



# *Project benefits & results*

*Indicators for use in the Høykom programme*

**HØYKOM** report No. 503  
the programme for broadband-based services

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# Foreword

An evaluation of the Høykom (“High Speed Communication”) programme in the spring of 2004 determined that the programme had been of significant help in encouraging schools, health-care facilities, social services agencies and municipal administrators to employ broadband technology and develop new public services. However, the evaluation also showed that only two of the technology projects supported by Høykom had actually conducted a thorough analysis of the benefits achieved. Moreover, the methodology that project personnel used in reporting their benefits tended to vary from project to project. When the public sector invests in information and communications technology (ITC), it must commit itself to realising measurable benefits. The Høykom programme, which is administered by The Research Council of Norway, must therefore establish a method for isolating and measuring project benefits more systematically. I wish to do something about this. The Ministry of Modernisation commissioned this report to identify concrete indicators useful in measuring the effects of Høykom-funded projects. The report describes both quantitative and qualitative indicators that projects receiving support for 2005 shall account for. The use of these indicators will strengthen the programme secretariat’s decision-making rationale in allocating funds. It will also help identify the legal, organisational or technical obstacles that prevent us from reaping the full potential of broadband technology investments. Finally, measuring benefits systematically will enable us to establish “best practice” projects. These are projects that for the most part have succeeded in realising benefits and can therefore serve as models, or “lighthouses”, to inspire and instruct others.

An important consideration in choosing and designing indicators was that they be relatively easy to report upon. Nonetheless, the information reported must be of sufficient precision and quality to serve as the basis for drawing accurate conclusions and taking sound decisions.

I hope that Høykom’s sharpened focus on results will help the Government in its other efforts to simplify and streamline the public sector through the use of ICT. The measurement work undertaken within Høykom will be compared with similar initiatives in other sectors. The goal is to develop over time a relatively uniform system of measuring gains from public-sector ICT projects.

This report has been prepared by the Scandpower Information Technology consultancy in cooperation with, and at the behest of, the Ministry of Modernisation.

*Morten Andreas Meyer*  
*Minister of Modernisation*



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## 1 Executive summary

This report was commissioned by the Ministry of Modernisation. The topic of realising gains is broad and complex, and a great deal of work remains to be done. The scope of this report is limited to indicators and systems for measuring results within the Høykom programme.

Høykom projects are designed in large part to stimulate the use of broadband technology in the public sector so that new services and more efficient work practices can be developed. In the view of the ministry, these ICT projects should produce real-world results in the form of solutions that enter service and achieve – more successfully than today – the objectives laid out for them.

About 350 municipal, county and state projects have been executed in the past six years with economic support from the Høykom programme. For Høykom it is important that individual projects focus clearly on results, utility and benefits. There are a number of reasons for this:

- **Setting priorities:** A discussion of benefits and utility provides grounds for choosing the best projects among those that apply to the programme for support.
- **Management control:** During project execution, project personnel must remain focused on their objectives.
- **Realising benefits:** Quantitative and/or qualitative gains strengthen the line organisation upon project completion.
- **Sharing lessons learned:** Results and positive experiences are to be passed on to others.
- **Achieving programme goals:** Aggregation of projects should give an indication of Høykom's own effectiveness.

It has been the experience of Høykom that external reviews or audits help projects maintain focus on their objectives. The hope now is to go further, to prepare a system by which projects can more consistently realise planned benefits

and increase the visibility of achievements as they occur. Parts of the new Høykom portfolio should be used to *gain experience in focusing clearly on project results*. We propose starting simply and refining the process as it progresses. As work proceeds with ICT projects in different sectors, the efforts should be compared. That way, different indicator and measurement systems can eventually be made to converge toward a standard. What's important now is to get started measuring.

A pragmatic approach is recommended with respect to terminology, indicator schemes and measurement practice. Projects are not to be saddled with undue reporting burdens or a sense that there is some “correct” result expected of everyone. The preparation and implementation of a new measurement discipline must take into account the additional administrative work it represents for both project personnel and the Høykom programme.

One conclusion of this report is that initial project proposals should contain, among other things, a cost/benefit analysis of the new or improved service or application that is expected to result. Its 2005 call for proposals stipulated that applicants must state what their proposed projects would achieve and exactly how and when they would achieve it. The requirement of systematically measuring project benefits must also be stipulated in the contracts that Høykom enters into with individual grant recipients.

This report proposes indicators to be used in measuring quantitative results such as lower costs, better use of resources or improved time management. It would also appear important to account for the most significant qualitative-type effects resulting from Høykom projects. A way of reporting “approved” qualitative benefits is thus included in this report. By standardising the way in which qualitative benefits are appraised it will

be easier to compare and consolidate them at the programme level and above.

We further propose requiring the project owner's line organisation to commit itself, as part of its contract with the Research Council, to reporting realised benefits and other results one year after project completion, after first, upon project completion, having "re-tuned" its operations and assessed whether the solution in question should be put into permanent service and whether the projected results are in fact realisable. We suggest that Høykom provide support and guidance for this effort by scheduling thematic meetings for project personnel.

This report provides a draft text relating to performance indicators and measurement systems for incorporation into the contracts for about

half of the projects that were given funding in the first Høykom call for proposals for 2005. It is estimated that about 20 projects will be taking part in this type of system for measuring benefits and results upon conclusion of the next 2005 call for proposals.

The report concludes with a number of proposals for additional effort: The reported effects of completed Høykom projects should be examined, and a practical methodology should be formulated by which to evaluate them. In the report we discuss the option of establishing an electronic reporting system. Finally, we note the importance of looking more closely at the typology of ICT projects (along with the benefits and potential benefits of different project types) and at the need for collaborative processes for measuring the benefits of ICT investment.

### 2.1 Background

In its letter of allocation to the 2005 Høykom programme, the Ministry of Modernisation stated, among other things: “The Government’s goal is to expand the use of broadband in the public sector, and thus to contribute to innovation and modernisation.” The programme’s modernising aspects have been reinforced in recent years, with special attention directed toward the establishment of new electronic services within state and local organisations.

It is our understanding that the Ministry of Modernisation wishes to strengthen efforts to maximize the return on ICT investments. Such efforts will be crucial to winning additional support for ICT-based modernisation and administrative restructuring or adaptation. Public-sector services should be efficient, useful and of good quality. In its 2005 letter of allocation the ministry stipulated that Høykom should attach special importance to documenting the results of projects that are awarded grants.

In the past six years, about 350 municipal, county and state projects have been carried out with economic support from the Høykom programme. For Høykom, it is important that individual projects focus on results, utility and benefits. The reasons for this include:

- *Setting priorities:* A discussion of benefits and utility provides grounds for choosing the best projects among those that apply to the programme for support.
- *Management control:* During project execution, project personnel must remain focused on their objectives.
- *Realising benefits:* Quantitative and/or qualitative gains strengthen the line organisation upon project completion.
- *Sharing lessons learned:* Results and positive experiences are to be passed on to others.
- *Achieving programme goals:* Aggregate project

results demonstrate the programme’s own effectiveness.

