for innovation within the project, because the private partners who engage seriously in developing innovative solutions in the early phases may be excluded from bidding for the project in the procurement phase.

Private partners thus face a difficult situation, because they risk spending time on developing new products, at the same time disqualifying them from winning a contract with the public partner for delivery of the products. The procurement procedures are also mentioned by the public partners as a regulatory barrier to successful innovation in PPIs.

A7.6 Potential

As mentioned above, the project is estimated to have large potential in the primary and secondary school sector if a successful innovation of new digital solutions is accomplished and is implemented in all 98 Danish municipalities. There is also potential for export of the digital solutions, and for utilising them in other public service sectors, such as sixth form colleges/high schools or childcare. Because administrative burdens are time-consuming, not only for

Danish teachers but in all the Nordic countries, the potential of the project is estimated to be the same throughout the Nordic region.

A7.7 Recommendations

There are three recommendations pertaining to this case study:

- Make applications for PPI funding less complicated and time-consuming, both at the regional and at the national levels.
- Public authorities should be willing to award money to PPIs without any guarantee that a successful innovation will take place, because uncertainty about the success is a key characteristic of the innovation process.
- Change/ease public procurement regulations to enable more dialogue and innovation in the pre-contract phases.

A8 Case 8: The Intelligent Shirt (Denmark)

A8.1 Project characteristics

A8.1.1 Background

The project concerns the development of a smart textile (an intelligent shirt) that can monitor potentially damaging lifts made by the personnel in the eldercare sector. The overall purpose of the smart textile is to prevent physical wearing-down of workers and thereby reduce the amount of sick days and work-related injuries among eldercare workers.

The project has resulted in the development of a prototype of an intelligent shirt with built-in sensors which measure lifts by eldercare workers during a workday. The prototype focuses on lifts in the shoulder and neck region. The plan is to develop the shirt further, so that it also measures movements in the lower back region. All the data gathered during a workday are gathered in a small box in the textile, and the data can subsequently be transferred via a USB cable to a computer, where the data can be handled by a software programme. This gives the eldercare workers easy access to information about e.g. damaging lifts or other inexpedient work situations.

The Intelligent Shirt Project was initiated in 2008 and was completed in 2010. The project was funded with DKK 1.1 (approximately EUR 147,650) million from the public partner (i.e. the municipality of Aarhus). Further the project was also supported with DKK 1.1 million from the so-called OPI fund in Region Midtjylland, which is a fund with the aim of supporting and advancing public-private innovation partnerships (PPIs) in that region.

A8.1.2 The partners

The Intelligent Shirt Project is a public-private innovation partnership (PPI) between the municipality of Aarhus and the private company Yoke Interaction Design, which is a newly started entrepreneur company.

In order to finance the further development and market launch of the intelligent shirt, the public and private partners have subsequently applied to the Danish government for additional funding through a major pool of money, the so-called Fornylesfonden (the Business Innovation Fund). At the end of 2010 the partners were awarded DKK 1.35 million (approximately EUR 181,210) from the fund to support the testing and further development of the shirt.⁷⁷

Both the public and the private partners who were interviewed express that this phase is challenging, because there is still a long way to go before the prototype of the intelligent shirt can be developed into a product ready for commercialisation and large-scale use.

A8.2 Project results

In this subchapter, we are elaborating on the project results for both the private and the public partners.

A8.2.1 Private partner

For the private partner, the innovation partnership has given access to public seed money as well as knowledge about the needs of workers in the health-care sector. During the development of the intelligent shirt, Yoke Interaction Design received money from Region Midtjylland, which served to bring down development costs. This was important for the private partner, because the intelligent shirt had not been developed before the project was initiated, but was developed during the course of the project.

During the project, the private partner has gained access to valuable knowledge about work-related injuries in the eldercare sector and about the needs of the potential users of the shirt. For example, occupational therapists, physiotherapists and expert researchers were consulted. This has given the private partner important input to the development of the intelligent shirt. According to the private partner, the project has served as a testing-lab for the testing and development of the shirt.

The intelligent shirt is currently available in a prototype which is being further developed. Yoke Interaction Design has therefore not yet earned any profits from the project. Nonetheless, the private partner expresses that the seed money from Region Midtjylland has been very helpful in terms of supporting the project, and the company expects a commercialisation of the product within the next 1-2 years.

⁷⁷ <http://www.fornylesfonden.dk/intelligentarbejdsbeklaedning>.

A8.2.3 Public partner

As a part of the project a report was published, which analysed the scope and consequences of attrition on the Danish labour market. The report concluded that each year approximately 3,500 people in Denmark receive early retirement benefits as a consequence of wearing-down (with illnesses related to the neck, shoulder, arm and hand regions reported as the most frequent causes)⁷⁸. Moreover, the report concluded that the personal care sector was one of the sectors with most reported instances of attrition due to heavy lifts and crooked working postures.

For the public partner, the project gave access to knowhow and information about the causes and consequences of work-related injuries and attrition in the care sector. During the project, the Municipality of Aarhus thus developed organisational knowledge within the subject area, which could both be used in relation to the Intelligent Shirt Project but also in relation to the further work with injuries and wearing-down in the care sector.

