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# GOVERNMENT BUDGETS UNDER PRESSURE: SCANDINAVIAN EXPERIENCES WITH IMPROVING GOVERNMENT PRODUCTIVITY



Justice • Health care • Education • Transport • Infrastructure • Culture • Social services



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# INTRODUCTION

Governments across the globe are facing increasing pressures on public expenditure due to a plurality of factors. On one hand, the increasing expectations of citizens regarding private consumption is paralleled by increasing demands on government services. At the same time, revenue streams are drying up due to modest growth scenarios, falling oil prices and hurtful consequences of taxes and fees. The expansionary efforts to steer economies back on the right track following the crisis have also in many cases led to substantial fiscal deficits and rising debt levels.

Governments are thus looking at ways to reduce spending and make ends meet. To a large degree, governments look to initiatives such as raising taxes and fees, reducing social benefits and entitlements as well as cutting back on services.

This report posits, that there is an alternative approach, which has received less attention than it deserves: Governments can improve public finances and performance by increasing productivity rather than reducing public sector output.

Improving public sector productivity raises a need to increase transparency about governments' service delivery model and the link between output and resource use. With this kind of transparency, there are many opportunities for identifying and accomplishing improvements to public sector productivity in order to get as much as possible out of scarce resources.

This report looks closer at the Scandinavian experience with increasing public sector productivity, e.g. through spending reviews, which typically result in budget improvements of 10–20%. The report can thus be seen as an inspirational catalogue for governments facing the same challenges.

## Lessons learned from Scandinavia

~20 years ago, the Scandinavian countries were plagued by mounting fiscal deficits and oppressive public debt. In many ways, they faced a fiscal situation that is similar to the current situation in GCC countries today.

The Scandinavian countries, Sweden and Denmark in particular, addressed this challenge through a continuous focus on increasing public sector productivity. It involved a number of different initiatives. Some of the larger structural reforms involved restructuring the labor market model, strengthening the educational system and reforming the tax system. These reforms resulted in decreasing debt over the coming years along with a significant improvement in public deficit.

Along with structural reforms, the Scandinavian countries focused on increasing the transparency in the link between government spending and productivity through analyses. This has strengthened public sector performance, resulting in wealthier people, job creation and improved government performance.

The global financial crisis starting in 2007 has since challenged these positive developments, but still leaves the Scandinavian countries in good shape.

# SCANDINAVIAN EXPERIENCES WITH IMPROVING GOVERNMENT PRODUCTIVITY

The Scandinavian experience thus consists of +20 years of refinement of the tools for improving productivity. This is pivotal as the Scandinavian countries all have large public sectors, as illustrated in exhibit 1. This makes ongoing productivity improvements in the public sector an important part of the overall competitiveness of the countries.

As an example, Denmark is conducting spending reviews on an on-going basis, targeting all major parts of the public sector at least every fifth year. The reviews cover core sectors such as defense, police, transport, infrastructure and utilities. Denmark also conducts cross-sectoral spending reviews focusing on administrative shared service centers such as HR, procurement, IT and digitalization with the aim of continuously improving productivity.

The main body of this report thus covers a number of these key levers for increasing government

productivity in order to ensure that resources are spent in a productive way that yields the maximum benefit for citizens. The levers include conducting spending reviews, increasing the use of shared service centers, focusing human resources on core services, strengthening public investment management, ensuring high capacity utilization and optimizing procurement.

Throughout the report, best practice initiatives and cases from the Scandinavian countries serve to illustrate how government can raise public sector productivity.

With the report we hope to inspire further efforts to ensure that society and citizens get as much as possible out of government expenditure, which in turn strengthens the competitiveness of the country.

**Exhibit 1: The Scandinavian countries are characterized by large public sectors, which contribute considerably to GDP**

	 Denmark	 Norway	 Sweden
<b>GDP per capita, USD</b>	46,600	69,300	49,700
<b>Population, mill.</b>	5,6	5,3	9,9
<b>Public sector employment, %<sup>1</sup></b>	32,2	33,4	25,8
<b>Public sector, % of GDP</b>	26,1	23,3	25,9

<sup>1</sup> Percent of total labor force. Source: World Factbook; World Bank; OECD.

# LEVERS TO IMPROVE PUBLIC SECTOR PRODUCTIVITY

## The levers for improving public sector performance

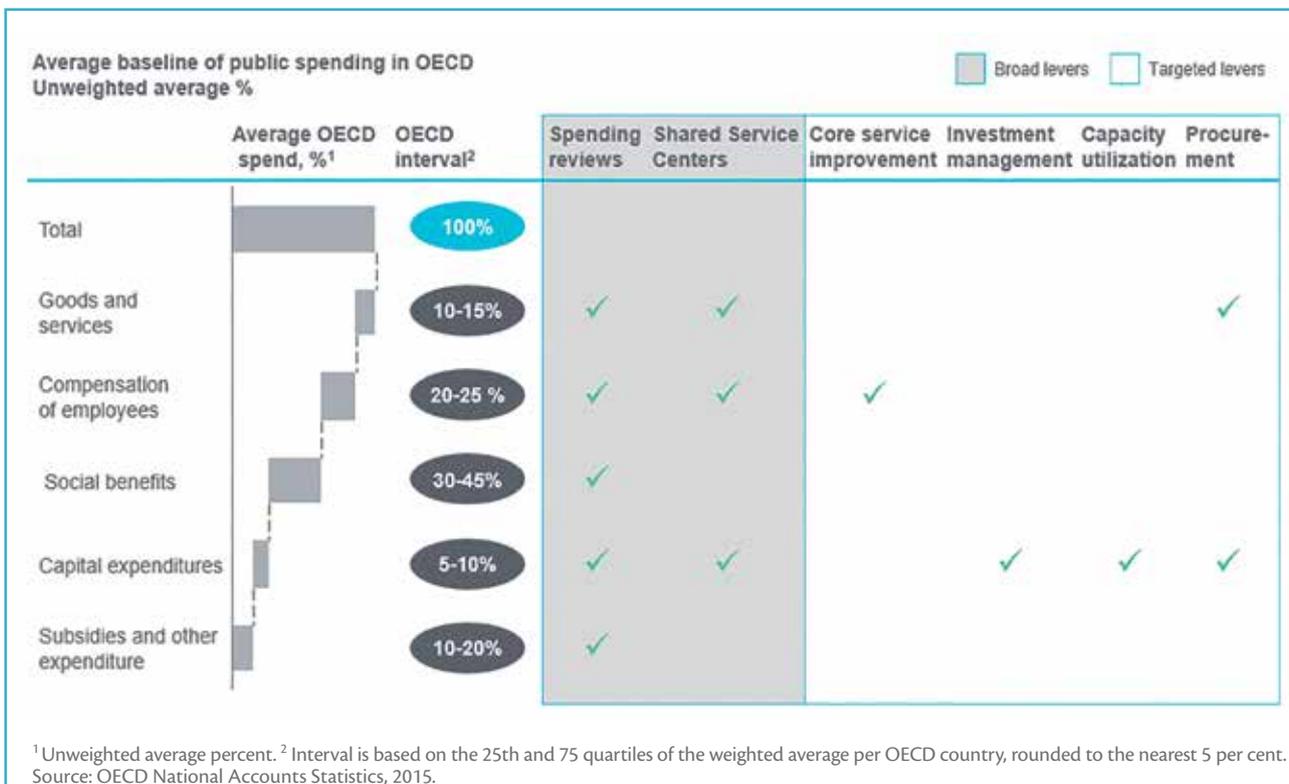
Governments can use various levers to affect different parts of the total public expenditure. On the left side of exhibit 2 is shown the average percentage baseline for public expenditure in the OECD countries. It is evident that compensation of employees and social benefits make up the majority of public spending. To the right, the cost categories are linked to selected levers for improving productivity, which will be presented in the following section.