The programme has managed to keep the focus on project goals and benefits through such means as independent, external project reviews. Such reviews are imposed on Høykom’s largest projects (those with total costs exceeding NOK 4 million) and/or those projects assumed to involve particularly high risk or execution challenges. Project personnel generally experience the reviews as supportive in nature; at the same time, the outside focus on project objectives tends to reduce risk and vulnerability.

### 2.2 Mandate, focus, limitations

#### 2.2.1 Project contents

Scandpower IT has been assigned by the Ministry of Modernisation to design sets of indicators to be used in measuring results and benefits associated with the Høykom programme. The ECON consultancy is engaged as a subcontractor. The results of their work are to be spelled out in a report submitted in 2005.

The specified indicators are to be used at the project level as well as in the aggregate. Within individual projects, the indicators should function as a tool to retain focus on project objectives and to support administrative efforts to realise benefits and increased utility in practice. At a higher level, the indicators should be used to evaluate the effects of Høykom’s allocation of funds.

When Høykom made its call for proposals for 2005, the application guidelines advised applicants to include in their overall project plan a cost/benefit analysis as well as a plan for realising or securing projected benefits. The intent is to insert newly devised measurement indicators into the contracts signed early in 2005 by Høykom and the winning project applicants.



The indicators are to be tailored to the Høykom programme. They will thus be applicable to any organisation seeking a Høykom grant. The indicators must be seen as both relevant and helpful to achieving project goals. The practical arrangements must be such that neither measuring the results nor following through to maximise their realisation becomes a burden to project institutions or the Høykom programme.

### **2.2.2 Focus and limitations**

In what follows, we explain many of the assumptions and considerations that underpin our approach to this report.

We have tried to produce a measurement system that is both effective and easy to implement. Its basic features must function for the entire three-year programme period, but they can be revised to some extent as experience dictates.

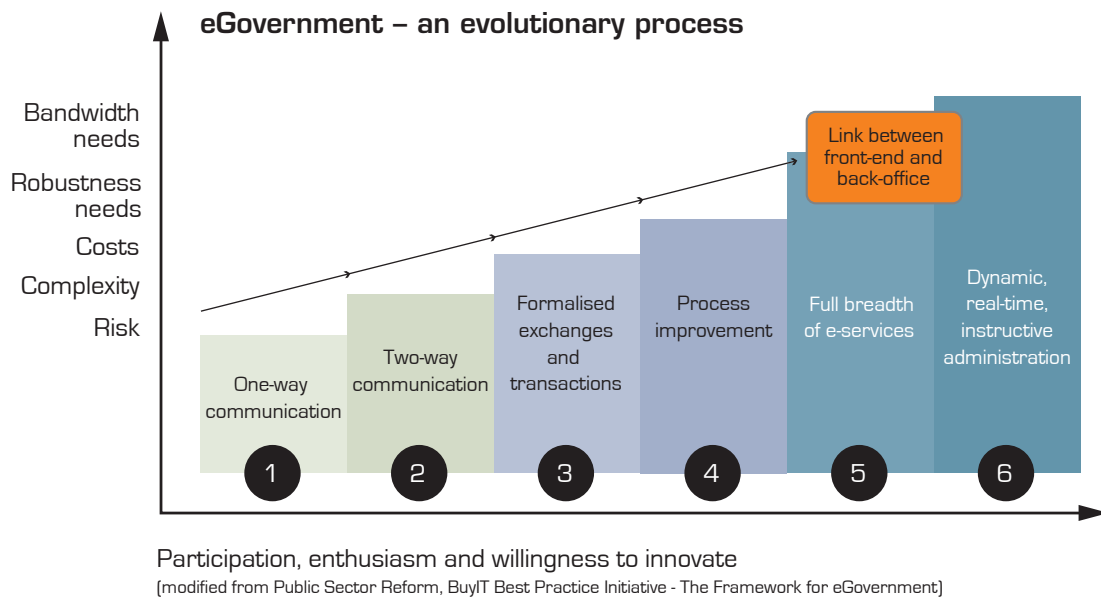
The indicators are to be designed with the Høykom programme's needs in mind; their relevancy to ICT projects in general is secondary.

Exactly what we mean when we use crucial terms like *benefit* and *result* will be discussed below.

### 3 What should be measured?

The digitalisation of public administration is an evolutionary process, as the figure below illustrates. The higher that one climbs on the chart, the greater the presumed benefits to public administrators and consumers alike. It is probably the case that most of today's Høykom's projects

can be placed on the lower steps, in the company of a great many other public IT projects. The benefits – both internal and external – increase as each new step is mounted, but so do the risks, costs and complexities. The challenge of measuring effects increases, too.



The introduction of new technology often leads directly to a small cost saving or an improvement in performance and quality. Usually, however, basic changes in work routine produce even larger benefits. Public administrators should introduce new, more efficient ways of working and open the way for more user-oriented electronic services. New technology, of course, is often part and parcel of such workplace change.

It is important to note that the “do nothing” option can be interpreted as a lost opportunity – a loss, in other words, in the form of deferred or deficient development/adaptation.

The benefits of certain broadband applications are also somewhat dependant on related applications already being in widespread use (network effects). Organisations that pioneer new applications or services generally incur significant costs. Those

that wait the longest often reap the most in benefits. For the economics of an application to turn positive, it is important to achieve a “critical mass” of users. A good example of this is the Norwegian Mapping Authority’s digitalisation project, which Høykom has supported on grounds that performing advanced map applications over the Internet requires high-bandwidth connections. The conversion to fully digital mapping services has taken years to accomplish, and the cost has been substantial. The earliest users have seen limited benefits. The full effect will not be felt until private companies and public agencies turn to digital mapping on a regular basis for a wide variety of purposes, such as development and construction planning and 3-D public information campaigns.

Such matters can complicate the assessment of benefits and results at the project level. Yet Høykom and society in general are dependant

on innovative organisations being willing to try out new applications – even when the immediate benefits, taken in isolation, may not seem to justify the cost.

When all is said and done, it is our expectation that judgements regarding public-sector ICT benefits and utility will rest to some degree on subjective and qualitative considerations like the ability of the ICT applications in question to exploit network externalities. Nonetheless, we must focus on the potential for simple, direct, quantitative benefits and savings wherever possible.

### 3.1 What is measured today?

#### 3.1.1 Realising benefits – experiences in Norway and abroad

According to Statskonsult and the Office of the Auditor General of Norway, attempts to realise ICT benefits have fallen short before.<sup>1</sup> It is relatively common practice to perform cost/benefit analyses for public IT projects. Such analyses, however, are more concrete on the cost side of the ledger. In the discussion of benefits, graphic examples and concrete details are often lacking, as are plans for actually realising those benefits.

There are many reasons for this. Several surveys have reported a lack of expertise and methodology, particularly when it comes to estimating utility and benefits. It is considered a tall order to measure public-sector resource use, service efficiency and service quality. Sometimes, organisations have little incentive to realise benefits. Several surveys have concluded that Høykom should require projects to be more firmly embedded in upper management and more explicitly focused on benefit planning.

What is the situation internationally? In countries like Denmark, the UK and Canada, public administrators have strongly embraced digital technology, yet we find that they are largely in the same boat as Norwegian administrators when it comes to realising and measuring the actual benefits of

their investments. Authorities in those countries, too, are now drawing attention to the problem and enacting practical measures to deal with it.