The public partner has conducted interviews and workshops with elder-care workers. This research concludes that the testing of the intelligent shirt has been a success. Workers in the sector find it important to know more about work-related wearing-down, and the prototype of the textile has been developed and improved along the way with major satisfaction reported among the employees in the sector.

A8.3 Barriers

According to the private sector representative, it was a barrier in the start-up phase that various public organisations were involved before the final project team was settled. In the first phases of the project, Aarhus Hospital was involved as the public partner in the project, but opted out because participation in the project was considered by the hospital management to be too costly. Therefore, the project team was not set until later, when the Municipality of Aarhus opted in.

Subsequently, when the public partner was finally identified, both partners spent considerable time applying for funding and going through a process of pre-qualification and subsequently the final application round. This was a barrier because both partners spent considerable resources (working hours) in the process on preparation and submission of the applications. Another barrier, which relates to how the product can be commercialised, relates to the procedure of getting an EU patent. The private partner notes that this is both time-consuming and costly, because the product must be described in great detail before being awarded a patent, while the product is still being further developed and tested.

For the public partner, it was a barrier that the seed money awarded from the OPI fund only supported the private partners' activities, while the public

⁷⁸ Aarhus Kommune, Region Midtjylland og Yoke Interaction Design. 2010. Nedslidning på det danske arbejdsmarked. Delrapport 1. Omfang, omkostninger og udfordringer.

partner in the project received no funding. The public partner notes that it may be a challenge to find all the money in the existing budgets required to cover the work hours spent by the public partner during the innovation project. This is especially the case after the budget-reductions which many Danish public organisations are facing in the aftermath of the financial crisis.

A8.4 Drivers for success

The private sector partner expresses that the financial support of Region Midtjylland through the OPI fund has been very helpful in terms of covering development costs such as working time, materials, etc. For the public partner, the ability and willingness to take risks was particularly important in the start-up phase, when the output of the project was still unknown. Also, a high degree of user involvement and user satisfaction is mentioned by the public sector partner as an important driver, because this legitimises the project internally in the organisation.

Another driver for success, which is mentioned by both the public and private partners, was the personal relationship between the project managers from the two organisations. Not everything can be written into a contract, and the partners mention a good dialogue via meetings and ongoing communication to be an important factor, both when things go well and less well.

A8.5 Regulation

The public and private partners in the project as well as representatives from Region Midtjylland point out that the application for financial support (seed money) is too time-consuming, in particular for small and newly started companies. Thus, at the same time as seed money is an important driver for success, getting access to this money requires a lot of work for all partners in the project.

The public partner also mentions that it is a problem that money is often awarded for the first innovation phase, whereas no money is available for the subsequent phases, such as further development, testing of the product, market analysis, commercialisation etc. The private partner expresses the same concerns, and adds that this process may be a stumbling block when the project moves from one phase to the next.

A8.6 Potential

The project is estimated to have a high potential in the eldercare sector as well as in other sectors related to personal care, for example the health and daycare sectors. Although the intelligent shirt was originally developed for use in the public sector, Yoke Interaction Design is also in contact with major private care providers, where the shirt potentially could be utilised.

The private partner is currently preparing an EU patent for the product. A representative from the company stresses that the patent may be difficult to obtain. Nonetheless, the export potential of the product is estimated by both the public and private partners to be very high, because the problem of work-related wearing-down in the care sector is relevant in many countries.

Moreover, as noted earlier, the private partner is currently developing the product to also measure lifts and damaging movements in the lower back region, which could further increase the potential of the product.

A8.7 Recommendations

The following four recommendations are made in this case:

- Reducing the number of innovation pools at the national level, so that participants in PPI projects only need to apply to one place.
- Rather than supporting only the private partner in a PPI project financially, the seed money should support both partners, because they both have major expenses during the course of a PPI project.
- There is a need for coordinated knowledge and initiatives across the regions in Denmark, for example a joint regional initiative to support PPI projects.
- It is important that seed money is available for small entrepreneur companies, and this requires less administration in the application process at both the regional and the national levels.

A9 Case 9: Akribe (Norway)

A9.1 Project characteristics

A9.1.1 Background

In 2000 and 2001 several new laws were introduced in Norway on documentation and quality assurance in the health sector. Written documentation and procedures became required to a greater extent than earlier. Further, at the beginning of the 21st century, electronic documentation was introduced in the health sector in Norway. The introduction of new laws and new technology constituted the general background for the Akribe project.

Akribe A/S was established as a publishing house in 1999/2000, specialising primarily in health and social sciences. In 2003, Akribe launched PPN (Practical Procedures for Nurses).

Prior to the development of PPN, Akribe conducted an examination of the documentation and quality assurance procedures and processes in Norwegian health institutions. The study indicated that procedures in Norwegian health institutions were ineffective and poorly organised regarding development of procedures and updates.

The project is a result of a public research project, and the goal of the partnership between Akribe and the public partner is to involve future users in the development process. The selected users were nurses in clinical practices as well as nursing students and lecturers at nursing schools. By letting these different user groups test the PPN programme, it was possible to adapt the programme to the users' needs.

Due to the financing, Akribe carried the main risk, in the sense that, in case of project failure, Akribe would lose money. For the hospitals and the college however, the project was not risky, as they had little money involved. Innovasjon Norge is obviously taking a risk by funding Akribe.