As illustrated, some levers are broad, while others are targeted. Spending reviews is a 360° approach targeting the entire baseline, while the establishment of shared service centers can affect compensation of employees, goods and services and capital expenditure – these are both broad levers. The targeted levers focus on individual parts of the

baseline. For example, investment management and capacity utilization focuses on increasing productivity of capital assets, core service improvement aims at limiting expenses related to compensation, while procurement targets public purchasing.

In some cases the broad levers are most efficient for improving productivity, while other cases might call for a more targeted approach. All the levers have in common that they focus on the connection between public expenditure and the measurable output, that is productivity.

**Exhibit 2: Average government spending can be linked to levers for improving productivity**



# SPENDING REVIEWS

## A JOURNEY FOR IMPROVING GOVERNMENT PRODUCTIVITY

### Introduction to spending reviews

Spending reviews are 360° diagnostics, which focus on the entire cost base of public bodies. The aim of spending reviews is to reduce spend and improve productivity.

Spending reviews can focus on specific sectors or institutions such as defense, police, transport and infrastructure, universities, utilities, etc., or they can be cross-sectoral focusing on support functions such as HR, procurement, IT/digitization etc.

Firstly, spending reviews are not focused on either spend or quality but analyses both in conjunction. Explained in a popular way, spending reviews “trim the organization instead of cutting off an arm for it to lose weight, making it both stronger and lighter”. Spending reviews thus focus on increasing productivity of core services to ensure maximum impact of public funds.

Exhibit 3 illustrates the focus of spending reviews on delivering concrete improvements, which can be implemented in the short term, while focusing on sustainable solutions instead of quick fixes. Solutions are based on the current situation and how this can be improved through in-depth data-driven analysis such as internal and international benchmarks. This means that spending reviews are based on a pragmatic mindset and objective analyses, which make them differ from policy development, which is often more value-driven in nature.

As spending reviews address the entire cost base of public bodies, they typically cover many of the improvement levers that are covered in the following sections of this report. Analyses thus revolve around key aspects of the core services, which also have

### Exhibit 3: Spending reviews aim at concrete improvements and pragmatic solutions to improve productivity

What are spending reviews about?	What are spending reviews NOT about?
✓ Decreasing spending and improving quality through increased productivity	✗ Focusing either on spending or on quality
✓ Concrete improvements to be implemented right away	✗ Broad policy development to be implemented in the long term
✓ Pragmatic solutions – “What is possible in this context?”	✗ “Perfect world” solutions
✓ In-depth data-driven analysis based on international best practice	✗ Value-driven solutions based on subjective opinion

an impact on spending and productivity, such as but not limited to: Strategy analyses, operations and productivity, organization and digitization.

Thus, spending reviews aim to answer questions such as: How can working processes be optimized to increase productivity and quality? Which processes can be digitized to support increased productivity?

Such questions are typically answered through 4 phases, from establishing the baseline to creating an implementation plan, as shown in exhibit 4.

The first phase focuses on establishing a baseline with the objective of ensuring a transparent, commonly agreed upon overview of size and composition of 'as-is' resources (money and full time equivalent staff (FTE's)). The baseline then provides the foundation for an assessment of the improvement potential,

which is estimated through data-driven analyses such as external benchmarking with comparable domestic and international organizations, internal benchmarking among comparable entities within the organization, and internal bottom-up analysis.

It is paramount that the potentials for improving productivity are turned into concrete change. Thus the third phase focuses on developing initiatives to capture the potential, e.g. improved working processes; adjusted channel mix; a leaner organizational structure and optimization of external spend.

Finally, the fourth phase focuses on implementation planning, including timeline, targets, and roles and responsibilities, in order to make sure that the journey towards reaping the potentials is realistic and well-planned out.

## Exhibit 4: The spending review process

Phase and objective	Establish baseline	Estimate the improvement potential	Design initiatives to capture the potential	Implementation plan
<b>Typical end products</b>	<ul style="list-style-type: none"> <li>Overview of current resources by type, purpose and organizational unit</li> <li>Overview of performance in main strategic areas, e.g. on global index</li> </ul>	<ul style="list-style-type: none"> <li>Indicative improvement potential for each part of the baseline</li> <li>Assessment of feasibility of change</li> </ul>	<ul style="list-style-type: none"> <li>Specific initiatives designed to the organization</li> <li>Main prerequisites identified (organization, capabilities, IT, culture)</li> </ul>	<ul style="list-style-type: none"> <li>Implementation plan including process, governance, KPIs and tracking</li> </ul>
<b>Examples of main activities</b>	<ul style="list-style-type: none"> <li>Extract data from systems and time registration</li> <li>Conduct interviews and time studies</li> <li>Identify key stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>External benchmarking</li> <li>Internal benchmarking (if comparable units)</li> <li>Capacity utilization analysis</li> <li>Work process analysis</li> </ul>	<ul style="list-style-type: none"> <li>External best practice gathering</li> <li>Model design with pros and cons</li> <li>Risk analysis and mitigation planning</li> </ul>	<ul style="list-style-type: none"> <li>Develop draft plans and syndicate with budget owners and key performance stakeholders</li> <li>Set-up and staff program office</li> </ul>

Source: Struensee & Co. framework.

Experience from Scandinavia signify that spending reviews can lead to significant budget improvements and strengthening of public services through increased productivity. This is illustrated in exhibit 5 below, where the budget improvement as a percentage of the total baseline is shown based on a number of spending reviews.

Governments conducting spending reviews have typically also reaped qualitative benefits, including increased transparency in resource use and a strengthened link between activities and expenditure; efficient processes and sufficient system support as well as organizational optimization

through scale, specialization, and strengthened competence levels and quality of services.

Spending reviews in Scandinavia are most often conducted in close cooperation with relevant sectors and often with involvement from ministries or departments of finance. This ensures a high ambition level and a common government focus on improving productivity.

The following section exemplifies the potential of spending reviews through two Scandinavian core public sector cases: A spending review of universities and of a national police force.