In its 2004 report “Does e-Government pay off?”<sup>2</sup> the Cap Gemini consulting firm provides an overview of the international situation. The report was prepared in connection with the Dutch chairmanship of the EU in the second half of 2004. Its conclusions and recommendations, based on public-sector IT case studies in a variety of European countries, include:

“In the cases studied, *public authorities themselves profit more* from e-Government than do citizens and businesses.”

“Something which is evident from this study is that savings are *hardly ever quantified* by the organisations involved in the case studies.”

“Stimulation of measurement of costs and benefits in a broad sense (quantitative and qualitative) focuses on set up, but also on innovation, actual uptake and societal (social, economic, judicial and democratic) impact.”

“This also involves the development of a methodology for measurement and/or measuring *indicators* on a European or national level which takes into account quantitative (output) and qualitative (outcome) indicators. *The case studies show difficulties in measuring and quantifying costs and returns of e-Government initiatives.*”

#### 3.1.2 Measurement approaches outside of Høykom

To a limited degree, ICT usage and effects are already being measured in Norway. The experiences of different people and initiatives ought to be shared so that the indicators and measurement approaches they employ may eventually converge on a standard. Relevant initiatives include:

##### Statistics Norway

In 2005 Statistics Norway has a preliminary

<sup>1</sup> See <http://www.statskonsult.no/prosjekt/gevinstrealisering> (in Norwegian)

<sup>2</sup> See <http://www.eupan.org/index.asp?option=documents&section=details&id=19> , pages 3, 4 and 51

project scheduled that will focus on the effects of ICT usage. We are informed by the agency that part of the work involves setting up a measurement system with indicators. Since the project is funded by the Ministry of Modernisation, the ministry may be able to bring its influence and experience to bear.

Statistics Norway has recently made public the results of a survey it conducted of *state* enterprises. The subject was how IT projects had changed their operations:<sup>3</sup>

“Part of the purpose in instigating IT projects of any size will often be to simplify or restructure internal work routines, to divide up roles and assignments in a new way or to free up resources. Fifty-nine percent of the enterprises report that IT projects in the past two years had, to a very high degree or rather high degree, led to restructurings or simplifications in work routines. By the same token, 42 percent reported that such projects had, to a very high or rather high degree, led to a new division of roles and duties. Fifteen percent, moreover, reported that the IT projects had had a very large or rather large effect on freeing up resources.”

In the context of its work with KOSTRA (an electronic data reporting and publishing system that links municipalities to the central government), Statistics Norway has now posed the same questions to all of the country’s municipalities. It has also asked them to name the most important barriers to their use of ICT. The responses given by the municipalities are not yet available.

### **Municipal efficiency networks**

Norwegian municipalities that have linked up through ICT to increase service efficiency have had noteworthy experiences using a variety of indicators and methods to measure results (see their Phase 1 status report, “Rapport etter fase 1”,<sup>4</sup> pages 7 and 8). Some of these municipal

networks have exploited KOSTRA data in their measurement efforts. Project personnel say they have developed indicators for objectively measuring quality as it relates to productivity, availability, user satisfaction and other service characteristics.

### **Directorate for Health and Social Affairs**

In connection with a new strategic ICT plan for the health-care sector, called *S@mspill 2007*, a system is being created to help determine whether the solutions imposed actually produce the desired results. Indicators and measurement schemes will be designed to cover central areas of the plan. This work is still in an early phase. Of note so far is the work the directorate has done in designing and describing indicators for the reporting of patient charts.<sup>5</sup> Participants are presented with a clarification of the terms used, an explanation of indicator types, a rationale for collecting various data and a method for processing, interpreting and using the results.

## **3.2 Benefit concepts and terminology**

Few Høykom projects to date have used the term *benefits* (“gevinster” in Norwegian) in connection with project results. Nor has Høykom explicitly required projects to prepare a benefit plan as a prerequisite for funding. The programme has, however, focused on project *utility*, requiring project personnel to demonstrate utilitarian value in a more qualitative sense. In most cases, the *effects* or *results* reported are *benefits*.

We believe we should base our use and understanding of terms on relatively pragmatic grounds, thus making it operationally simpler for the projects to report their results. For similar reasons we do not propose a strict measurement scheme with inflexible demands for before-and-after

<sup>3</sup> See [http://www.ssb.no/english/subjects/10/03/iktbruks\\_en/tab-2004-11-16-09-en.html](http://www.ssb.no/english/subjects/10/03/iktbruks_en/tab-2004-11-16-09-en.html) and <http://www.ssb.no/emner/10/03/iktbruks/tab-2004-11-16-09.html> (in Norwegian)

<sup>4</sup> See <http://www.ks.no/templates/Page.aspx?id=7678> (in Norwegian)

<sup>5</sup> See <http://www.shdir.no/index.db2?id=5218> (in Norwegian)

measurements. Simple methods applied with common sense and good judgement will work better. In this context, *benefits* are defined as results achieved, such as improvements or savings. *Benefit realization* is the process of redirecting the organization to achieve desired benefits. The *effects* or *results* of a project are to be understood in a broader context. They are the longer-term consequences of benefits that have been realised, and they may appear within the organisation (internal) or outside it (external). *Indicators* are standardised quantities or units that communicate the magnitude of benefits expected or achieved.

Chapter 4 contains a number of proposed indicators that are appropriate to Høykom's purposes.

### 3.3 Examples from Høykom

On the basis of a preliminary examination of completed Høykom projects – an examination in which we searched out projects that have used the terms “utility” and “benefits” – we make the following observations.

In general, ICT benefits are most clearly observed in cases where the ability to transmit large amounts of data has produced or will produce time savings and improved efficiency in resource use. As a consequence, some project participants cite cost reductions in the provision of services. Project personnel generally notice an increase in competence among their own personnel during project execution. While they consider this a benefit, few try to appraise or quantify its value to the organisation (in the form of improved workforce stability or productivity, for example). For the end user or general public, the most commonly cited benefits in the Høykom project portfolio include improved accessibility to information and services and, by extension, improved levels of service.

#### Typology

The 350 or so projects in the Høykom portfolio obviously span a wide variety of themes and professional disciplines. It may be useful when

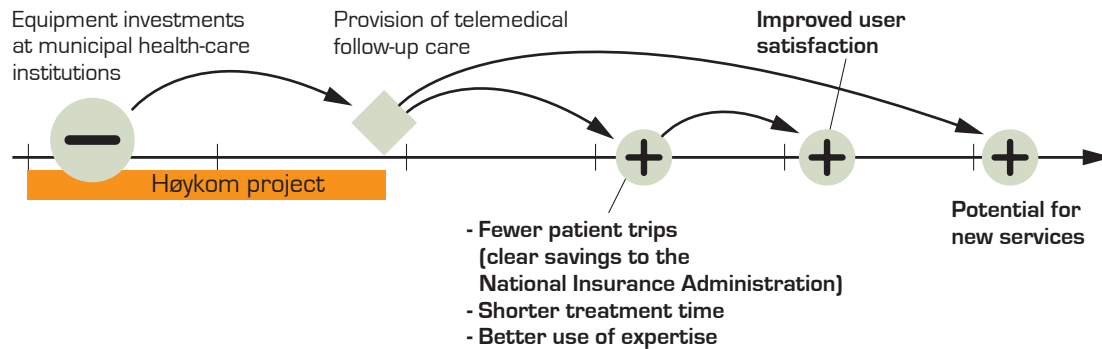
establishing and introducing a benefit measurement system to categorise the different project types. That would make it easier to structure activities, identify expectations and exploit lessons learned.