A9.1.2 The partners

The Akribe project is a public-private innovation partnership between Akribe A/S and three institutions, Rikshospitalet University Hospital in Oslo, Telemark Hospital and Østfold University College. The project concerns the development and test of the database PPN.⁷⁹

Innovasjon Norge financed the project with one third of the total capital value. The total capital value of the project was approximately EUR 1 million. Akribe financed the rest of the project (i.e. EUR 670,000). Rikshospitalet University Hospital in Oslo, Telemark Hospital and Østfold University College contributed to the project by covering the costs of testing the programme. Later, a test project for the municipal sector with Lillehammer and Arendal municipalities as partners was established.

A9.1.3 The product

PPN is a digital database which documents and ensures the quality of nursing procedures. PPN consists of all the basic procedures (over 300) and extensive research-based theory, and is developed and revised by specialists in nursing and medicine.

PPN combines text with over 800 illustrations and animations. Target groups are nurses in clinical practice and nursing students and lecturers. PPN guides nurses through all the procedures, showing the indications, goals, ethical and legal issues concerning the procedure, the kind of information the nurses have to give to the patient, observations, hygienic principles, the kind of instruments and equipment the nurses need and how and in what order the nurses should perform the procedures.

PPN is today used in Norwegian hospitals and local health services to ensure the quality of patient care.⁸⁰ The aim of the project is to involve future users, for them to contribute to the development of the product. The project

⁷⁹ The Akribe project is a public research development contract (a so-called OFU contract - offentlige forsknings- og utviklingskontrakter), which entails an obligated and purposeful collaboration between the private and the public sectors. Innovasjon Norge (Innovation Norway) is responsible for the programme and funds this type of projects. Innovasjon Norge is a state agency that promotes nationwide industrial development. More information about OFU contracts can be obtained here: <http://www.innovasjonnorge.no/Tjenester/Programmer/FOU-kontrakter-OFUIFU/OFU---Offentlige-forsknings--og-utviklingskontrakter/>

⁸⁰See <http://www.akribe.no/text.cfm?id=67> for more information about PPN

was implemented in 2003, and was financed by Akribe and *Innovasjon Norge*, Innovation Norway. The project was initiated by Akribe.

According to a project representative, the PPN is a solution to many of the organisational problems that hospitals experience. It was expedient that future users were able to test the product and give Akribe important feedback, so that the system could become user-friendly. This was also a way for Akribe to gain access to the public market. There was a significant demand for the product in the health sector. According to both a public sector and a private sector project representative, Akribe depended on the users to test and develop the product, while the institutions needed the product to become more efficient. In that sense, there was a mutual dependency.

A9.1.4 The process

The partnership between Akribe and the institutions has been very good. In the planning stage several meetings were held, at which the actors jointly decided how to carry out the testing. They also arranged group interviews, demonstrations of the programme, training and surveys.

At the planning stage the parties held monthly meetings. Currently, a meeting is held when there is a specific demand. Akribe and the involved public institutions collaborate continuously to develop the project. On a yearly basis, the institutions take part in a user forum with the aim to improve the product's functionality and contents.

This forum gives the institutions the opportunity to give Akribe feedback on their needs for new procedures or important changes. The forum consists of users from the hospitals, municipalities and other health institutions, and contributes to collaboration and professional development across organisational boundaries.

A9.1.5 Project status

PPN has been on the market since 2003 and today, the product is used by approximately 200 municipalities in Norway, 14 health trusts and all Norwegian nursing colleges. Akribe and three regional health trusts have also made a general agreement. Akribe estimates that there is still a lot of potential in the market. The public sector representative is of the same opinion. Akribe is planning a second-generation technical upgrading and further development of the product.

A9.2 Project results

In this subchapter, we are elaborating on the project results for both the private and the public partners.

A9.2.1 Private partner

By working with the public institutions and receiving funding from *Innovasjon Norge*, Akribe stood stronger financially. Without public funding, Ak-

ribe and PPN would not exist, according to a representative from Akribe. Thus, the partnership with Innovasjon Norge and the institutions has been crucial for the turnover and earnings. Furthermore the project has increased the employment rate in the company. The operating result has been positive since 2006 and Akribe has 12 employees today.

The project has had positive synergy effects on Akribe's other business areas. Firstly, it has given Akribe an overview of the needs in the market for e-health, e-teaching programmes and electronic work of reference against other target groups in the health sector. Secondly, the project has brought about new production methods in other product areas, such as handbooks with clearer working processes. Additionally, the OFU contract has given Akribe and PPN legitimacy and better access to the health sector market.

Akribe has recently started testing PPN in Denmark as a basis for a Danish version. Last year Akribe presented PPN at a large international nursing conference in Durban. After requests from interested parties at the conference, Akribe has started preliminary work with an English version.

The trustworthiness that the partnership has given Akribe gives a good foundation for further development of new projects within the sector or other sectors, according to a company representative.

Akribe's future goal is to become an acknowledged supplier of up-to-date and knowledge-based information to the health sector.