### Exhibit 5: Spending reviews have led to significant budget and core service improvements

Sector	Budget improvement of baseline (%)	Improvement of services	CAPEX
Utility sector	23%	<ul style="list-style-type: none"> <li>• Supply quality and efficiency</li> <li>• Consumer prices</li> </ul>	✓
Police	12%	<ul style="list-style-type: none"> <li>• Investigation</li> <li>• Patrolling</li> </ul>	
Tax	10%	<ul style="list-style-type: none"> <li>• Collection</li> <li>• Examination</li> </ul>	
Infrastructure	12%	<ul style="list-style-type: none"> <li>• Maintenance</li> <li>• Construction</li> </ul>	✓
Defense	15%	<ul style="list-style-type: none"> <li>• Maintenance</li> <li>• Procurement (defense)</li> </ul>	✓
Universities	12%	<ul style="list-style-type: none"> <li>• Administration and support</li> <li>• Procurement</li> </ul>	✓
Procurement	40%	<ul style="list-style-type: none"> <li>• Management of all joint cross-government categories</li> </ul>	✓

Source: Ministries of Finance.

## Case: Spending reviews of Scandinavian universities

Universities across the globe are facing an increasingly competitive international marketplace, decreasing funding, and an expectation to provide world-class education that provides competencies relevant to the ever-changing job market. A number of Scandinavian universities have responded to this challenge by conducting spending reviews.

To effectively address these challenges it is crucial for universities to optimize their budgets and ensure that they use their resources in the most productive manner. This can be ensured by analyzing each area of cost and identifying potential savings to be used for improving the quality of education and research. It can also be done through rethinking the strategic allocation of funding.

Exhibit 6 shows the typical cost categories, cost drivers and improvement potentials, based on

experience from Scandinavia. Such analyses enable university leadership to make data-driven decisions about where to allocate funding by creating a transparent and incentive driven system for improving productivity and creating world class universities.

Several initiatives can increase the efficiency of universities. One case showed professors only spent 13% of their time for teaching and counselling students, while 87% was used on various other tasks such as administration and research. A capacity analysis in another case showed that several buildings could be used in a more effective way, ultimately reducing building operating costs by 24%.

**Exhibit 6: A spending review of a university typically targets the entire cost base through a number of levers**

Cost driver (% av. cost base)	Lever	Examples of initiatives	Typical impact
Education (~35-55%)	Reduce number of courses	"Reduce the time professors spend on non-educational activities"	15-25% saving
	Reduce costs per course		
Buildings (~10-20%)	Reduce square meters needed	"Optimise the use of capacity across different rooms during the day/year"	10-25% saving
	Reduce unit costs		
Procurement (~10-20%)	Reduce volume of purchases	"Increase compliance with central agreements and decrease volume with professionalised procurement"	10-15% saving
	Reduce unit costs		
Administration (~15-30%)	Reduce the number of admin. resources	"Reduce overlapping tasks within the university"	15-25% saving

Source: Scandinavian universities.

## Case: A spending review of a Scandinavian police force

In a situation characterized by rising expectations for handling of core tasks, a more complex and demanding crime scene and increasing economic pressure, a Scandinavian national police force embarked on a spending review in order to reprioritize resources towards a 4-year program with new strategic initiatives.

The spending review focused on four main levers, which were: Improving strategic direction, operations & productivity, organization and digitization. The review was conducted over 8 months and focused on improving e.g. time utilization for emergency response units, case management processes for investigation, citizen oriented processes as well as optimization of the police administrative organization. Thus, the spending review focused on the very core tasks of the police.

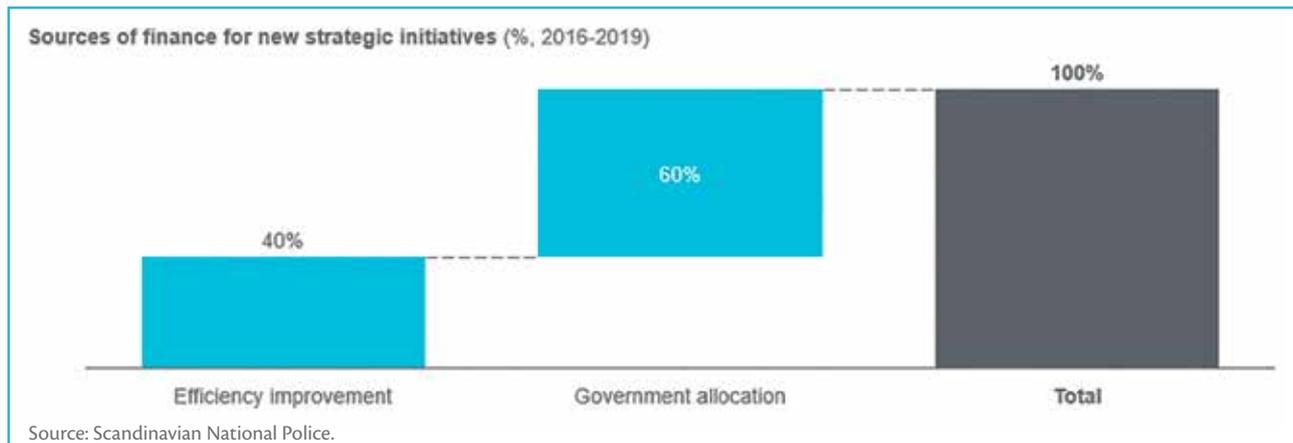
Historically, case management processes were characterized by a fragmented work structure. Each