One could categorise project types in the following way:

- Conversion (from traditional telephony) to IP telephony in a municipality or region
- Consolidation of ICT-based operational functions and establishment of inter-municipal ICT collaboration
- Initiating inter-municipal collaboration on the basis of shared IT systems
- Establishment of digital learning resources and learning arenas in the education system
- Making public services available through portal projects
- Streamlining service provision through the digitalisation of entire value chains
- Streamlining service provision through telemedicine/remote diagnostics and remote consultation in the health-care and social services sector

The figure on the next page illustrates benefits related to projects involving telemedicine and remote diagnostics. Let us say, for example, that the Alta District Medical Centre (a Høykom project) reports yearly benefits of NOK 12 million associated primarily with lower transport costs. A hospital in Telemark reports NOK 50,000 per week in reduced taxi expenses related to the transport of X-ray pictures. A final report (dated 31 Dec. 2004) from the Høykom project *Digital Radiography: Distributed reading of X-rays by broadband* states that economic benefits to the Central Norway Regional Health Authority could amount to NOK 70 million per year (according to a previous analysis) as a result of substantial investments in digital radiography and the PACS system for archiving and communicating X-ray images. On the strength of its experience as a model or “lighthouse” project within the Høykom programme, the health authority intends to begin immediately devising an action programme to realise that potential.

## Telemedicine/remote diagnostics



### Some characteristics of typical Høykom projects:

In the health-care sector, most projects that employ broadband technology do so to transmit X-rays and other medical images or to permit direct monitoring, consultation and examination by specialists located at some geographic distance from their patients. “The patient no longer travels to the specialist,” it is often said. “Instead, the specialist is brought virtually to the patient.” Significant travel-cost reductions have been documented; patients in particular save time in transit, making them more productive at work. Such savings can have a significant socio-economic dimension, especially in Norway’s northernmost counties, though no calculations have been made. The home health service of Alta, for its part, cites a large potential benefit in the ability to treat patients for longer periods at home before transferring them to an institution. To many observers (especially users of the service) this extended period of home treatment is seen as a user-oriented qualitative benefit. To the health-care institutions affected, there are benefits associated with expanding the range of their patient services and reducing the number of unnecessary admissions.

One common challenge in the health-care sector has been that individual institutions have often had to fund their own technology investments while it has been the National Insurance Administration that has reaped benefits in the form of lower social security costs. The incentive problem that arises when costs and benefits fall to different organisations has a clear effect on

cost/benefit analyses within individual (local) organizations and thus upon their willingness to invest in new technology. Such incentive problems must be dealt with successfully if the benefits of ICT investment are to be realised. Recently, for example, the budgetary responsibility for travel expenses associated with telemedical treatment was shifted from the National Insurance Administration to the hospitals involved.

In the education sector, broadband benefits have certain parallels with those in the health-care sector, particularly in rural districts. Much of the value of ICT lies in its ability to “transport” knowledge and expertise rather than students. Digital solutions expand access not only to learning arenas but to learning tools. The development of local, network-linked learning centres brings higher education and continuing education to outlying areas to the benefit of rural participants. Travel and living expenses are thus reduced. More difficult to measure is the heightened local competence traceable to the modernisation of local educational services. Despite some evidence of a connection, it would still be speculative to claim that widespread use of ICT leads to more or faster learning in Norwegian schools and other educational facilities. For individual schools and other learning facilities, ICT investments show up first and foremost as expenses. The benefits tend to lie far in the future or far out in the chain of effects. In some Høykom projects involving schools that consolidate or professionalise their ICT operations, direct benefits in the form of reduced

operating costs and software licensing fees have been noted. But the true benefits of modernising Norwegian schools are still to be adequately quantified.

**Within municipal engineering**, several Høykom projects focus on the use and distribution of digital maps and associated services. The projects typically involve collaboration by several public-sector actors, with the private sector joining in at times. The municipality of Oslo, for example, has calculated socio-economic benefits of several hundred million kroner per year from the creation of a continuously updated, collaborative system (shared by municipal and state agencies and private developers) for mapping utility mains and posting excavation notices. The Oslo estimate is corroborated by similar calculations made in Danish population centres. Such service coordination tends to heighten quality and improve safety (by protecting utility mains, for example) while generating more effective information services that can be made available to the general public. Some observers have noted, however, that the potential for major gains, especially in mapping, is dependent on bold efforts to improve the database.

**Within local government as a whole**, the benefits of ICT investment are usually noted in the following ways:

- *More efficient service provision* and more rational division of responsibilities (among municipal entities and between the municipality and the state)
- *Better service and better access* to service and information for businesses and the public
- Coordination of services among different municipalities, resulting in *more flexibility and efficiency in the overall use of regional resources*
- *Improvement in service quality* (the result, for example, of heightened expertise among workers)

### 3.4 What makes a good benefit plan?

A prerequisite to establishing a measuring system for results and benefits is that the items

to be measured are clearly articulated in the project plans that are prepared for public-sector IT projects. This means the planners must – as far as possible – describe both the anticipated benefits and the time required to achieve them in concrete, quantifiable terms.

One of Høykom's award criteria has been that prospective projects be well anchored in the line organisation. In the case of relatively high-cost, high-benefit projects, Høykom should require that project oversight be anchored high in the organisational leadership structure (at the municipal council level for municipal projects, for example, and at the agency leadership level in state agencies).

“Anchoring” entails not just a management-level stamp of approval but the integration of obligatory plans and initiatives into the line organisation. The discussion of potential (desired) benefits within the project plan may be called the *benefit plan*. The organisation's discussion of how those benefits shall be realised in the course of the project or upon its completion may be called the *benefit realisation plan*.