A9.2.2 Public partner

According to both parties, PPN has had a huge impact on the working procedures at hospitals in Norway. Previously, nurses and doctors wrote the same ward procedures, which meant unnecessary replication of work. Now all the hospitals which use PPN follow the same procedures. PPN has not only made the hospitals more efficient due to time savings, but the quality of the procedures has also improved. The system has become part of the electronic patient journal, which makes it easier to connect the patient with the procedure, according to a representative from the public sector.

The municipal sector is also required to have up-to-date and qualified procedures. Thus, the municipal sector gains the same from implementing PPN. The municipal sector had great problems meeting this requirement before PPN was launched on the market.

Due to the fact that PPN has been implemented in all Norwegian nursing colleges, already prior to their first job at a hospital, students are familiar with the programme. This makes the transition from theory to practice much easier, says a representative from the participating institutions.

A9.3 Barriers

According to a representative from the private sector, there have been some barriers for Akribe throughout the partnership period. However, the partnership itself has not been the problem, but rather the public health sector's

attitude towards commercial participants, says a representative from Akribe. The public partner often establishes competitive products which makes it hard for the private sector to be included in the market.

As an example, the Norwegian Knowledge Centre for Health Services started developing procedures after the same model and in competition with Akribe, instead of collaborating and utilising the experience that Akribe has built through the past ten years. Funding of further development of the product is also a barrier, according to Akribe.

According to both the public and the private sector project participants, it is difficult to overcome the negative attitude towards commercial actors in the health sector. There is a general opinion that the private sector should not earn money on people's suffering. A public sector project representative mentions the following example: The three institutions which tested the product were given an offer to use PPN for free for one year for the institutions' contribution and participation in the development process.

After this period, the institutions could buy the product on a contractual basis. The Telemark Hospital and Østfold University College responded positively to the offer, while Rikshospitalet University Hospital turned it down. The main reason for doing so was that the management was pressured by influential employees who did not want commercial participants to earn money on something the public sector needed and demanded. Thus, the nurses wanted the product, while the management stopped the installation of the product, mainly for political reasons. Later Rikshospitalet University Hospital bought and implemented PPN.

Finally, according to a representative from Akribe, the requirements for documentation and the rules for funding are too demanding.

A9.4 Drivers for success

Both the public and the private sector partners in the project say that the product was highly demanded, especially by nurses. It is a product that perfectly matches the needs for written procedures of high quality in the health sector. According to both Akribe and Rikshospitalet, this is the main reason why exactly this product succeeded. Thus, they are both of the opinion that the main key to success of PPI is to have a good idea. The fact that the public authorities in Norway prioritised the health sector helped Akribe to receive funding from Innovasjon Norge. The support, follow-up and counselling from Innovasjon Norge has, according to Akribe, been crucial for the development of PPN. I

According to a public sector representative, the success of PPI also very much depends on the people involved in the project. The private partner has to be willing to take risks and to be active to succeed. Further, it is important that the users of the product are involved in the process, also after the project is formally closed.

A9.5 Regulation

As pointed out earlier, several laws regarding health personnel were introduced around 2000 and 2001. New documentation and quality requirements within the health sector were instituted, as well as requirements of technology. According to Akribe, these laws were an important stepping stone for success.

The Ministry of Health and Care Services and the Norwegian Directorate of Health's drive for innovation in the health sector have also been important for the project, according to a public sector representative. Development of knowledge and innovation has become a policy within the Norwegian Knowledge Centre for the Health Services, which is part of the Norwegian Directorate of Health. The Norwegian Knowledge Centre for Health Services is continuously developing knowledge-based procedures which are in line with PPN thinking, including all procedures in one database. In the light of this, Akribe must deal with international demands, as does the Norwegian Directorate of Health Services.

According to Akribe, the requirements of the public tender were a challenge. The public authorities are not clear in their guidelines for processes and other procedures.

A9.6 Potential

Both parties indicate that PPI has a high potential in the health sector, mainly because the health sector depends on the private sector to make good ideas become a reality. This is estimated to be the case for other sectors as well. According to Rikshospitalet University College, collaboration between the public and the private sectors is necessary because the public sector does not have the knowhow or the organisation to develop product or service ideas. However, there is a mutual dependency.

The public institutions know what their needs are, and the private sector knows how to solve the problem. According to a public sector project representative, the nurses in the project knew what the problematic issues were, and Akribe had the necessary knowhow to come up with a solution.

Both a private and a public sector project representative estimate that the potential of PPI in the Nordic countries is similarly large, since the countries have similar laws and regulations.

A9.7 Recommendations

The following three recommendations became apparent in the work with this case:

- Increase availability of grants to projects with national and international potential of social importance. According to Akribe, the funding should be less dispersed and more focused on fewer projects. According to

Akribe, the funding organisations are not critical enough when selecting projects.

- The risk between the public and the private sector should be divided more equally than it is today, when the private sector carries the bulk of risks. Risk-sharing is important for future PPI projects.
- To obtain the best possible synergy of the partnership between the public and the private sector, the public sector has to - to a greater extent - utilise the experiences of the private sector. According to Akribe, a review of the attitude to private participants is needed, especially within the health sector. The public sector should not establish competitive products or impede the free market by taking advantage of their dominant position as both semi-monopoly/semi-monopsony for commercial participants in the market.