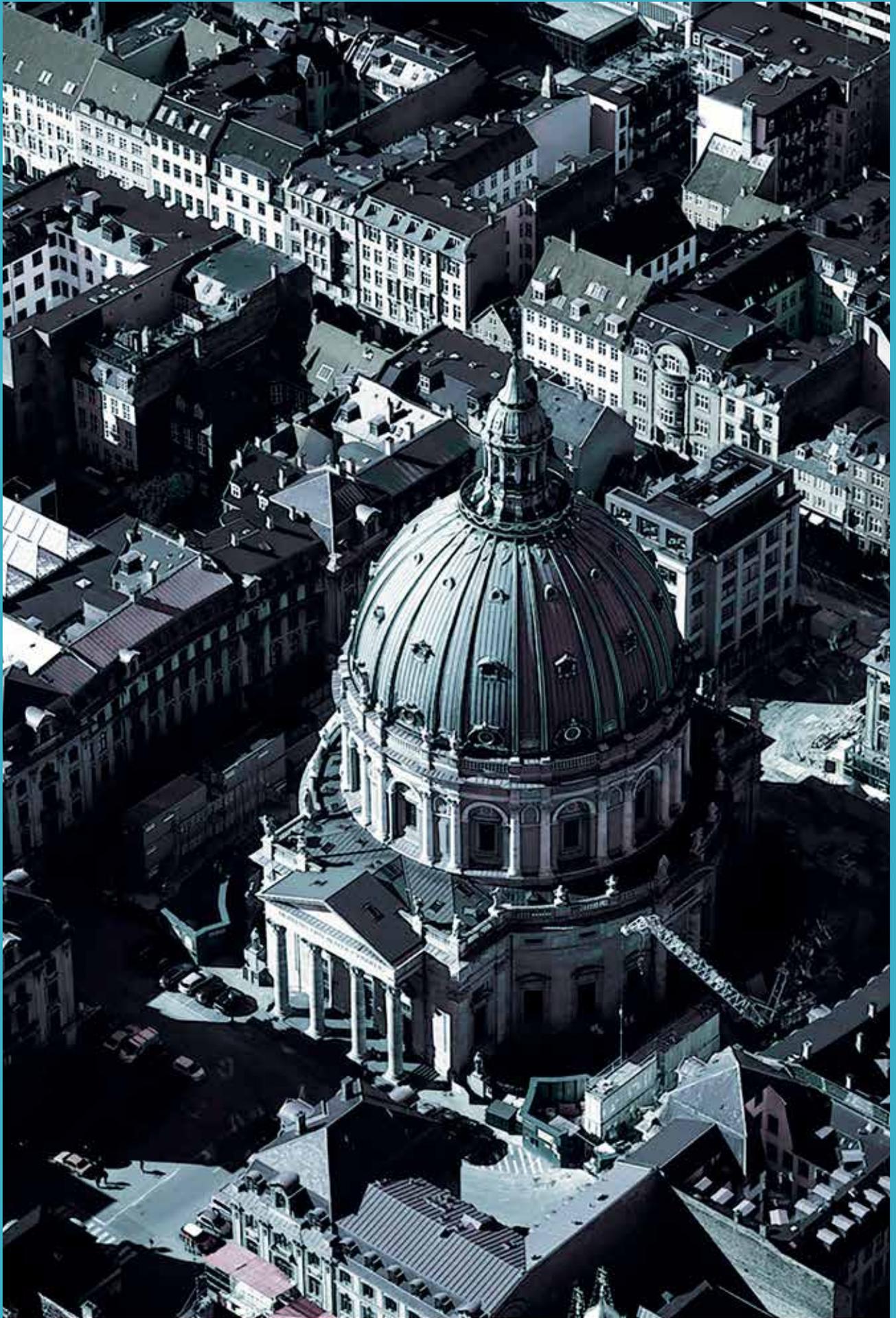
police station often had a separate case assessment system and most police officers could receive all types of cases. Through the spending review, the productivity of core processes such as investigation was increased through centralized guidelines, a new standardized process with strong visitation up-front and specialized police personnel that now handle cases relevant to their expertise. This ensures that resources and time for case solving is optimized.

In its totality, the spending review provided 40% of the needed funding to launch new strategic priorities, as illustrated in exhibit 7. This allowed the police to intensify efforts in regards to combating terrorism, improved border control, strengthening the robustness of the police force and improving education of police officers.

This case illustrates, that spending reviews can also help secure funding for strategic priorities within current levels of funding.

### Exhibit 7: Spending reviews can be used to find funding for new strategic initiatives





# SHARED SERVICE CENTERS

## A LEVER TO INCREASE PRODUCTIVITY AND QUALITY OF SUPPORT FUNCTIONS

### Introduction to shared service centers

Shared service centers entail consolidating the execution of overlapping tasks from multiple entities or physical locations in one organizational unit in order to provide a certain service in the most productive manner. It is a lever for increased productivity that mainly targets compensation of employees, which make up an average of 20-25% of government expenditure in the OECD countries.

Across countries, shared service centers handle supporting operational tasks such as IT, HR, finance, purchasing and facility management. In Scandinavia it is a strong trend seen both at the sectoral level, e.g. within police and defense, but also at the state-wide level, e.g. within the field of digitization. This has served as a lever to increase productivity through economies of scale and standardization while also presenting an opportunity to invest in more specialized competencies.

The establishment of service centers is usually approached by first mapping the tasks and resource use across entities. This process sheds light upon the productivity of existing units and the potential for economies of scale. Secondly, the economic implications of centralization of tasks is estimated, including the necessary investments such as IT and competence development.

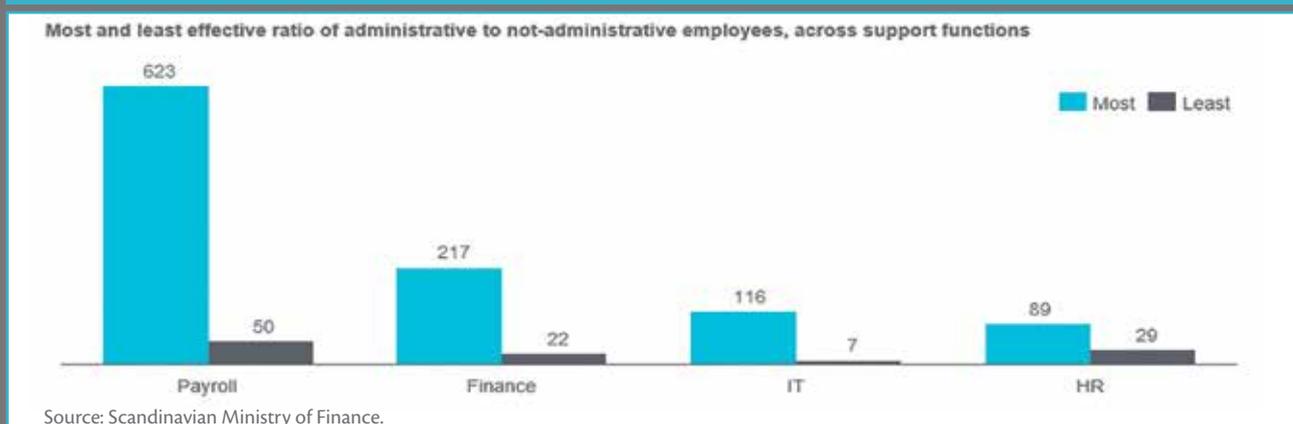
### Case: Establishment of state-wide administrative service centers

By establishing shared service centers governments can leverage economies of scale. In other words, as the number of transactions or the service volume increase, organizations can reach a minimal cost per transaction.

The potential for establishing state-wide administrative service centers in one Scandinavian country context was illustrated by the fact that large ministries were markedly more productive than smaller ministries. This is illustrated in exhibit 8, which shows the ratio of administrative to non-administrative employees in the most and least productive ministries. This means, for example, that in the ministry with the most productive use of finance resources each administrative employee assisted 217 non-administrative colleagues, while this number was only 22 in the least productive ministry.

Based on these insights, the government established large shared service agencies in order to reap the potential for increased productivity. New administrative shared service centers today cover areas such as digitization, administration, IT, procurement, payroll, pensions and staff policy.

### Exhibit 8: The most productive ministries



## Case: Establishing shared service center for payroll and accounts

One of the areas where differences in productivity have led to the establishment of shared service centers is payroll and accounts. As a first step a shared service center was established in 2008 as part of a broader agency for financial services. Later in 2011, the responsibility for payroll, financial management and accounts for government bodies were collected in a separate shared service center.