A good *benefit plan*:

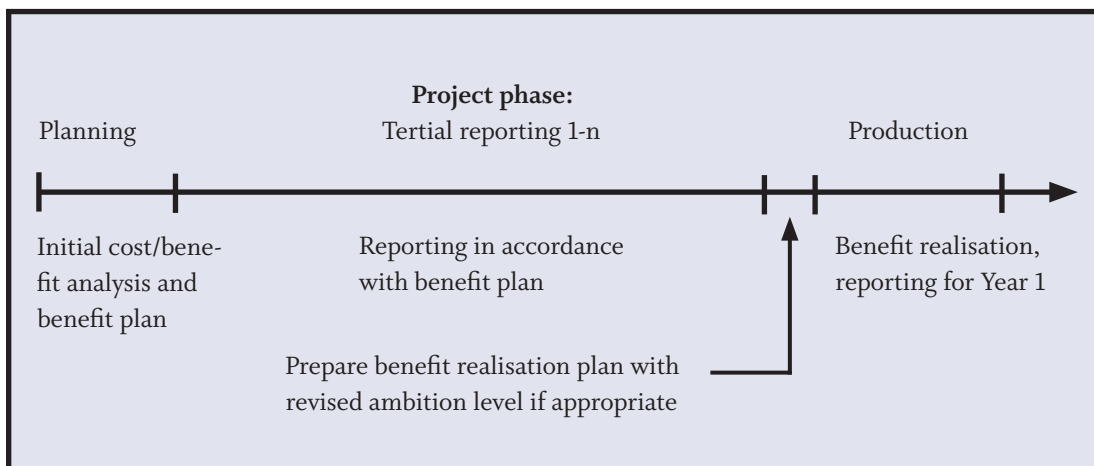
- Is anchored in the organisation's management documents and “owned” by top line administrators
- Is realistic and practical
- Details the conditions thought to be required for realising objectives and benefits
- Details the pre-project status quo as a basis for measuring change

A *benefit realisation plan* should always include descriptions of:

- Tangible benefits that the organisation is expected to realise (in detail)
- Decisions and actions that must be taken to overcome obstacles to benefit realisation
- When the benefits are to be reaped (during and/or after the project phase)

The flow chart below illustrates the progress toward benefit realisation:

## Benefit realisation flow chart



An application to the Høykom programme is to be prepared by the line organisation and is to include a cost/benefit analysis and associated benefit plan. The project organisation is to assume responsibility for adjusting or updating these documents if necessary during the course of the project, and for reporting any changes to Høykom.

Among the project organisation's duties is that of making sure its activities are sufficiently anchored in or "owned by" the line organisation. It is also up to the project organisation to launch the ICT solution and make sure benefits are realised after project completion. The time perspective is important because many benefits show up months or even years after the project is concluded.

The benefit plan should function as a "handshake" or "contract" between the project and line organisations. The first order of business is to fold the "benefit" portion of the line organisation's cost/benefit analysis (from the application to Høykom) into a benefit plan that will be part of the project's overall operational plan. As the project proceeds, the indicators used in the benefit plan will help guide project managers toward the agreed objectives. At the end of the

project, the final report by project personnel should include a benefit plan that describes (and possibly amends) the anticipated benefits as well as those actual benefits that seem to have been realised during the course of the project.

Upon receiving the project organisation's report, the line organisation must – with fresh eyes – consider whether the project's benefit plan is realistic. The final report that is sent to Høykom for approval should focus on the project's findings and results and should include the benefit plan. We propose also that the line organisation provide a short account explaining to what degree the ICT solutions in question will actually be implemented and the planned results/benefits realised. This benefit realisation plan will clarify whether it is possible or desirable to actually reap the planned benefits, and if so, when. The benefit plan indicators are to be re-used in describing the benefit realisation plan's ambition level and (one year afterward) in reporting on the benefits that are actually incorporated into permanent operations.



## 4 How to measure

### 4.1 Project measurements

#### 4.1.1 Overview

A good departure point for defining effective indicators for use in Høykom projects is found in the text accompanying the programme's 2005 call for proposals:

“It is likewise important to point out the benefits that the projects are attempting to achieve. A good project plan includes a clear statement of the qualitative (man-years saved, operating costs reduced, travel time reduced, etc.) and qualitative benefits that the broadband applications are expected to create, as well as a plan for how and when the benefits are to be realised in practical terms.”

The programme's purpose is to be a seed fund supporting projects that contribute to innovation and modernisation. There is no point, really, in devising indicators or performing measurements for projects that are largely experimental (R&D-intensive) or procedural (preliminary reports, feasibility projects, etc.). Such projects are valuable for the informational support they provide to decision-makers, and may be a source of learning and experience that can be passed on to other interested parties.

Projects whose character approaches that of a potential roll-out should, quite clearly, undergo measurement. Høykom's model projects – those that it calls “lighthouse” projects – generally belong in this category.

The result and benefit measurements undertaken for Høykom projects ought logically to be based on Høykom's own objectives. Its objectives, after all, are reflected in the funding award criteria as well as the reporting requirements, management guidelines and contractual clauses that project personnel must honour.

The indicators with which one measures results

must therefore shed light on the issues and technologies that Høykom stands for. They should serve individual project needs, too, but the information reported must first and foremost be of value to the overall programme and possibly to the nation as a whole.

Høykom projects are often focused on the direct, quantifiable economic savings that broadband applications can produce. The savings may stem from reduced licensing costs, reduced employment in IT operations, reduced travel or other internal rationalisations. An additional focus, though often less precise, may be on the improved service quality associated with expanded electronic interaction (whether or not there had been pressure for such improvement). A variety of purely qualitative effects come in addition, such as improvements in management, working conditions and job satisfaction.

Less often do project proposals cite concrete, quantifiable external effects such as improved services for users, reduced costs for users, savings for other organisations/users or reduced environmental impact. Proponents of municipal projects do nonetheless often cite “district policy” arguments, insisting that their projects will lead to improved well-being for residents, more stimulating workplaces, more stable local populations, etc.

In certain cases, proponents may be tempted to overstate the significance of their projects, taking credit for effects far removed from the technology employed. It is advisable, therefore, to maintain a critical view of “results” that appear at the end of a long chain of effects. This applies to cost/benefit analyses in preliminary project proposals as well as to the benefit plans that are established later.

Nor may it be possible for project organisations in isolation to effectively measure some external effects. For example, increased broadband

demand by the public sector (one of Høykom's aims) may be quantified reasonably accurately on the basis of tender invitations, bandwidth capacity purchased or traffic volume planned. But the importance of these quantities to the overall market must be measured at another level or by another method. In certain situations it may be easier to employ secondary indicators. In the case of infrastructure demand, one option may be to measure changes in broadband-related tender activity in the DOFFIN database.

#### 4.1.2 Based on Høykom's aims

Høykom's aims are, broadly speaking, as follows:

**More effective cooperation:** Exploiting broadband infrastructure to achieve more flexible forms of working and more efficient use of resources (for the parties involved). When actors in a value chain interact more easily, the result is generally an improvement in services (such as quicker deliveries or more up-to-date information). This overlaps with the next aim, which is:

**Improved services:** Exploiting broadband infrastructure to offer better public-sector services – especially services that previously had been provided in another way (presumably more expensively, more slowly or with less quality).

**New services:** Exploiting broadband infrastructure to offer new public-sector services – services, that is, which previously did not exist (but for which a need did). Some new services, of course, replace old ones. The benefit can then be calculated as a function of reduced costs (in creating or using the service) or of the perceived improvement in quality during the conversion from old service to new. Other new services fulfil needs that previously had gone unidentified. The benefits then generally appear a bit later and can be hard to quantify in relation to the original costs. This is often the case for new applications that must reach a critical mass of users or capacity before achieving their full potential.

**Expertise and adaptability:** Being able to employ new technologies and innovations that improve efficiency and reorient service provid-

ers and managers to new framework conditions and the emerging needs of users.