A.10 Case 10: DiaGenic (Norway)

A10.1 Project characteristics

A10.1.1 Background

The background for the project was the idea that diseases could be discovered through the testing of blood samples. This test would especially be used to discover breast cancer and would be an alternative or supplement to mammography.

The financing of the project was in place in 2000 with DiaGenic as the initiator. A partnership between the private company and the public healthcare system was formed to enable the private company to establish contact to women, who could take part in the clinical study needed to develop the test.

The project value was NOK 52 million (approximately EUR 6,74 million) and the project was financed partially by DiaGenic and Innovasjon Norge. Innovasjon Norge provided one third of the total financing. Ullevål University Hospital contributed by covering the costs linked to the collection of blood samples and gathering relevant clinical information about the participating patients.

A10.1.2 The partners

DiaGenic is a public-private innovation partnership (PPI) between the company DiaGenic ASA, Innovasjon Norge and Ullevål University Hospital. It is based on a so-called OFU contract facilitated by *Innovasjon Norge*⁸¹, Innovation Norway.

⁸¹ The DiaGenic project is a public research development contract (a so-called OFU contract - of-fentlige forsknings- og utviklingskontrakter), which entails an obligated and purposeful collaboration between the private and the public sectors. Innovasjon Norge is responsible for the programme and funds this type of projects. Innovasjon Norge is a state agency that promotes nationwide industrial develop-

DiaGenic ASA is a Norwegian *in vitro* diagnostic company founded in 1998. DiaGenic develops patient-friendly diagnostic tests for the early detection of serious diseases where early intervention is crucial for successful treatment. DiaGenic's patented method is based on identifying disease-specific gene expression signatures from easily available sample material such as blood. Through funding from Innovasjon Norge and collaboration with Ullevål University Hospital, it was possible for DiaGenic to develop a diagnostic test for breast cancer.

The incentive structure between the public and the private company in this project came from a mutual dependency. Ullevål University Hospital found the test interesting and promised to use it if DiaGenic could make it work. On the other hand, DiaGenic was in need of clinical information and blood samples from the hospital. Since DiaGenic only had the agreement that the hospital would use the test if it worked, they bore all the risks associated with the project.

A10.1.3 Project organisation

The organisational structure of the partnership was concentrated around two formal project managers at Ullevål University Hospital and DiaGenic. The project manager at Ullevål was responsible for the implementation of the project. The interaction between DiaGenic and Ullevål was concentrated around the handover of the blood samples taken at Ullevål to DiaGenic, but according to a project representative, there was also telephonic communication between the formal project managers at least three times a month.

A10.1.4 Project status

The project has formally ended, but a representative from DiaGenic says that the communication and information sharing between DiaGenic and Ullevål is still ongoing, and that the partnership continues to bear fruit. DiaGenic is working to develop the product further, i.e. to get the test to detect how successful cancer treatment has been.

Today, the test is sold to hospitals around Europe. A representative from DiaGenic expects that the cooperation with Ullevål will continue in the years to come. The plan is to get the test approved also by the health authorities in the U.S. to access the major market there.

A10.2 Project results

DiaGenic's turnover and earnings have been strongly influenced by the partnership because of the nature of the project; the development of a test depends on the test working properly. DiaGenic has not increased their staff as a consequence of the partnership.

The test was the first product that DiaGenic launched, and the experience from this process has been used for introducing new products on the market. A company representative says that the project has received a lot of positive attention in the media, which clearly has had a positive branding effect. The project also received an innovation prize from the Research Council of Norway. Today the product is sold to several countries in Europe.

The partnership between DiaGenic and the public hospital has brought about product innovation, says a representative from DiaGenic. This applies to the development of new products which can detect a wide range of diseases by testing blood samples. A product has already been developed that can detect Alzheimer's, and a product could also be developed for Parkinson's.

DiaGenic is already a partner in other partnerships with the public sector. They are in contact with Ullevål University Hospital and other hospitals in Norway, as well as hospitals in Sweden and other European countries. The goal of extending the list of cooperating hospitals in other countries is to expand the use of the developed tests.

A10.3 Barriers

During the design and planning stages of the partnership there were no barriers for DiaGenic. The company only had to face minor practical issues. In the implementation phase of the cooperation, the private sector project manager contacted the project manager at Ullevål directly, but certain administrative structures had to be followed, which took some time. According to a private sector representative, no barriers were identified.

According to a representative from DiaGenic, new regulation for bio banks was introduced at one point. However, this did not cause any problems for DiaGenic.

A10.4 Drivers for success

According to a representative from DiaGenic, the main keys to success for PPIs are the people behind the project. If they have the attitude that the project is worthwhile and useful, it will be a success.

A10.5 Regulation

It is difficult to pinpoint the most important regulation and policy initiatives in relation to PPI, says a representative from DiaGenic. Nevertheless, he points out that the OFU contract and the Research Council of Norway have been essential for the project.

A10.6 Potential

There is a great potential for further PPI projects in the health sector, according to a DiaGenic representative. The representative says that in the public healthcare system, the potential for innovation is rarely acknowledged, but a private company can contribute with innovative ideas. There is a greater potential for PPI in Norway. Today, Norway lags behind when it comes to innovation. There is still discrepancy in relation to commercialisation between research institutions/basic scientists and privately owned companies. Research institutions/basic scientists have been reluctant to cooperate with DiaGenic because it is privately owned. If these issues are reduced or removed, more innovation will be generated.