Exhibit 9 illustrates the effects of the establishment of the shared service center both in terms of human resources and productivity. It has led to a reduction of employees of more than 50% while the productivity per employee has increased by more than 180% percent. This significant result required investments primarily in IT, while it also entailed one-time costs associated with changes in staff. However, by 2011 the business case for the establishment of the shared service center was fulfilled.

As illustrated by this case, governments can increase productivity by leveraging economies of scale. This

holds the promise of freeing up resources that can be reprioritized towards core services. While economies of scale is the main explanatory factor for establishing shared service centers, there is also a possibility for standardizing processes and implementing best practice across the public sector. Finally, consolidation of administrative employees in larger units opens up for strengthening professional competencies, as employees can be more specialized.

Exhibit 9: Productivity has increased drastically for payroll administration



# IMPROVING CORE SERVICES

## TIME ANALYSIS AS A LEVER TO IMPROVE PRODUCTIVITY OF CORE SERVICES

### Introduction to time analysis

The labor input in the production function of public services constitute 20-25% of total government expenditure in the OECD countries. It is thus a pivotal task for government to ensure that human resources are used in the most productive manner.

Productivity can be measured differently across various functions, but the focus is always on the core service. For a teacher, productive time is time spent with students. For a train driver it means spending time on the tracks driving the train. The amount of time spent on various other tasks such as administration, internal coordination, etc. should therefore be limited to the absolute necessary, but should not be completely neglected as support functions are often prerequisites for successfully conducting core services.

In order to increase the time spent on the core services, the first task for government is to ensure

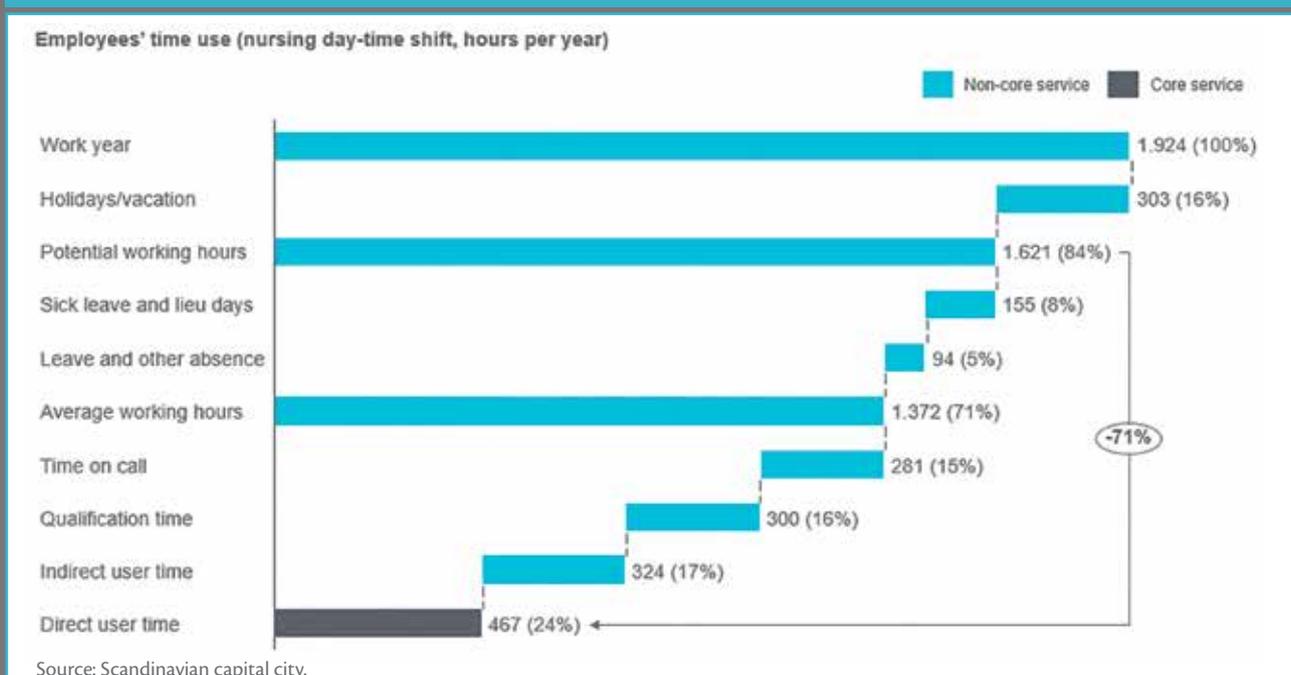
transparency about current time use. Experience from Scandinavia suggests that the majority of time is often not spent on core services.

### Case: Time use in nursing services

In order to reverse this trend, it is typically necessary to analyze the amount of time spent on various tasks. Exhibit 10 is an example of such analysis in the case of municipal nursing services. It shows that only 24% of nurses' time is spent directly with users. Such insights is a prerequisite for investigating how time can be spent in a more productive manner.

Time analysis moreover often reinvigorates the overall strategic direction of the organization and enables management to determine if processes can be improved, if the organization is optimally structured and if there are possibilities for increased digitization. This is illustrated by the following case.

Exhibit 10: Only ~25% of employees' time was spent on core services in nursing



## Case: Analysis of time use as a lever to identify best practice in investigation

Time analysis is not only a question of *what* time is spent on, but also on *how* it is spent. In the case of a Scandinavian national police force, an analysis of time use was a first step towards identifying best practice among police districts on how they spent their time, meaning how productive they were when conducting certain tasks, and how that affected the quality of the tasks that were executed.