**Increased broadband demand:** One of Høykom's primary aims is to support projects that increase public-sector demand for broadband infrastructure and services and thereby contribute to developing the overall Norwegian broadband market. Sometimes this influence is indirect, as when outside actors (in the private market, for example) choose to install or expand broadband capacity in response to new public services made possible by some Høykom project.

In addition to addressing these straightforward aims, it is natural that project personnel often couch some of their project descriptions and benefit analyses in rich formulations of a qualitative nature. *Qualitative improvements* seem to emerge most often from municipal or regional projects associated with broad challenges related to management, rural issues, business development and demographics. Some recurring project types of this kind are presented in Chapter 4.1.4.

In many cases the cause-and-effect relationship between action and intended result is weakly documented. Moreover, the timeline between investment and measurable effect is often a long one, as was borne out in an interview-based survey conducted by RF-Rogaland Research in 2003. Those surveyed were able to trace effects from all 10 or so of the Høykom projects examined a couple of years after the end of the project period. (One notable effect: business start-ups.) Nonetheless, one may expect certain difficulties in any effort to standardise qualitative project results in a comprehensive measurement and follow-up scheme.

One can group qualitative benefits or results in roughly the following ways:

- Management benefits, as when municipalities or agencies are able to utilise available resources better (by sharing duties or expertise) or to create a better or more up-to-date informational basis for making decisions and setting priorities. An example are the benefits associated with an improved digital mapping service.

- Strategic benefits, as when a municipality strengthens its ability to attract new businesses and inhabitants or to retain existing ones (to the benefit of its tax base). It is generally accepted that broadband infrastructure – like other infrastructure – helps increase the perceived quality of life in a municipality. It is hard to say by how much, though.

We suggest that some presumably important qualitative elements in Høykom projects be measured and followed up to the degree possible. In time, certain of these qualitative elements may emerge as more significant than others. A measurement system can then be devised that limits itself to them.

#### 4.1.3 Proposed use of indicators

In the matrix below we have attempted to match some typical benefit types (both internal and external) with Høykom's different aims, and to suggest concrete indicators that may help shape early efforts to achieve those aims at the organisational level and that later may be aggregated

for informational purposes at the national level. Indicators and measurement parameters should be expressed in the most concrete quantitative units possible: percentages, days/hours, Norwegian kroner, numerical amounts, etc. A quality improvement can thus be measured as a reduction in the number of faults per quantity of items produced or as a reduction in the number of service complaints. Such measurements can be enhanced by calculating the time and expense saved in repairing faults and processing complaints. Of course, to quantify a discrete improvement (benefit) one must already have measured or known the starting point. In cases where the benefit is money saved, the starting point would be defined as the pre-project expense level for an organisation or service.

The indicators are largely related to time saved and costs reduced, whether for the line organisations themselves or their clients/users. In the case of new, improved or altered services, user satisfaction is another type of benefit.

Høykom aim	Quantitative results and benefits (potential) for the organisation	Indicators
More effective cooperation	Labour saved  Other reduced operating expenses  Shorter processing time	No. of man-hours per year saved Percent of man-hours saved NOK saved on paperwork, postage and telephone Percent saved on paperwork, postage and telephone (NOK saved, total operating expenses) (Percent saved, total operating expenses) No. of days' reduced processing time (for one case, one patient, etc.)
New services (replacing previous services)	A concrete new service filling a need clearly defined in advance	Reduced costs (in relation to the alternatives) to users User satisfaction index/user surveys
Improved services	Reduced cost in providing services/performing tasks  Reduced cost to service users  Improved access to service  Improved quality as perceived by user	No. of man-hours per year saved (in performing this service) Percent of man-hours saved (in performing this service) NOK saved by users Percent saved by users No. of work days no longer lost to travel/absenteeism by users of service Percent fewer travel days/absentee days for users of service User satisfaction index/"up time" for the service User satisfaction index
Expertise/adaptability	Ability to adapt or restructure effectively	(ICT Readiness Index?) (NOK restructuring/adaptation costs per year?) (Expertise index?)
Increased broadband demand	Increased demand for broadband and for ICT applications requiring broadband connection	Planned tender invitations Estimated new and expanded traffic volumes resulting from new services
Other objectives	(Project to provide)	(Project itself to propose quantitative indicators)

The indicators must be reported along with a specification of the object being measured so that, for example, the number of man-hours saved in performing Service X or Activity Y is stated along with the total time resource that X and Y represent (if known or easily identifiable from external data sources). In other words, the starting point for benefit calculations must be known.

Measuring workforce expertise and adaptability is a complex task. It will likely be necessary to devise a separate scheme for this as time passes – and to do so in concert with other public-sector initiatives. For now we propose either waiting or performing such measurements by way of secondary indicators – for example, the proportion of organisations that have a plan or strategy focusing on *restructuring/adaptation* through technology.

The degree to which Høykom projects lead to *increased broadband demand* may be quantified, as suggested in the table above, by measuring the number of tender invitations (differentiated by type). One could also measure this at the aggregate level by surveying suppliers, though for competitive reasons some suppliers may wish to limit the information they share.

In specifying their planned results, some project proponents have cited an expectation of reduced costs and liberated man-hours. Historically, however, they have not put much effort into quantifying these concepts. In their cost/benefit analyses, they often describe economic

savings in highly general terms. And to date, the Høykom programme has not attempted to standardise such terms or concepts for use in a common measurement scheme.

It is also the case that projects have not had to account for the fate of their original ambitions when delivering results to the line organisation. For Høykom (as in the rest of the Research Council system) the initial funding rationale has often “disappeared” from focus when project solutions are fully deployed and the bookkeeping is submitted. With the exception of surveys like that conducted by RF-Rogaland Research (mentioned above), Høykom has had no way of assembling data on the degree to which planned benefits are realised after projects are completed and their solutions are put into practice by the line organisation.

In the table above, the indicators chosen vary in complexity. For some of the indicators it would be easy to devise a measuring system; for others, the cost would be relatively high or other obstacles would emerge. We propose beginning with the simplest indicators to gain experience dealing with them in a systematic, standard way before proceeding with the development of a comprehensive measurement scheme. In the meantime, one should “save up” the more complex benefit data in the form of detailed case descriptions.

Our suggested quantitative indicators for an initial trial phase are:

Høykom aim	Indicators
Labour saved	Number of man-hours per year saved Percent of man-hours saved
Reduced operating expenses	(NOK saved, total operating expenses) (Percent saved, total operating expenses)
Shorter processing time	No. of days' reduced processing time (for one case, one patient, etc.)
New service filling a need clearly defined in advance	Reduced costs (in relation to the alternatives) to users
Reduced cost in providing services/ performing tasks Reduced cost to service users	No. of man-hours per year saved (in performing this service) Percent of man-hours saved (in performing this service) NOK saved by users Percent saved by users No. of work days no longer lost to travel/absenteeism by users of service Percent fewer travel days/absentee days for users of service

In the next phase (in connection with Høykom's main call for proposals in January 2006) one may include additional indicators from the more comprehensive of the tables shown above. On the next page, we have outlined a checklist-style registration form suggesting how this may look. It is important in the reporting process to register what

kind of obstacles or difficulties the project owner has experienced in realising the planned benefits. A special column is provided for such explanations.