According to a representative from DiaGenic, there is a large potential for PPI within the Nordic region. DiaGenic has cooperated with hospitals in Sweden. But there are regulatory differences between countries, for example in the regulations for establishing bio banks. The countries operate with the same requirements, but carry them out differently. If such regulatory differences are removed, there could be more innovation across borders, says the DiaGenic representative.

A10.7 Recommendations

The following three recommendations were proposed by stakeholders in this case:

- Today, many of the research officers in the public research institutions wish to become innovators. However, there is too much risk involved for the researchers. They have the option of taking leave, but only for 1-2 years. A complex project takes longer to evolve. Thus, if they take on a risky project, they risk losing their jobs. If researchers were given the option of longer periods of leave, they would be more likely to take on risky projects, according to a representative from DiaGenic.
- Changing the attitude of the research institutions towards privately owned firms. This would make new research, and the products that result from the research, accessible to the public faster.
- Coordinating the legal framework between countries to ease cooperation across borders.

A11 Case 11: Communication, hearing and notification aid (Norway)

A11.1 Project characteristics

A11.1.1 Background

The Norwegian Labour and Welfare Service (NAV) plays a broad participatory role on the labour market in Norwegian society. NAV is an important actor within public procurement, and according to NAV, it is extremely important for the organisation to have proactive suppliers and procurement with a high degree of innovation.

Before this project, NAV went into procurement processes without enough information about what the users really demanded and what the supplier actually offered. The procurements have therefore often not been optimal, because NAV did not know what to demand and what they needed. According to a representative from NAV, it is important for the public sector to have a good understanding of needs and the available technology.

The project is a pilot for a programme that NHO (the Confederation of Norwegian Enterprises) and KS (the Norwegian Association of Local and Regional Authorities) have started. It is a five-year programme for supplier development which is a public-private innovation partnership concerning supplier development.

The aim of the programme is to improve the services of the government and the municipalities, increase the industries' competitiveness and improve the utilisation of Norway's resources.⁸² NAV initiated the project by applying for permission to use procurement in a pilot project for supplier programme development.

The objective of this PPI was to move boundaries for the rules for public procurement to ensure innovation and better and more innovative products and services.

A11.1.2 The partners

Prior to the project, the relationship between the suppliers, the consumer organisations and NAV was not very constructive, as the area is demanding, according to a representative from NAV. The consumer organisations felt that they did not have the necessary influence, while the suppliers were of the opinion that NAV made several technical mistakes when promoting the products. Within only a few months, the collaboration climate became entirely different.

NAV has not yet chosen a supplier, but is continually in contact with potential suppliers as well as supplier- and consumer organisations (e.g. the Norwegian Federation of Organisations of Disabled People).

⁸² More information about the programme can be obtained here: <http://www.nho.no/offentlig-sektor-og-naeringslivet/sammen-om-leverandoerutvikling-article21612-289.html>

A11.1.3 The outcome

NAV is planning to conduct a new procurement of communication, hearing and alerting aids. These are aids that will alleviate the sensory loss in form of hearing and speech in connection with alerting and conversation. The aim is to sign a new general agreement by 1 January 2012.

NAV has high expectations for the success of the project, which is expected to become an important reference for future projects of the same type.

A11.1.4 Project status

The project is currently at the pre-specification stage.

A11.1.5 Project organisation

NAV has established a reference group which consists of 15 people with professional backgrounds. In this project NAV has the executive part while the suppliers, the organisations and the reference group have the advisory part. Today, there is no formal structure between the sectors. To ensure innovative procurement, NAV wants good and frequent interaction with the suppliers and the consumer organisations. NAV has recently had a dialogue conference with 16 suppliers, which they found constructive and useful. Since June 2010, NAV has also held three large meetings. The parties meet as often they need to.

NAV finances 100 per cent of the project, while the private partner finances the delivery. NAV buys the delivery from the private partner. According to NHO, one of the goals is for the project to end with an OFU contract (public research and development contract), with the private sector receiving funding from Innovasjon Norge.⁸³ The capital value of the project is set at EUR 25 million. In terms of the financing of the project, each sector bears its own risk. Each sector is responsible for their project.

A11.2 Project results

It is difficult to give an account of project results due to the early stage, which the project is at. However, the following gives an account of preliminary and expected results according to NAV.

For NAV, it is not important for the project to lead to savings. The aim is rather to improve the quality of the services. The close partnership between NAV and its suppliers has led to a higher knowledge level for both the public and private sectors. As a consequence, NAV already expects improved products and services.

⁸³ Innovation Norway promotes nationwide industrial development profitable to both the business economy and Norway's national economy, and helps release the potential of different districts and regions by contributing to innovation, internationalisation and promotion. Information about Innovasjon Norge can be obtained here: <http://www.innovasjon Norge.no/system/Global-toppmeny/English/>

The project ensures that the employees who are responsible for purchasing in NAV get new and challenging tasks. This makes it easier for NAV to retain qualified manpower.

The project has had an impact on NAV's effectiveness, as they have become better at gathering information for advanced procurement, which will benefit projects in the future. Due to the close partnership with the suppliers, NAV knows much more about the potential and can make specifications that favour innovation.