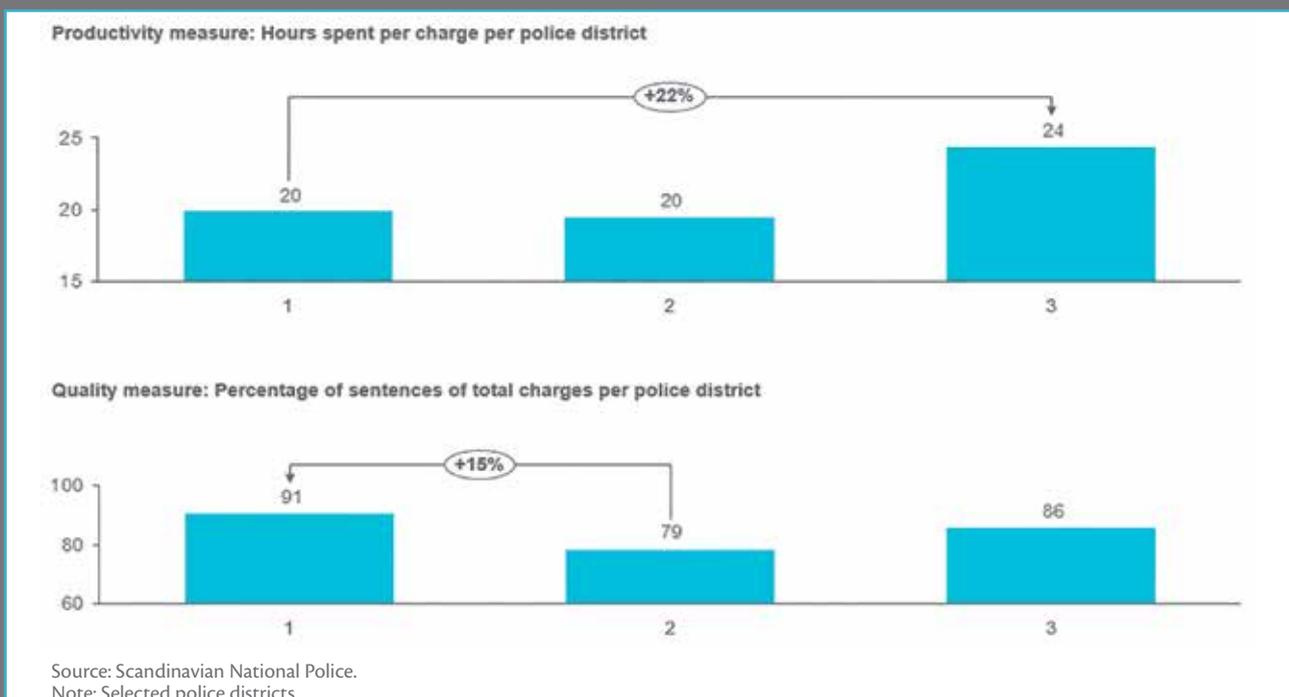
As shown in exhibit 11, the analysis showed that when focusing on productivity, police districts 1 and 2 were performing equally well, while district 3 spent more than 20% additional resources per charge, as measured in hours. The productivity measure did, however, not shed light upon the quality of the work of the police districts. Therefore, a quality measure was established. This focused on how large a percentage of charges resulted in sentencing. This study showed that while district 1 and 2 were performing equally well in productivity, district 1 was ahead by 15% on the quality measure.

This opened up for a discussion on which practices were more or less productive between districts. By combining productivity and quality measures, the analysis showed where to look closer for identifying best practices.

Further analyses compared investigation practices between districts and in combination with international best-practice gathering, a new model was developed which incorporated internal best practices from departments in the country with internationally known best-practice examples. This investigation approach is now rolled out throughout police districts across the country.

Thus, time use analysis is often a first step toward ensuring that more time is spent on core services, but is also a tool to identify best practices to improve productivity and quality.

Exhibit 11: Productivity needs to be seen in conjunction with quality



# DECREASING PROCUREMENT SPENDING

## WHILE MAINTAINING OR INCREASING QUALITY AND QUANTITY

### Introduction to optimization of procurement

Procurement analysis is a way of optimizing the external input in an organization. The input can consist of operational expenditure, such as goods and services or capital expenditure such as acquiring new buildings or equipment. This typically consist of up to 15-25% of the total spend of a country, and is therefore an important focus of analysis.

Normally, the first step of a procurement project is establishing the baseline – how much is spent on acquiring goods, services and capital expenditure? This is often harder than it seems, as data can be scattered over a number of organizations and recorded with different practices, but building a solid baseline is key for a successful diagnostic.

Step two is bundling the spend in different categories. The basic split is normally in operational and capital expenditure with further categorization in e.g. functional splits leading to increasing detail.

Step three includes finding out how to decrease the spend in each category. There are multiple ways of finding savings in procurement. This can e.g. be to acquire the same or a different equivalent product cheaper, but it can also be to control the demand, leading to lower procured volumes or de-specifying products, allowing purchasing standard products.

Savings can also stem from increasing compliance in organizations, so employees use the negotiated contracts to the greatest extent. Further, in large capital expenditure projects, it is always beneficial to examine the total cost of ownership. This approach includes maintenance and projected operational expenses along with investment costs.

As the following case will show, these conventional procurement steps must be seen in relation to an organization's strategy, organization and core processes to ensure impact.

### Case: Procurement project for a national broadcasting agency

A Scandinavian national broadcasting agency is a good example of how a procurement project can be seen as an integral part of improving the performance of an organization.

The broadcaster was facing budget cuts and was looking for a way to decrease the budget without compromising the quantity or quality of the programs. As shown in exhibit 12, an analysis of the normal process for TV-program procurement showed that productions were normally started before contracts were signed. This put the broadcaster in a difficult

situation to negotiate program prices, as a slot for broadcasting the show normally had been decided upon before the contract was negotiated.

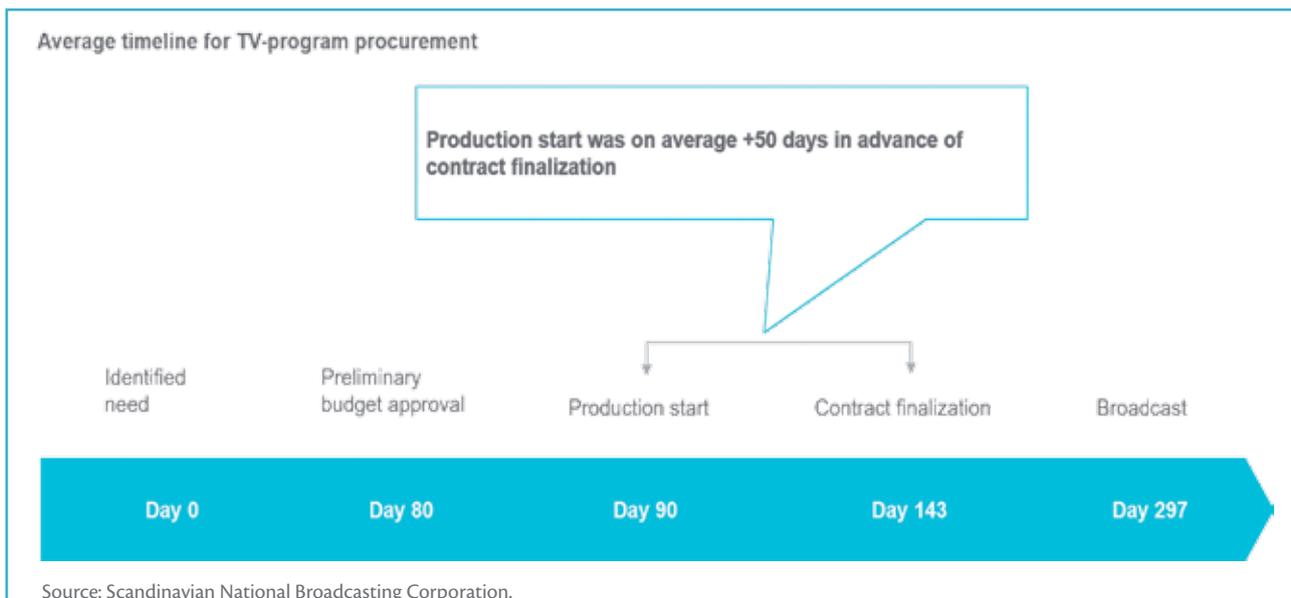
Further analyses showed that the creative editors had the main responsibility for the entire process of producing a TV-program, including price negotiations. As their interest lay in creating extraordinary entertainment, there was a low focus on improving prices.