A form for reporting quantitative benefits at the project/organisation level could look like the one that follows.

## Form 1: Benefit indicators

**Benefit reporting HØYKOM**

More efficient collaboration  
 New services (which replace old ones)  
 Improved services

*Description/clarification of project objective*  
.....  
.....  
.....

- Fill the blanks beside benefit indicators that apply to this project and its benefit plan.  
- Under «Details», specify which organisational unit (e.g. agency, department, section) each benefit pertains to as well as such relevant data as total budget and total hours.

Type	Benefits	Benefit indicator	Value	Possible obstacles to realisation	Details
Internal benefits	<b>General Benefits</b>				
	Labour saved	No. employee-hours per year saved Percent of employee-hours saved	<input type="text"/> <input type="text"/>	<input type="checkbox"/> Legal <input type="checkbox"/> Technological <input type="checkbox"/> Organisational	..... .....
	Reduced operating expenses	NDK saved, total operating expenses Percent saved, total operating expenses	<input type="text"/> <input type="text"/>	<input type="checkbox"/> Legal <input type="checkbox"/> Technological <input type="checkbox"/> Organisational	..... .....
	<b>Service-specific benefits</b>				
User benefits	Shorter processing time	No. days reduced processing time (for one case/service)	<input type="text"/>	<input type="checkbox"/> Legal <input type="checkbox"/> Technological <input type="checkbox"/> Organisational	.....
	Reduced cost in providing services or performing tasks	No. employee-hours per year saved (in performing a service)	<input type="text"/>	<input type="checkbox"/> Legal <input type="checkbox"/> Technological <input type="checkbox"/> Organisational	.....
		Percent employee-hours saved (in performing a service)	<input type="text"/>		.....
	Shorter processing time	No. days reduced reply time/waiting time (e.g. for one patient)	<input type="text"/>	<input type="checkbox"/> Legal <input type="checkbox"/> Technological <input type="checkbox"/> Organisational	.....
	Reduced cost for user of service	NDK saved in direct cost to user	<input type="text"/>	<input type="checkbox"/> Legal <input type="checkbox"/> Technological <input type="checkbox"/> Organisational	.....
		Percent saved in direct cost to user	<input type="text"/>		.....
No. work days no longer lost to travel/absenteeism by users of service Percent fewer travel days/absentee days for users of service		<input type="text"/> <input type="text"/>		..... .....	
A concrete new service filling a need that is clearly defined in advance	Reduced cost to users (in relation to previous service or alternative)	<input type="text"/>	<input type="checkbox"/> Legal <input type="checkbox"/> Technological <input type="checkbox"/> Organisational	.....	
<b>Other project-specific benefits</b>	..... (As identified by project)	<input type="text"/>	<input type="checkbox"/> Legal <input type="checkbox"/> Technological <input type="checkbox"/> Organisational	.....	

### 4.1.4 Qualitative benefits

In addition to continuous quantitative reporting on project benefits, qualitative benefit assessments are also of interest. One of Høykom's main objectives is to get the public sector to implement all-new services – not just replacements for old services, but services never offered before. Thus it may be difficult to assess benefits until later, when one can see how matters progress. New services typically do not achieve their full value until a sufficient number of people (critical mass)

begin using them. For “pioneer” or early-adapter organisations, new services may represent little more than an added expense, while organisations that follow later tend to reap more benefits the longer they wait. It is our experience that when organisations assess all-new services they often resort to qualitative language to predict improvements that the new services may lead to.

Even outside the realm of new services, public-sector ICT projects often set a range of qualitative

goals for themselves. This applies to Høykom, too. We suggest that qualitative benefits be listed on a standard checklist that obligates the project organisation to evaluate and describe in detail each of the qualitative benefits cited.

The following paragraph contains examples of assertions and observations that may be reported in connection with broadband-based collaboration on planning and building cases involving two municipalities:

Each municipality may record a certain number of man-hours per year in freed-up labour (reduced resource needs per municipality) due to economies of scale. In addition, reduced costs for licensing and supplies (resulting from shared software licensing and economies of scale) may lead to lower operating expenses. On the form, these two benefits are recorded as actual man-hours and actual kroner saved, but also as a percentage of the

combined personnel costs and operating expenses in each of the municipalities. If the collaboration results in reduced processing time for a permit application, this benefit may be presented as time saved in the organisation and/or as time saved for an average user of the service. Should the collaboration produce other benefits, like stimulation of the local job market, these can be discussed under *Other project-specific benefits*. For each prospective benefit identified, one must check off the types of obstacles that may stand in the way of actually realising it (that is, effectuating it and incorporating it into budgets and plans). The *Details* column provides space for additional information on each of the benefits cited – about the units employed, for example, or conditions and qualifications that may apply. Qualitative benefits related to the collaboration's effect on working conditions/job satisfaction or on improved recruitment capability are to be recorded on a separate form (see below) dedicated explicitly to qualitative benefits.

## Form 2: Qualitative benefits

Benefit reporting HØYKOM – qualitative benefits					
Project objective:					
.....					
.....					
.....					
Specification of result	Project significance/ degree achieved				Data source
	Does not apply	To a small extent	To some extent	To a large extent	
<b>For the organisation (internal)</b>					
(1) Better management, decision-making	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
(2) Better use of expertise and resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
(3) Better integration with other parts of the value chain (lower transaction costs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
(4) Better working conditions for employees providing a certain service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
(5) More robust, secure technical infrastructure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
(6) Improved ability to restructure, adapt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
(7) More consistent service quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
(8) More fulfilling workplaces; improved ability to retain/recruit skilled workers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
<b>For external target groups</b>					
(9) More attractive environment for business start-ups in region	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
(10) New opportunities for existing knowledge-based businesses in region	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
(11) Fewer people moving out of region	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
(12) More participation or democracy in local community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
(13) An all-new service that meets the needs of a target group (name the group and describe the service)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
(14) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
<b>Other/miscellaneous</b>					
(14) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.....
<small>(Insert type of benefit or result)</small>					

This form should encourage more than a mere listing of qualitative benefits. There should also be room for a description of the benefits in nar-

ative form and an account of what sources will be used to corroborate the achievement of goals (a user survey, for example).

When project personnel have delivered their results to the line organisation (in the benefit realisation plan), the line organisation should report whether the planned qualitative improvement has actually been achieved or is expected to be achieved “to a small extent”, “to some extent” or “to a large extent”. In this way one can gain a sense of the degree to which different project types actually produce the quality improvements that are planned.

The benefit measurement scheme should also make it possible for the institutions themselves to define certain qualitative benefits and evaluate their significance or effect on the relevant areas. The form to be used can resemble the one shown. But in some cases a different format may work better in practice. For example, on a form that is mailed out to prospective survey participants or put out on the Internet there should be plenty of room for written remarks and elaborations. Simple instructions for filling out the form should also be made available, perhaps on Høykom’s home page.