Due to the improved relationship between NAV and the suppliers, NAV's brand name has improved among not only the suppliers, but also among the groups of users and in the public sector.

The project has had procurement political effects. NAV's focus has been on the impediments of the regulations instead of the opportunities. The project has, however, led to a more positive view on the opportunities provided by the regulations, according to a NAV representative.

A11.3 Barriers

Neither NAV nor the suppliers have experienced any barriers so far.

A11.4 Drivers for success

According to a NAV representative, the key to success of PPI is openness and dialogue concerning needs and product development. The interaction has to be close, so that the involved parts know about each other's roles. To be able to develop good products and services, this is crucial. The good interaction before committing to a supplier is essential, according to a NAV representative. Once the procurement specification have been made, it is not possible to make any changes. That is what NAV has done until today.

A11.5 Regulation

The only regulation the project has to follow is the public procurement law which sets all the general terms.

Innovasjon Norge and other research institutions finance PPI projects and are important for the further success of PPI projects. NAV states that important framework conditions for the public sector are set by the European Union, especially in relation to IT and all types of technology.

A11.6 Potential

The potential is unlimited. As long as the public sector purchases goods and services, there are no boundaries for what the public and the private sector can achieve. This is also true for Norway in general.

From NAV's point of view, the Nordic and the European markets are managed as one market.

A11.7 Recommendations

The following two recommendations were provided by the stakeholders in this case:

- It is recommended to support and benefit from strong European collaboration concerning technical standardisation.
- Continuing to increase stimulation through funding from Innovasjon Norge and other research institutions.

Appendix 2 – Interview guide

A2.1 Introduction

This document presents the analytical design of the case studies that will be conducted as part of the project “Strategic use of public-private cooperation in the Nordic region”. The document describes the applied methodology, and presents the interview guide to be used in the analysis.

A2.2 Policy areas

The cases will represent the following policy areas: children and young people, elderly and handicapped, prevention (for instance, prevention of obesity and other life style diseases), education, treatment and rehabilitation.

A2.3 Methodology

The case analyses will be based on semi-structured qualitative interviews. For each case, two interviews will be made; one interview with a public sector project manager and one interview with a private sector project manager. Experience suggests that interviewing representatives from both sectors will bring about more adequate and comprehensive case accounts.

The selected interviewees will be key individuals (project managers) in the chosen public-private innovation partnerships (PPI), and they will have hands-on practical case experience. The interviewees will be able to answer detailed questions about the projects and the effects of the projects.

Each interview is estimated to last approximately 45 minutes. Prior to the interview, the interview guide will be forwarded to the interviewees. The interviewees are welcome to provide their answers in written prior to the interview, if they wish to do so. This is however not expected of them.

The interviews will mainly take place as telephone interviews. In some cases, for instance where the case representative’s office premises are located close to our office premises, the interviews can be made face-to-face. However, for logistical reasons as well as due to the condensed time line of our project, it is the expectation that the majority of the interviews will take place over the telephone. In cases where you estimate that a face-to-face interview is expedient, please consult Guri Weihe, guwe@cowi.dk so that we continuously can keep track of project expenses.

The interviews will not be tape-recorded. Rather, notes will be taken throughout the interview. The notes will be saved as data collection documentation but will be for in-house use only.

A2.4 Interview guide

This section contains the interview guide to be used when interviewing the case representatives. Note that the section concerning case effects (results / output) is divided in two subsections: one section to be answered by public sector representatives only, and one section to be answered by private sector representatives only.

The interview guide should be used as a semi-structured interview guide. This means that the chronology of the questions does not have to be followed strictly. The important thing is to make sure that all the topic areas are covered sufficiently, when the interview is finalized.

Topic	Interview questions
1. Project characteristics	1.1 Please describe the background of the project (how and by whom was the project initiated). 1.2 Please give a brief account of the overall goal of the partnership. 1.3 Please give the name of and specify the type of partners involved in the partnership. 1.4 Please describe the organizational structure of the partnership. 1.5 Please describe the type of interaction between the involved public and private organizations (intensity of interaction, frequency of meetings, phone calls etc.). 1.6 What is the project value (capital value in EUR)? 1.7 How is the project financed? 1.8 Please give an account of the incentive structure of the partnership (i.e. what is in it for the public and the private sector party)? 1.9 How is risk divided between the involved actors (for instance, in case of partnership failure, which party will suffer financially or otherwise)? 1.10 Please describe how the partnership has evolved over time. 1.11 What is the current status of the project? 1.12 How do you expect that the project will develop in the coming years?
2a. Project results, output and effects (to be answered by the private sector interviewee only)	2.1 Has the partnership influenced your company's turnover? If yes, please explain how. 2.2 Has the partnership influenced your company's earnings? If yes, please explain how. 2.3 Has the partnership influenced your company's employment rates? If yes, please explain how. 2.4 Has the partnership brought about new business areas (e.g. new products or services)? If yes, please explain how. 2.5 Is there in your view any image / branding effect affiliated with the project for your company (negative or positive). If yes, please explain. 2.6 Has the project lead to export of products and / services? If yes, please explain. 2.7 Has the partnership brought about product innovation? If yes, please state how. 2.8 Has the partnership brought about process innovation (e.g., new production processes or new administrative processes)? If yes, please state how. 2.9 Do you believe that this partnership will lead to further partnerships with public sector partners in the future? If yes, please explain. 2.10 Are there any further results / effects that can be mentioned, which we have not discussed so far? 2.11 Which results / effects do you expect will be achieved at later project stages?
2b. Project results, output and	2.1 Has the partnership lead to any savings for your organization?