Finally, there was a de-coupling between the creative staff who decided upon the content in the shows and had the final decision power, and the employees who were experts in improving commercial terms and the legal department responsible for legal terms.

Based on the analysis, the broadcaster restructured the process and organization around acquiring TV-programs to balance the focus between quality and price. This development led to a new strategy for procuring TV-programs, which linked quality measures, such as number of viewers, to the available budget. It also led to a process and organization with an increased focus on balancing decision-power between creative employees and employees focused on commercial and legal terms.

The focus on combining conventional procurement tools with a holistic approach to the organization led to savings of ~20% without decreasing quantity or quality of the programs.

## Exhibit 12: The process for procuring TV-shows led to a weak standpoint for negotiation



# PUBLIC INVESTMENT MANAGEMENT

## A LEVER TO OPTIMIZE CAPITAL EXPENDITURE

### Introduction to public investment management

Public investments make up between 5-10% of total government expenditure in the OECD countries. This calls for a strong mechanism for prioritizing among projects and delivering projects with minimum time and budget overrun.

Scandinavian countries address cost control from a project's initial stages to the final stages of the project, when the real cost of the project is recorded. This approach is based on the basic premise that it is most effective to control government expenditures at the "upstream" point of budget preparation in addition to during the execution of a project.

The public investment management approach is a general approach widely used with minor adaptations throughout Scandinavia. It is structured and adapted

through 5 phases, from a definition phase to completion of the project (see exhibit 13). The main aim is to control the development in expected capital expenditures and time used for project execution from a project's initial stages, where the project is considered and launched over the intermediate stages leading to the real cost recorded by the project's completion – the process also includes external quality assurance. The approach is based on a definition phase which serves as a benchmark as the project develops through stages. It also provides a funding structure with risk reserves and governance mechanisms for releasing these if need be.

#### 1) Definition phase:

The definition phase aims to provide a basis for assessing whether a project is relevant and profitable to proceed with by calculating investment costs

### Exhibit 13: Phases of the public investment management approach



and comparing it to user benefits, external effects, operating expenditure, projected revenue etc.

*2) Further examination:*

If it is decided that the project is attractive, the program phase starts.

Here, further examinations establish a basis for a political decision on whether the project should be launched or not. Further, the budget is split in accessible funds and funds which can only be used with a special permission.

*3) Design phase:*

This phase focuses on detailed projections, including more thorough risk assessment and part specifications than in previous phases. This is used for the tendering process. The phase also includes several iterations of input from possible suppliers, in a collaborative manner, on the most beneficial specifications. The input leads to concrete negotiations and closing of contracts.

*4) Execution phase:*

While the project is executed, there are bi-annual meetings with the official political system to ensure time and budget management and assess whether time and budget plans should be adapted.

*5) Completion phase:*

The central task in the completion phase is a final review of cost and time management, including

lessons learned and updating the central database with information on all large scale infrastructure projects.

## Case: Achieving cost reductions and timely delivery of a multibillion railway project

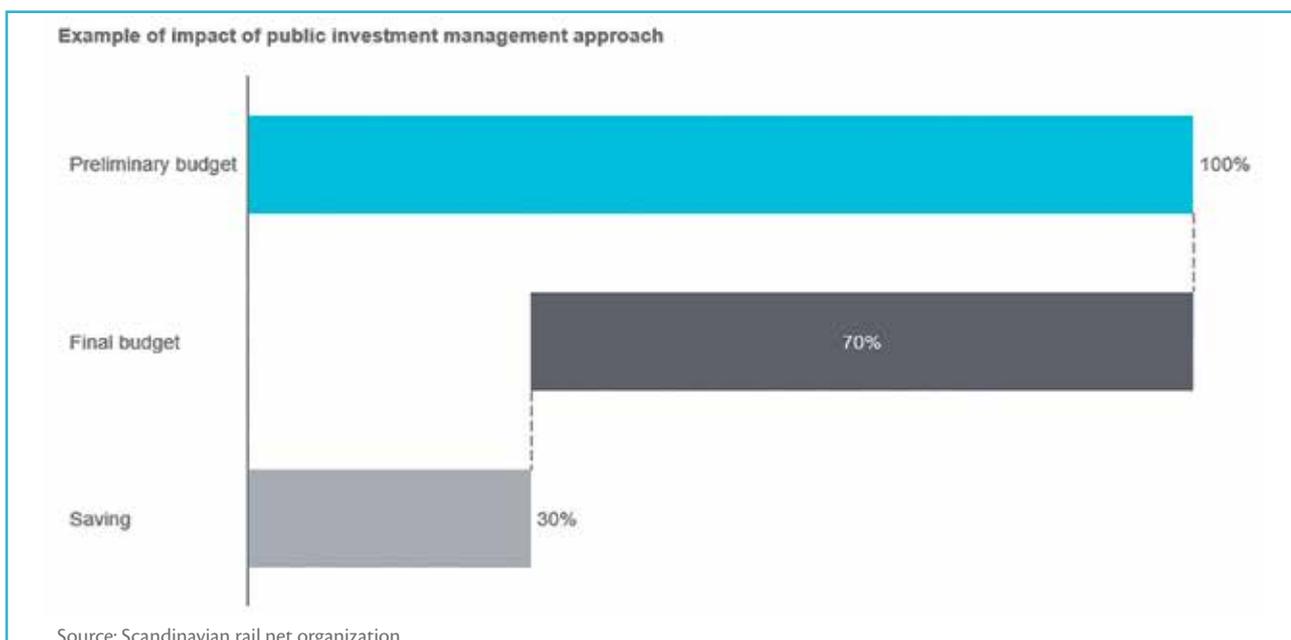
A rail net organization was facing a challenge of making exact predictions of planning and budgeting in a project characterized by great uncertainty due to its size, the geographic conditions and a multitude of stakeholders.

The public investment approach improved the background for decision making through detailed planning and risk overview involving input from all stakeholders, including suppliers.

Further, the approach developed a tighter cooperation between stakeholders through a shared understanding of mutual responsibility and a flexible competitive tendering process which decreased the administrative burden and risk for both government stakeholders as well as private contractors and suppliers.

The high level of predictability of project costs and best-in-class risk predictions and forecasting nested in the public investment approach led to expected cost reductions, compared to the preliminary budget, of ~30%, as illustrated in exhibit 14.

Exhibit 14: The approach resulted in cost reductions



# CAPACITY UTILIZATION ANALYSIS

## A LEVER TO INCREASE UTILITY OF PUBLIC SECTOR ASSETS

### Introduction to capacity utilization

Capital expenditure makes up 5-10% of total government expenditure in the OECD countries. As governments stretch to make ends meet the extent to which it makes good use of its installed productive capacity becomes of increasing importance.

Experience from Scandinavia suggests that the productive use of capital assets in the public sector often only spans 15–50% of total available capacity. It leaves a great potential for governments to optimize the use of existing capacity without further investments.