## 4.2 Measuring and summing up at the programme level

An indicator-based system for measuring benefits should ensure:

- that a project’s planned, potential benefits (the benefit plan) can be easily reported
- that the benefits/results are realised and put into practice by the line organisation (the benefit realisation plan), and
- that potential benefits are actually reaped (post-project reporting on actual benefit realisation)

This is a new, untried system, and it’s important not to get sidetracked in a search for the perfect comprehensive model. It seems reasonable, as suggested above, to choose indicators at first that are rather easy for the organisations to report. After testing the measurement and reporting scheme in this way for a while, one may expand the number of indicators to produce a fuller picture of immediate and future broadband benefits.

To date, when a project has ended Høykom has generally stopped monitoring its effects. An ef-

fort must now be introduced at both the project and programme levels to identify and summarise the results and benefits that arise with time.

We propose requiring the line organisations that receive funding in 2005 (most contracts are for one-year projects) to submit a report one year after project completion to account for exactly what, among various quantitative benefits, has actually been realised. It should be made clear in the project’s final reporting that the line organisation has taken responsibility for this reporting duty, and that plans exist at management level for the organisation to actually reap what benefits it can. Høykom would withhold a portion of the project appropriation (NOK 50,000, let us say) until this report is submitted.

When the project’s final report is forwarded to Høykom there should be a short benefit realisation plan attached. This plan is the line organisation’s “seal of endorsement” for the project’s results, signalling that the project’s desired results/benefits have been re-evaluated in light of the project’s findings and experiences underway, and that the ambition level for realising benefits (in both quantity and time) are accounted for. Also included should be a short report on any conditions or qualifications that must be met in order for the benefits to be realised.

A Høykom-appointed adviser and/or a telephone support system may be of help to the organisations as they proceed through the reporting process. Such support would enhance the precision and credibility of the data presented. A seminar for project personnel may also be of service. One should also consider establishing a system for electronic reporting via a module on the Høykom website. That way the Research Council would avoid having to process paper-based forms and the Ministry of Modernisation would have direct access to the data submitted.

To be effective, a benefit measuring system must encompass reporting on planned benefits/results (at the beginning of the project) as well as benefits that may emerge during project execution, benefits/results that are “forwarded” to the

line organisation (in the benefit realisation plan) and benefits actually realised after the passage of a year. At the aggregate level, the Ministry of Modernisation must receive reports at appropriate intervals from the Research Council. In a trial phase, however, as everyone is gaining experience in the use of indicators and reporting routines, it would make sense to keep these separate from the ordinary reporting process.

It's worth noting that in devising a complex system for detecting and measuring the individual benefits of individual projects it is quite easy to underestimate the collective result of Høykom's investments. Project results seen in isolation will not necessarily convey the sweeping, large-scale benefits and network effects of broadband investment in the public sector and the economy at large. The expanding horizons of our increasingly digitalised world are not seen best at the individual organisation level. Only from some remove can one appreciate the organisational dynamism and problem-solving flexibility that stems from transforming disjointed value chains into a virtual, digital community.

### 4.3 Høykom contract terms

The proposed benefit assessment system must be implemented in Høykom's management structure as well as in its practical routines.

In new applications to the Høykom programme (a new call for proposals is scheduled for February 2005) project proposals should include a cost/benefit analysis.

In the new contracts for most Høykom projects (not including simple reports and procedural-type projects) the following directives must be inserted by way of a supplement or addendum:

- Project personnel shall produce a benefit plan (description) incorporating the benefit side of their initial cost/benefit analysis; this benefit plan is subject to approval by the secretariat. The secretariat may decide how project personnel are to describe and quantify the relevant benefits (using standardised terms/indicators).

- The status of the project plan and the benefit plan (including any changes in benefit assumptions) shall be reported along with each tertial report and/or each milestone or reporting juncture that applies to the project in question.
- When a project is over, the line organisation shall assess the practicality of implementing the ICT solutions in question (through implementation is presumed from the outset). This line assessment shall be submitted in the form of a short benefit realisation plan supplementary to the final project report. Any likely obstacles to realising the benefits must be discussed.
- The benefit realisation plan shall be anchored within the organisation's top management (as well as in all relevant management control documents).
- A follow-up report on the benefit realisation plan shall be submitted one year after project completion. This report shall present the quantitative and qualitative benefits achieved to date as well as the perceived obstacles to achieving even better results. The Research Council is to withhold NOK 50,000 of the appropriation until this follow-up report is delivered. (The report does not have to be "positive".)

A preliminary examination shows that about half of the 20 projects that received funding for 2005 in the year's first application round may be subject to participating in a measurement and benefit scheme of this kind. In the next call for proposals (February 2005), additional projects will join this "club".

The Høykom programme should arrange a "benefits seminar" for all the projects that will have to report on their benefits. This would be a chance for project leaders to gather more detailed information on fulfilling their reporting tasks and to hear what others have experienced.

In the autumn of 2004, a skills centre for "e-administration" in Kristiansand (Kompetansesenteret for eForvaltning) offered a course in cost/benefit analysis and benefit planning for Høykom projects. This organisation may be used as a resource for guidance during project planning, execution and follow-up.



## 5 Further work

What follows is our proposal for further work. Note that the starting time varies for these proposed activities.

### 1. Survey

We suggest that the Ministry of Modernisation conduct a survey of completed Høykom projects in order to assemble empirical information for an expanded database relating to benefits and benefit types. Such a survey may be carried out using an electronic multiple-choice questionnaire. This can be done quickly and relatively economically with the help of QuestBack. The same questionnaire can be used to identify obstacles and hindrances to the operational deployment of ICT solutions and the realisation of benefits.

### 2. Methodology

A practical methodology should be developed for identifying each project's economic starting point or cost basis. A system is also needed to detect and measure results after projects are completed. Such an arrangement could be attempted in next year's call for proposals, perhaps in collaboration with the Kristiansand skills centre for e-administration (Kompetansesenteret for eForvaltning).

### 3. Electronic reporting

At first, for expediency's sake, the benefit measurement scheme should probably be submitted on paper as an explicit appendix to contracts agreed between Høykom and individual public-sector project "owners". In the course of a trial year it may be appropriate to introduce an electronic reporting system (thereby gaining valuable experience), perhaps in the form of a module on Høykom's web site. That way the Research Council would avoid having to process paper-based forms and the Ministry of Modernisation could have direct access to the data along with other authorized parties.

### 4. Typology

We propose developing a systematic way of listing ICT project types (such as IP telephony, inter-municipal cooperation and other types discussed above in Chapter 3.3) to enable the programme to prioritise projects more effectively, identify complexities and obstacles and realise benefits, among other things. Such an effort can be based on Høykom's extensive project portfolio and be supplemented with a suitable assortment of projects from programmes such as eNorway (eNorge).

### 5. Collaborating with other measurement schemes

Since a number of other central initiatives are establishing ICT-related measurement schemes (see Chapter 3.1.2) a process for collaborating with them ought to be established.

## Appendix: References and bibliography

- o “Does e-Government pay off?”, Cap Gemini and TNO, November 2004 (see footnote, Chapter 3.1.1)
- o Statistic Norway materials regarding the effects of ICT usage (see footnotes, Chapter 3)
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- o “High Payoff in Electronic Government. Measuring the Return on E-Government Investments”. Report from the Intergovernmental Board, U.S. General Services Administration, 2003 ([www.gsa.gov/intergov](http://www.gsa.gov/intergov))
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