Topic	Interview questions
effects (to be answered by the public sector interviewee only)	<p>If yes, please explain.</p> <p>2.2 Has the partnership brought about improvements in the quality of the products or services provided by your organization? If yes, please explain.</p> <p>2.3 Has the partnership had an impact on the employment rates of your organization?</p> <p>2.4 Has the project increased the effectiveness of your organization? If yes, please explain.</p> <p>2.5 Has the project brought about innovation in the sense of new or improved products / services or improved work processes in your organization? If yes, please explain.</p> <p>2.6 Is there in your view any image / branding effect affiliated with the project for your organization (negative or positive)? If yes, please explain.</p> <p>2.7 Has the partnership influenced the project portfolio of your company? If yes, please explain.</p> <p>2.8 Do you believe that this partnership will lead to further partnerships with private sector companies in the future? If yes, please explain.</p> <p>2.9 Are there any further results / effects that can be mentioned, which we have not discussed so far?</p>
3. Barriers for public-private innovation partnerships (PPI):	<p>3.1 Have there been any barriers at the design and planning stages of the partnership? If yes, please explain.</p> <p>3.2 Have there been any barriers for the implementation of the partnership? If yes, please explain.</p> <p>3.3 Have you experienced any barriers in the operational phase of the project? If yes, please explain.</p>
4. Drivers for success	<p>4.1 What is in your view key to the success of PPI?</p>
5. Regulation / policy initiatives	<p>5.1 Please describe the most important regulation in relation to PPI in your country (laws, policy documents, guidelines etc.).</p> <p>5.2 Have there, within the past 5 years, been any important policy initiatives with the aim to advance this type of PPI in your country? If yes, please explain.</p> <p>5.3 Is it possible to point out any specific regulation that is or has been particularly important for your PPI project? If yes, please explain.</p>
6. Overall potential	<p>6.1 What is in your view the overall potential of PPI in your particular policy area (health, education etc.)? Please explain.</p> <p>6.2 What is in your view the overall potential of PPI in your country? Please explain.</p> <p>6.3 What is in your view the overall potential of PPI in the Nordic region in general? Please explain.</p>
7. Recommendations	<p>7.1 Please recommend three ways in which Nordic policymakers can promote PPI. Please prioritise your recommendations according to importance (where "1" is the highest priority and "3" is the lowest priority).</p>

At the end of the interview, the interviewees are asked to tick of the tables below.

	Very low extent	Low extent	Moderate	High extent	Very high extent	I do not know
1. To which extent do you believe that there are positive effects affiliated with PPI for the <i>public sector</i> ?						
	Very low extent	Low extent	Moderate	High extent	Very high extent	I do not know
2. To which extent do you believe that there are positive effects affiliated with PPI for the <i>private sector</i> ?						
	Very low extent	Low extent	Same	High extent	Very high extent	I do not know
3. To which extent do you believe that there are barriers for PPI?						
	Very low potential	Low potential	Moderate	High potential	Very high potential	I do not know
4. What is the overall potential of the model in relation to advancing welfare services in the Nordic Region?						
	Very low potential	Low potential	Moderate	High potential	Very high potential	I do not know
5. What is the overall potential of the model in relation to bringing about new business opportunities for Nordic companies?						

Appendix 3

– Workshop Programme

Program for Workshop on Strategic use of public-private cooperation in the Nordic region

Wednesday 6th of October, EBST, Dahlerups Pakhus, Langelinie Allé 17, DK-2100 Copenhagen

Time	Activity	Speaker/responsible
09.30-10.00	Arrival and registration	
10.00-10.10	Welcome and introduction	Stig Nielsen, EBST & Guri Weihe, COWI
10.10-10.20	Presentation by EBST: Background and objectives of the project "Strategic use of public-private cooperation in the Nordic region"	Stig Nielsen
10.20-10.40	Presentation of preliminary findings 1 (focus on mapping of Public-Private Innovation Partnership initiatives)	OPP/OPS specialist, Ole Helby Petersen, AKF
10.40-10.50	Short break	
10.50-11.10	Presentation of preliminary findings 2 (focus on effects of PPIs)	Guri Weihe
11.10-12.00	Group work 1: Advantages, barriers and potentials of PPIs	Daniel la Cour, COWI
12.00-13.00	Lunch	
13.00-13.20	Collaborative innovation	Anne Reff Pedersen, Copenhagen Business School
13.20-14.30	Group work 2: continuation of the group work 1 with special emphasis on policy recommendations)	Daniel la Cour
14.30-14.40	Short break	
14.40-15.10	Presentation and discussion of the groups' work	Daniel la Cour
15.10-15.40	The OPI film - why and how	Jonas T. Beck, Diktator Film
15.40-16.00	Round-up	Guri Weihe