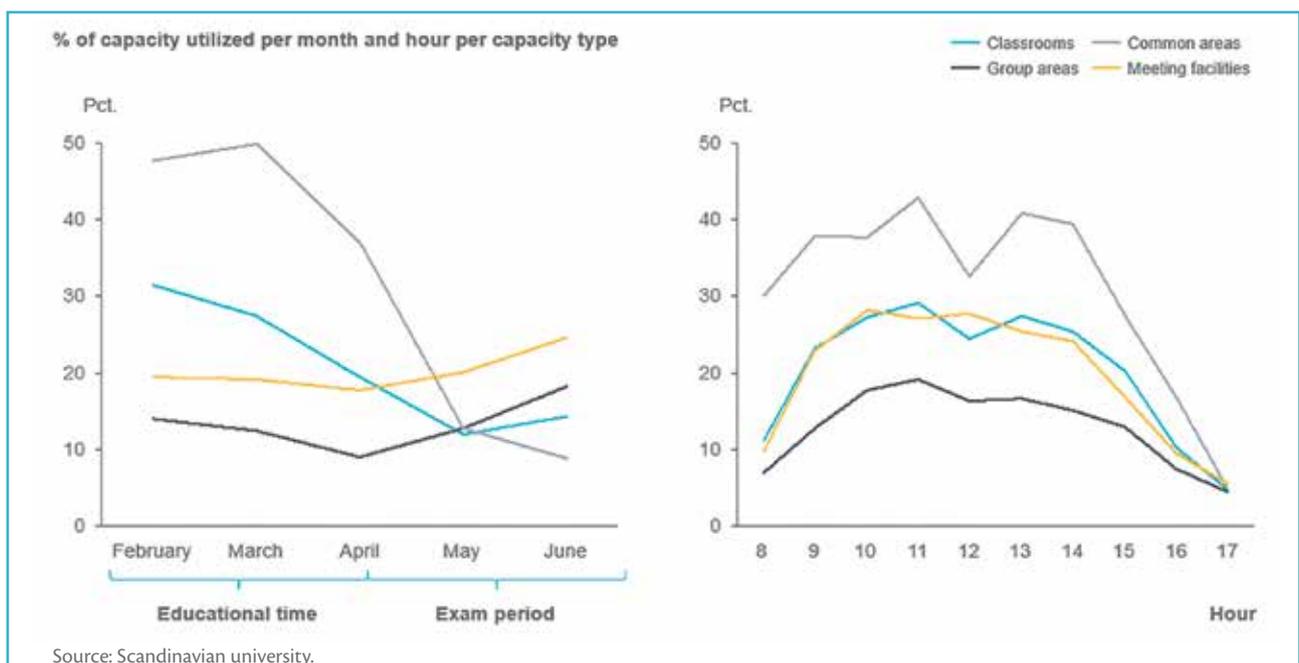
Analyses of asset utilization typically show utilization rates over each day, week, and year.

There are three main levers to improving capacity utilization: 1) Removing excess capacity; 2) increasing active operational hours of existing capacity; and 3) re-designing processes around assets to use the capacity in a more productive manner. In the following, each lever will briefly be introduced, followed by a practical example.

### 1) Removing excess capacity

When analyzing public sector assets, it often turns out that, even at peak times, the assets are not used to the full extent. This is illustrated in the case of a university in exhibit 15. In this case, the analysis resulted in a decision from the university management to sell off several buildings, which decreased the university's capital expenditure by 24%.

Exhibit 15: Capacity utilization at a Scandinavian university



## 2) Increasing active operational hours of existing capacity

In certain cases, the problem is more complex. In many cases there is overutilization in peak periods, and underutilization in non-peak periods. This could be the case in a national broadcasting agency, which uses the studios to produce TV. Here the capacity utilization tends to be high during normal working hours outside of holidays, while decreasing drastically during the summer and in the evenings. Such cases call for initiatives to even out the utilization rate.

One initiative could be to introduce rolling planning and production of programs throughout the year, thereby also using holiday seasons for production. Another initiative could be to increase available capacity by extending opening hours of studios, e.g. from 8:00-15:00 in weekdays to 6:00-24:00 seven days a week. In such cases, a cost-benefit analysis must be conducted to show the trade-off between increased costs associated with higher capacity utilization and the productivity gain.

## 3) Re-designing processes around assets

Even other cases call for more creative solutions. In one case, the health sector in a Scandinavian country

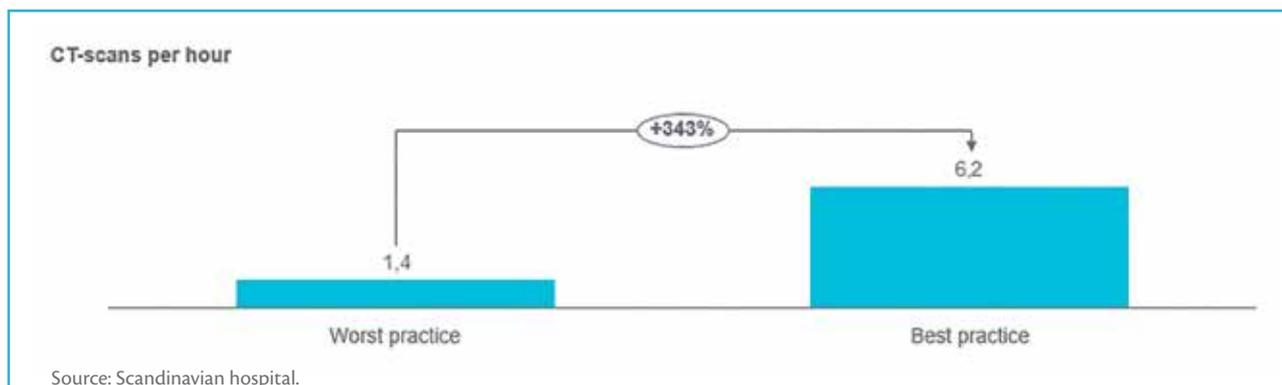
was challenged by an inadequate number of CT-scanners and it was considered to invest in costly new equipment.

A capacity utilization analysis showed that extending the working hours of the personell operating the scanners would be insufficient to cover the demand.

In this case, the solution was to increase the number of scans per hour. This involved redesigning the process around the actual scan. It entailed that the patient would only be in the room with the scanner for the shortest amount of time possible. This e.g. meant designing facilities for changing clothes, and a separate room for the doctor to examine the results and talk to the patient. The changes led to an increase in capacity utilization of more than 300%, as illustrated in exhibit 16. Based on the new process there was no longer a need to invest in more scanners.

As these cases show, the improvement of utilization rates of public sector assets is thus context specific, starting from eliminating overcapacity to expanding existing capacity through a range of different levers. This typically leads to increased productivity, frees up capital from fixed assets and can decrease maintenance costs - ultimately releasing capital to be invested in quality.

Exhibit 16: Capacity utilization can be increased through re-designing processes



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